
UNIT-I INTRODUCTION TO PSYCHOLOGY

Introduction to Psychology

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1.1 INTRODUCTION

In this unit, we are going to define Psychology and Educational Psychology. We are also going to discuss the nature, scope and importance of Educational Psychology and its significance to classroom teacher. At the end of this unit, we are also going to discuss the schools, branches and methods of Psychology.

1.2 OBJECTIVES

After studying this unit, you will be able to:

- Define Psychology, Education and Educational Psychology.
- Describe the relationship between Psychology and Education.
- Understand Educational Psychology as Applied Psychology.
- Explain the nature, scope and importance of Educational Psychology.
- Describe significance of Educational Psychology to classroom teacher.
- Discuss schools and methods of Psychology.

1.3 PSYCHOLOGY

Definition of Psychology

Etymologically the word Psychology means the study of soul on account of its derivation from the two Greek words - Psyche (soul) and logos (science of or study of). What is soul? How can it be studied? The inability to answer such questions leads some ancient Greek philosophers to define Psychology as a 'study of mind'. Although the word mind was less mysterious and vague than soul, it also faced the same question such as : What is mind? How can it be studied? etc and consequently this definition was also rejected. **William James** defined Psychology the term soul and mind persuaded the Philosophers and Psychologists as the description and explanation of state of consciousness as such. By consciousness, the Psychologist meant awareness of wakefulness. There were several interpretations of consciousness and this concept was rejected. The latest and modern concept of Psychology is in terms of behaviour. **J.B. Weston** defined Psychology as the 'Science of Behaviour.' **McDougal** defines Psychology is a science which aims to give us better understanding and control of the behaviour of the organism as a whole. The above account of the definitions regarding the subject Psychology clearly reveals that the meaning and concept of this subject has frequently changed its shape based on its dependence upon philosophical or scientific thinking. Commenting over this aspect Woodworth says, "First Psychology lost its soul, then its mind, then it lost its consciousness. It

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still has behaviour of sort”. Although even at this final stage, there seems to be no agreement over a universal definition of Psychology, yet the definitions may be generally viewed in the light of behaviour. It may then be concluded that Psychology is a science of behaviour or a scientific study of behavioural activities and experiences. Psychologists define Psychology in various ways. The nature of Psychology is understood from the following definitions:

- **Crow and Crow** - ‘Psychology is the study of human behaviour and human relationships’.
- **Dewey** – ‘Psychology is the science of the facts or phenomena of self’.
- **Feldman** – ‘Psychology is the scientific study of behaviour and mental process’.
- **Koffka** – ‘Psychology is the scientific study of behaviour of living creatures in their contact with the outer world’.
- **McDougal** – ‘Psychology is the science which aims to give us better understanding and control of the behaviour and experience’.
- **Skinner** - ‘Psychology is the science of behaviour and experience’.
- **Woodworth** - ‘Psychology undertakes to make a scientific study of the individual considered as a unit as he really is in his dealings with other individuals and with the word’.

1.1.1 Relationship between Psychology and Education

Education and Psychology are related intimately. Education deals with modification of behaviour and Psychology studies the behaviour as it grows and evolves. You cannot modify the behaviour without studying the behaviour and its peculiarities. As such both are inter-related and dependent. At many places Psychology leads the process of dependent. It tells:

- About needs and aspiration of child and hence which is the best curriculum for the child?
- What are the methods to be adopted to motivate and teach?
- How best is to carry on the process of Education?

Psychology thus is a great boon to education and it is because of the contribution of Psychology that education has leaved to be a rigid process as it used to be in good old days. It is dynamic process and saying of Pestalozzi ‘Psychologist education’ tells us that both are intimately related.

1.3.3. Development of Psychology

Till 19th century, Psychology was studied only as a branch of philosophy. When we look at the original meaning of the word

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psychology this will become clear. The word Psychology comes from the two Greek words, 'Psyche'(soul) and 'Logus' (science). So, the root meaning of the word Psychology is that it is a science of soul. This is the traditional approach to the study of psychology. Traditional psychologists attempted to study the location of the soul. Its nature and its state are after the death of the individual. When we are not sure about the location of the soul, attempting to investigate its nature is impossible. So, the definition of psychology as the study of soul was given up. Then it was defined as a science of mind. Mind functions in three domains viz. Cognitive (thinking), Affective (feeling) and Conative (willing). A mental act is different from a physical act. If a piece of iron is placed near a magnet, the iron moves towards magnet. This is a physical and no thinking, feeling or willing is involved on the part of iron or magnet. But on the contrary, when we place a dish of milk before a cat, the cat moves towards the milk and drink it. This is a mental act because the cat driven by hunger motive, knowing (thinking) the white liquid is milk, which it likes (feeling part) to drink, it actually moves (willing part) towards the milk. Thus, every human act or behaviour emanates from an internal motive, as the British psychologist McDougal puts it.

According to **William McDougall**, who propounded the '**Hormic School of Psychology**' (Purposivism), every response of man is due to a purpose or inner motive called 'instinct'. McDougall criticized behaviourism. He stated that response occurs, not always due to the occurrence of a stimulus. It is not necessary that we feel the desire to eat when we look at sweets. Desire to eat depends upon the hunger motive. Different motives result in different responses. According to McDougall, it is the instinct that motivates human behaviour. He further believes that an emotion is present in any instinctive activity. Each instinct associated with some emotions otherwise known as '**sentiments**' become the centre of all activities. Without them no activity is possible. Though all of us have similar instincts, they get modified according to one's environment. Our behaviour depends upon the modification of the instincts or our sentiments. In other words, sentiments are the motives of our behaviour and these sentiments may be analyzed into instincts and emotions. The instincts and emotions are the bases of human behaviour according to Hormic Psychology.

Titchner, who developed, the theory of '**Structuralism**' believed that mind is the basis of all human actions. According to him, there are three states of mind- Cognitive, Affective and Conative. The mind was regarded as consciousness and the ultimate elements of it are sensation, feelings and images. The nature and structure of consciousness can be studied through **introspection**. To introspect means to look within. **Psychology** thus came **to be defined as a science of consciousness**.

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Behaviour psychologists like **J.B. Watson** of U.S.A and others questioned the validity of introspection and said that psychology should be an objective science. They bitterly criticized introspection as unreliable. They defined psychology as a science of behaviour. They tried to define behaviour in terms of stimulus and response, popularity known as S-R formula. For every stimulus, there is a response. The response to stimulus is behaviour. If you are pricked with a pin, there is a jerk of the body. 'Pricking' is the stimulus and the 'jerk' is the response or behaviour. A simple behaviour consists of the basic unit of behaviour i.e S.R. Any complex behaviour can be analyzed in terms of S-R units obtained sequentially. For behaviourists, **environment** is the determinant of one's response or behaviour and heredity has no influence what so ever. They also deny McDougall's theory of instincts. **Bernard**, the behaviourist states that we do not allow our instincts like fear, sex, acquisition, affiliation etc. to operate as they are; but we modify them in the midst of our social environment. Behaviourists also deny any role for mind in determining our behaviour. They argue that we talk because of the movement of our tongue and not because of thinking of functioning of the mind.

As a revolt against behaviourism and structuralism, **Gestalt school of psychology** is emerged in 1912. Gestalists advocated that everything should be viewed as a whole and studied in its totality. The researches of Werthemer, **Kohler and Koffka** contributed a lot to the development of this school. The German word '**Gestalt**' refers to '**configuration**', '**whole**' or '**totality**'. We generally perceive the whole and not its parts. The 'whole' is not the addition of the parts but something more than that. When we purchase a bicycle, we only perceive it as a whole cycle and not as spokes, wheel, saddle, chain, mudguard etc. Sometimes, we fail to notice even some missing parts like bell or lock. So, according to Gestalists, **perception is unified and learning is nothing but reorganization of the field of perception**. Their main areas of investigation are perception and learning. To perceive an object or event, apart from our sensation of the object or event, our previous experiences about them are also called into play. Things are perceived in the canvas of our background experience. Gestalists advocate that human behaviour is based on one's perception and perception is influenced by our past experiences stored in our mind. For them, behaviour is physical as well as mental or cognitive. A particular stimulus does not elicit the same response from every one. People express different responses as per their previous experiences.

Then came the Viennese physician **Sigmund Freud** (1856-1939). On the scene with a bang proclaiming the school of psychology called '**Psycho-analysis**'. While structuralism gave emphasis for the conscious mind, psycho-analysis emphasized the role of unconscious mind in the actions of individuals. Since psycho-analysis goes deep into

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the subterranean level of the mind, this is also known as **depth psychology**. The other schools of psychology deal only with surface activities. But, psycho- analysis develops deep into the roots and springs of human behaviour. The unconscious mind is the seat of repressed tendencies and desires, not approved by the society. Sex plays an important role. According to Freud in the drama of human existence, sex is the villain of the peace. Freud holds that early childhood experiences determine the development of personality. He speaks of human personality made up of three major systems- **Id** (operating at unconscious level), **Ego** (operating at conscious and sub-conscious levels) and **Super Ego** (operating at conscious level).

Freud's disciples **Adler** and **Carl Jung** broke away from him and founded their own schools of psychology viz., **Individual Psychology** and **Analytical Psychology** respectively. Unlike Freud, Jung stresses past experiences of the individual. He thinks religion has a lot of therapeutic value. According to Adler, birth order of an individual in the family has much influence in determining one's way of life.

Piaget's Cognitive psychology, Humanistic psychology of **Carl Rogers, Maslow** and others have also significantly contributed to the growth of psychology and made it attain today the status of positive behavioural science. As a pure science, psychology is concerned with systematic study of behaviour and verification through experimentation. We can bring psychology under the category of 'Bio-Social Science'. The components of behaviour are:

- i. The conscious experiences of which the organism is aware of, like that of being hungry or having pain when injured etc. and
- ii. The unconscious process: (eg) without any specific reason we get irritated with some people, become friendly with others etc.

To attain this significant status, many had contributed to the growth of psychology, of whom the following are notable.

1. E.H.Weber: Forerunner for conducting psychology experiments: examined the methods of measuring sensory experiences based on which formed the Weber's Law.
2. G.T.Fechner (1860): Published his book Elements of Psycho-Physics which investigated problems in sensation and perception.
3. Wilhelm Wundt (1879). He is called as Father of Psychology. He established the first psychology laboratory at 'Leipzig' in Germany. He investigated on attention, reaction time, memory association, emotions etc. He established the method of introspection as a technique of data collection. He is the founder of structuralist school of psychology.

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4. Sir Francis Galton (1822-1911): Studied individual differences using statistical techniques (use of correlation coefficients).
5. Ivan Pavlov (1849-1936): Studied conditioned reflexes.
6. E.L. Thorndike (1874-1947): Formed the Trial and Error theory of learning and laws of learning: advocated the Multifactor theory of intelligence.
7. J.M. Cattell (1860-1944): Developed quantitative methods in psychology: was a assistant to Wundt established his psychology laboratory at Columbia in America.
8. E.B. Titchner (1867-1929): Represented structural school in America.
9. G. Stanley Hall (1846-1924): Wundt’s famous American student: began systematic study in child psychology in the U.S.
10. Mesmer: Clinical - Psychological methods.
11. Jean Piaget: Theory of cognitive development in children.
12. Sigmund Freud (1856-1939): Founding father of psychoanalysis and known as **father of modern psychology**.
13. Alfred Binet (1905): Developed the concept of mental age; constructed the first intelligence test.
14. B.F.Skinner: Operant conditioning in learning.
15. Weschler: Developed Adult Intelligence Scale.

Check your progress

- Notes:** a) Write your answer in the space given below.
 b) Compare your answer with the one given at the end of the unit.

1. Define Psychology.

2. What is the relationship between Psychology and Education?

1.4. SCHOOLS OF PSYCHOLOGY

Psychology has developed in the form of different schools. These different schools may study the mental life of man, by their techniques. Three of the important schools of Psychology are discussed in this section. They are:

- Behavioural School of Psychology
- Cognitive School of Psychology
- Psycho Analytical School of Psychology.

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These schools try to study the human mind on the basis of certain principles. These principles were based on the understanding of the protagonists' and advocates of the schools. Though no school can be called complete but it also cannot be denied that it made a very valuable contribution to the history and development of psychology.

1.4.1. Behavioural Psychology

Behavioural school of psychology originated with the psychologist **John B. Watson**. He concluded that the whole idea of consciousness is absurd. Consciousness cannot be proved by any scientific test, for consciousness cannot be seen, touched or exhibited in a test tube. Even if it exists it cannot be studied scientifically, because it is subjected only to private inspection. Therefore, if we intend to make psychology a science of behaviour we should concentrate only on the observable and measurable behaviour. The theory of behaviourism as propagated by Watson was in fact based on the findings of the Russian psychologist Ivan Pavlov. In his classical conditioning experiment, Pavlov conditioned a dog to salivate at the sound of a bell by substituting that sound for the sight and smell of meat. He concluded that all behaviour is a response to some stimulus in the environment. Watson tried to apply this approach in the field of human behaviour. Behaviourism, in this way, tries to project human beings as little more than a rather complex machine which response in a particular set function to a particular kind of stimulation. Behaviour of an individual may, thus be supposed to be controlled by environmental forces by the hereditary endowments or innate differences.

1.4.2. Cognitive Psychology

The main theme of this new school is cognitive revolution. This contrasts with behaviourism. By referring to it as it as the black box theory, it is implied that behaviourists are concerned with the output or response (R) of the organism in a certain situation and sometimes they are concerned with the input or stimulus (S) but do not consider what transpires between the stimulus and response. This unexplored element is represented by a 'black box' which intervenes between S and R. Cognitive school of Psychology deals with man's thinking, memory, language, development, perception, imagery and other mental processes. Also it deals with the higher human mental functions like insight, creativity and problem solving. Cognitive psychologists are totally opposed to the stimulus response approach of the behaviourists. They maintain that there is more to learning and behaving than just single responses to stimulus. The human mind does not accept an information from its environment in exactly the form and style that it is conveyed to him. The conveyed information is compared with the information already stored in the mind. Then, it is analyzed and often

enlarged upon and given a quite new form. Finally, it is interpreted and then used or stored according to the need of the time.

Cognitive psychology thus presents the system's view point to explain the behavioural mechanism. In this system, whatever is conveyed through stimuli in the environment is the input. The cognitive functioning of the human mind is the 'process' and the result of the cognitive functioning is the 'output'. Tolman has made notable contributions in the field of learning, thinking and creative functioning. While explaining the problem solving behaviour of the higher organisms, he stated that the organism tries to set up mental hypotheses through purposeful behaviour. Piaget has shown keen interest on the study of development of cognitive abilities and operation of cognitive processes in children. He has outlined a definite pattern and stages of development of cognitive abilities depending upon the biological readiness of the children.

1.4.3. Psychoanalytic Psychology

Psychoanalytic psychology was the brain-child of Sigmund Freud. This movement put forward views quite contrary to structuralism, functionalism, behaviourism for explaining human behaviour. Freud presented a new dimension in the field of psychology. The influence of psychoanalysis in terms of the totality of human behaviour including the conscious, subconscious and unconscious behaviour, structure of the psyche, the concept of repression, catharsis in the form of revealing the unconscious, the psychosexual development and giving sex its rightful place in the realm of human behaviour, will always remain praise worthy and memorable.

Later, an association for the development of psychoanalysis was formed. The personalities associated with this school became famous either by virtue of their efforts in advocating Freud's point of view or because of the establishment of their own psychoanalytic systems based upon their own views. Two systems, namely, individual's psychology established by Alfred Adler and analytical psychology, established by Carl Jung are note worthy. In these systems, an effort was made to provide some general urge as a substitute for sex which was given excessive importance by Freud. Adler provided a substitute in the form of the self-assertion or the power-seeking motive and laid emphasis on the individuality of the subject by advocating the proposition of the life-style. Jung replaced the sex urge with the more comprehensive term 'libido' or the 'life urge'.

Check your progress

- Notes:** a) Write your answer in the space given below
 b) Compare your answer with the one given at the end of the unit.

3. Describe psychoanalytic Psychology.

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1.5. METHODS OF PSYCHOLOGY

Educational Psychology employs various methods to improve teaching-learning process in the classroom. It uses methods to gather facts about the nature of children and how they learn. It employs methods to know how they develop. It employ methods to know how child's personalities like learning, social adjustment, or skill grows from the elementary stage to a complex one. It studies how a group of children passes through the several stages of growth and development. As Educational Psychology is an applied branch of general psychology, it makes use of methods of general psychology. Some of the most commonly used methods of psychology or educational psychology are:

- Introspection method
- Observation method
- Interview method
- Experimental method
- Case-study method
- Differential method

1.5.1. Introspection Method

Introspection is composed of two words 'intro' and 'aspection'. 'Intro' means 'within or 'inward' and 'aspection' means 'looking'. Hence, it implies self-observation or looking 'within' or looking 'inward' to experience one's own mental state. It is a process for examine one's own mental process of thought, feeling and motives. An individual looks within, observes, analyses and reports his own feelings. Let us explain this process with the help of an example. Suppose, you are happy and in this state of happiness you look within yourself. It is said that you are introspecting your own mental feelings and examining what is going on in your mental process in the state of happiness. Similarly, you may introspect in state of anger or fear etc. Introspection is also defined as the notice which the mind takes of itself. Introspection is the oldest method which was formerly used by philosophers. This method was developed by structuralists in psychology who defined psychology as the study of conscious experience of the individual.

Merits of the method of Introspection

- It is the most economical method and it does not involve any apparatus or laboratory for its use.
- This method can be used at anytime and everywhere.
- It is the only method that an individual knows his/her emotions and feelings

Demerits of the method of Introspection

- Data collected through this method is highly subjective

- There is ample scope for the individual to hide facts
- Abnormal individuals cannot be introspected.

1.5.2. Observation Method

Observation is one of the oldest techniques that man has made use of. It is defined as seeing things as they are in their natural setting. It does not mean seeing things as they were or as they should be. Observation deals with the overt behaviour of persons in appropriate situations. Observation has been defined as 'measurement without instruments'. In education, observation is the most commonly employed all measurement techniques.

Types of observation

Observation is of following types:

- Participant observation
- Non-participant observation
- Structured observation
- Unstructured observation

Participant Observation: Here the observer plays a double role. He/she becomes by and large a member of the group under observation and shares the situation as a visiting stranger, an eager learner and an attentive listener.

Non-participant Observation: This is used with such groups as infants, children of abnormal persons. The observer takes such a position as he is able to observe in detail the behaviour of the individual under observation. The position of the observer is least disturbing to the subject under study.

Structured Observation: Structured observation starts with relatively specific formulations. The observer in advance set up categories in terms of which he wishes to analyze the problem. The observer always keeps in view

- A frame of reference
- Time units
- Limits of an act

Unstructured Observation: It mainly takes the form of participant observation. The observer takes the role of a member of the group.

Merits of the method of Observation

- Observation can be used with children of all ages.
- It does not require any special tool or equipment.
- It is adaptable both to the individual and groups.

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Demerits of the method of Observation

- There is a great scope for personal prejudices and bias of the observer.
- Records may not be written with hundred percent accuracies as the observation is recorded after the actions of the observed.
- It reveals the overt behaviour only.

1.5.3. Interview Method

Interview method provides an opportunity for getting information directly from the subject about his behaviour in fact to-face contact or relationship. Here the subject and the psychologist both engage themselves in the mutual exchange of idea as and information. For this purpose, the interviewer makes an attempt to fix a fact – to -face appointment with the person whose behaviour he wants to investigate. The major steps to be followed in this method can be listed as below:

- Preparation for the Interview
- Taking an Interview
- Closure of the interview.

Merits of the method of Interview

- Interview enables the teacher to tackle his /her everyday classroom problems.
- It is a superior data collecting device.
- It creates friendly atmosphere for proper response.
- It promotes exchange of ideas.
- Information received through interview is more reliable.

Demerits of the method of Interview

- It is subjective
- Interviewer may try to tackle a minor problem.
- Interview is placed in an artificial situation.
- Sometimes, it becomes difficult to interpret the results of an interview.
- Interviewee may not give details of himself/herself.

1.5.4. Experimental Method

It is the most objective and scientific method for studying behaviour. The investigator studies the cause and effect relationship regarding human behaviour by performing experiments. Experiment may be conducted in a laboratory or a classroom or other field situations.

Types of Experimental Method

Experimental Method is of following types

- Control Test Method

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- Control Group Method
- Rotation Method.

Control Test Method: In this method, we try to differentiate by observing the performance under different conditions. First we observe under normal conditions and then again with one condition changed. There is no need of having two different groups of subjects for the experiment. Only the measures can be taken several times under different conditions.

Control group Method: Control test method possesses a serious drawback known as; positive practice effect. In control group method, we can minimize the practice effect. Here two separate groups, known as experimental group and control groups are taken. They are equated or matched on various traits like age, sex, intelligence and other personality characteristics.

Rotation Method: This method consists of presenting two or more stimulating situations to the experimental subjects in as many sequences as necessary to control the serial effects of fatigue or practice.

Merits of the Experimental Method

- It is the most objectives and systematic method of getting reliable data.
- The findings of the experimental method are open to critical examination and verification.
- This method allows maximum control over the phenomena under investigation.

Demerits of the Experimental Method

- Since mental processes are constantly fluctuating in character, they cannot be detained for the purpose of experimental study.
- It is costly and time-consuming method.
- It is extremely difficult to control all other causative factors except the one under study.

1.5.5. Case Study Method

A case study is the study of an individual case. Case study method is usually used for studying the behaviour problems of a maladjusted or deviant individual. Various steps involved in case study method are

- Determination of the status of the phenomenon under investigation through direct observation or measurement.
- Determination of the most probable antecedents of the case
- Formulation of a definite hypothesis or a set of hypotheses through a knowledge of similar cases.

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- Verification of the hypothesis
- Remedial steps
- Follow up of the case.

There are three types of case studies:

- Case studies of individuals
- Case studies of institutions.
- Case studies of communities.

Merits of the Case Study Method

- Case study considers all aspects of the child. Hence, it is highly reliable and can be used as a tool of evaluation.
- It helps to understand the causes of maladjustment.
- It helps in suggesting remedial measures for the rehabilitation of maladjusted cases.
- It helps the teacher to gain better concept of normal behaviour.

Demerits of the Case Study Method

- It is time consuming.
- It warrants a lot of efforts on the part of the researcher.
- It is meant only for individual case and ends with the diagnosis and treatment of the individual under study.
- It requires technical proficiency and some experience on the part of the teacher.

1.5.6. Differential Method

Differential method is the method of studying differences within the same individual or between individuals in different groups. In this method, there are four types:

Types of differential methods are:

- Correlation Method
 - Field Survey Method
 - Longitudinal Method
 - Cross-Sectional Method
- **In the correlation method**, the psychologist takes people as they are and studies what they usually do, without changing the conditions under which they respond to the tests or perform the desired tasks.
 - **In the field survey method**, the differences with regard to a particular trait pattern or characteristics among the individuals are discovered by conducting the field survey and taking adequate samples, from the studied population.
 - **In the longitudinal method**, the differences in an individual or group of some individuals are studied over a long span of time.

- **In cross sectional method**, we take many individuals and study them simultaneously.

Merits of the Differential method

- It is useful in determining the present trends and solving current practical problems.
- It suggests the course of future developments for those who are interested in similar problems.

Demerits of the differential method

- It focuses on existing condition. It pays little attention to the past which might have caused the present problem.
- There is possibility of manipulation of data.

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Check your progress

Notes: a) Write your answer in the space given below
 b) Compare your answer with the one given at the end of the unit.

4. List the methods of psychology

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5. Write a note on introspection method

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1.6. BRANCHES OF PSYCHOLOGY

There is hardly any sphere of human life where psychology is not being used in modern times to understand and improve the existing conditions. Important branches of psychology are mentioned below:

- General Psychology
- Child Psychology
- Clinical Psychology
- Development Psychology
- Social psychology
- Industrial Psychology
- Educational psychology

1.6.1. General Psychology

This deals with the basic principles underlying in different branches of psychology. General behaviour of normal adults forms the subject matter of general psychology. General psychology deals with such concepts as perception, emotions, motivation, learning, thinking, sources of individual differences and their measurement etc.

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1.6.2. Child Psychology

That branch of psychology which deals with growth and development of children, role of heredity and environment in child development, different potentials found in children and their measurement, different aspects of adjustment in behaviour with environment that children achieve etc. is known as Child Psychology. Today, infant psychology and adolescent psychology have also emerged out of child psychology

1.6.3. Clinical Psychology

The branch of psychology is an applied one is popular among the professional psychologists. In society, there are people whose behaviour is abnormal in the sense that they manifest significant behavioural deviations from the norms of the society or the groups in which they live. There are various forms of behavioural disorders like that of psychosis (which refer to serious forms of mental illness), the neurosis(mild forms of functional disorders which can be treated without the patient being hospitalized) and feeble mindedness (which points to persons who are poorly endowed with intellectual capacities making them incompetent to make efficient and effective adjustments to the demand of reality and to come up socially).

1.6.4. Developmental Psychology

Developmental Psychology deals with all aspects of growth and development of the individual throughout his life span. Right from the time of fertilization in the Womb, up to the time of old age and death, all aspects of human development are studied in great depth and detail. Different stages of development, ranging from pre-natal period, through the stages of infancy and childhood to that of middle age and old age are studied. There is a concentration of studies in childhood and adolescence.

1.6.5. Social Psychology

Social psychology has two aspects. The first one is a pure science which applies itself to problems such as the role of society and culture in influencing the development of personality of the individual, social motives, development of communication and language and problems of competitions, co-operation, imitation and role-playing. The second one, i.e. social psychology, as a applied science is concerned with attitudes and preferences as they exist and as to how they are modified or changed. In short, as an applied science, social psychology is interested in helping people to solve public problems of high importance.

NOTES**1.6.6. Industrial Psychology**

This is another applied branch of psychology which concerns itself with industrial and business situations. It deals with all kinds of problems in industry such as selection of right men for various jobs, promotions or supervision and interpersonal relationship among the employees. It also studies such aspects as fatigue, accidents and working conditions and their improvement in industry. Another division of industrial psychology which is known as '**consumer psychology**' deals with such problems as techniques of marketing, advertising and propaganda.

1.7. EDUCATIONAL PSYCHOLOGY

1.7.1. Definition and concept of Educational Psychology

Educational psychology is defined as the branch of psychology which is concerned with psychological researches as applied to any or all aspects of educational processes and practices. It is in relation to problems like learning, teaching and training. Classroom is the laboratory for the educational psychologists. By applying the principles and laws of psychology in educational situations, Educational Psychology tries to solve the different problems faced in the educative process. So as to make it more effective and efficient, (says Kolesnik, the Russian Psychologist) Psychology is the science of behaviour. Education is the deliberate process of modifying one's behaviour (knowledge, skills and attitude) through a sequence of systematically planned experiences to achieve the predetermined goals and objectives (Redden). Therefore, educational psychology could be considered as the science of modifying the learner's behaviour so as to refine his/her personality and make him/her an efficient and responsible citizen.

1.7.2. Nature of Educational Psychology

Educational Psychology has made tremendous advancement and gradually established itself as an independent study. Most of the educational problems come under its purview. Child education, diagnostic and remedial education, education for the gifted and handicapped, factors affecting learning, principles of evaluation, etc. bear proof to the claim that educational psychology is a special field of study. The study of classroom climate, techniques of behaviour modification, programmed learning, micro-teaching, software and hardware approaches and computer assisted instruction are all the areas developed by the educational psychologists aimed at improving the interaction between the teacher and the taught. Advanced techniques of instruction are through and through psychological by nature.

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1.7.3. Scope of Educational Psychology

As **Blair, Jones and Simpson** says that,, educational philosophy is primarily concerned with the question of what should be done and educational psychology attempts to answer the question of what should be done and educational psychology attempts to answer the question of how it can be done. Educational psychology for most part is interested in means rather than ends as to the scope of educational psychology. **Kolesnik** mentions the following problems which are dealt by educational psychologists:

- Differences among students
- Motivation
- Methods of instruction
- Evaluation
- Classroom management
- Mental health
- Character formation

H.C. Lindgren suggests that the subjects-matter of educational psychology revolves around three areas:

- a) The learner
- b) The learning process
- c) The learning situation

In the first area, the learner, is included the study of abilities, needs, life-goals, self-concept, etc. of the individual learner as well as the differences that exist among different individuals. This area also includes the study of the development of the pupil, the environmental influences on his personality, the problems of his mental health etc. In the second area, i.e. in the learning process, the nature, process and factors of learning are studied. In the third area, the learning situation, such factors as classroom management, discipline, techniques for teaching exceptional children, guidance and counseling etc. are studied. The teacher himself is very important in the total learning situation. Therefore, the psychology of being a teacher (his motivations, conflicts, effectiveness, professional growth, his mental health etc.) is also included in the scope of educational psychology.

1.8. IMPORTANCE OF EDUCATIONAL PSYCHOLOGY FOR THE TEACHER

1.8.1. Need for the Knowledge of Educational Psychology for Classroom Teachers

Educational psychology helps the teacher in the following ways
Contribution to theory of Education

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- To understand the development characteristics of children: To be a successful doctor, one must have the required professional knowledge and skills as well as the knowledge about the nature of the patient whom he wants to treat. In the same way, if one wants to be a successful teacher, he must know about the science of behaviour of learners. Children pass through different stages of development as infancy, childhood and adolescence. These developmental stages have their own characteristics. If the prospective teacher knows these characteristics he can utilize them in imparting instruction and molding their behaviour according to the specified goal of education.
- To understand the nature of classroom learning: To instruct effectively in the class, the teacher must understand the principles of learning and various approaches to the learning process, problems of learning and their remedial measures. It also gives the knowledge of various approaches to understand the learning process, factors affecting and guidance for effective learning.
- To understand individual differences and adjust his teaching to the needs and the requirements of the class which has a great range of individual differences.
- To understand effective teaching methods: Classroom teaching is not dependent on any one theory. It is related and uses several theories of teaching-learning. The teacher must be acquainted with knowledge of various theories in order to organize his class-room teaching. Educational psychology provides us with the knowledge of different approaches evolved to tackle the problems of teaching at different age levels.
- To understand the causes of the problems of children which occur at different age levels and successfully solve them.

Knowledge of mental health: Mental health of the teacher and the taught is very important for efficient learning. The teacher from the study of psychology can know the various factors which are responsible for the mental ill-health and maladjustment. He can prevent maladjustment in children provided he is equipped with the fundamental knowledge of mental hygiene.

Curriculum construction: Psychological principles are used in formulating curriculum for different stages. Needs of the pupils, their developmental characteristics, learning pattern and needs of the society, all these are to be incorporated in the curriculum.

Measurement of learning outcome: Psychological tools help the teacher to assess the learning outcome of the students. He can also evaluate his teaching methods and in the light of the performance of the students can modify his strategy of teaching.

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- Guidance for the education of exceptional children
- Helps to develop positive attitude.
- Understanding of group dynamics.

Contribution to Practice of Education:

- Problem of discipline: Teachers who have the knowledge of educational psychology realize that the use of corporal punishment is inhumane. Teachers now tackle the problem of indiscipline by examining the causal factors leading to them in a more scientific way. The teacher has changed his attitude from an autocrat to democrat.
- Use of A.V. aids: Teaching with the use of aids that affect multiple senses of the learner is more effective and lasting.
- School and classroom administration has been psychologised and made participative rather than dictatorial in nature.
- Time table: Now subjects are incorporated in the time table taking into consideration their difficulty level and fatigue index. No two difficult subjects are taught in successive periods.
- Co-curricular activities: Activities like debate, drama, scouting and games were supposed to be a wastage of time. Now we give these activities due importance for the harmonious development of the personality of children.
- Use of innovative methods: Several innovative ideas resulting from research studies in psychology have been introduced to improve the teaching-learning process.
- Production of text books: We now write textbooks taking into consideration the intellectual development of children, their needs and their interests at different age levels.
- Undoubtedly the study of educational psychology may be very helpful to equip our prospective teachers with necessary skills to deal with classroom teaching-learning problems.

1.9. LET US SUM UP

Psychology defined first as the study of soul in its history of evolution, it has been known progressively as the study of mind, study of consciousness and finally as the study of behaviour. Psychology and Education are related intimately. Psychology studies the behaviour as it grows and evolves; education deals with modification of behaviour.

Educational Psychology as one of the branches of Psychology tries to study the behaviour of the learner in relation to his educational environment. Most of the definitions centre around the fact that educational psychology as a specialized branch of psychology concerns itself with suggesting ways and means of improving the processes and products of education, enabling the teacher to teach effectively and the learners to learn effectively by putting in the minimum effort.

Educational Psychology is scientific in nature. It has an extensive scope. It helps the teachers in accomplishing cultural and professional aims.

Study of behaviour in Psychology can be made with the help of a variety of methods. Introspection method is a sort of self-observation in which one perceives analyses and report one's own feelings. Observation method provides a way of studying the behaviour of an individual in most natural conditions. Experimental method is considered as most scientific and objective method for studying behaviour. Differential method is a method based on individual differences. Case study is the study of an individual case. Interview method is a method for the investigation of behaviour by getting information directly from the subject about his behaviour in face-to-face contact or relationship. Psychoanalytic method is the method of analysis of mind.

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1.10. UNIT - END - EXERCISES

1. Differentiate General Psychology from Educational Psychology.
2. Discuss the significance and importance of Educational Psychology to classroom teacher.
3. Discuss the scope of Educational Psychology.
4. Explain various methods of Psychology.

1.11. ANSWERS TO CHECK YOUR PROGRESS

1. Psychology defined first as the study of soul in its history of evolution, it has been known progressively as the study of mind, study of consciousness and finally as the study of behaviour.
2. Psychology and Education are related intimately. Psychology studies the behaviour as it grows and evolves education deals with modification of behaviour. We cannot modify the behaviour without studying the behaviour and its peculiarities. Hence, both are inter-related and dependent.
3. Psychoanalytic school puts forward many new ideas like the unconscious and subconscious mind, psychosexual development, sex as an urge responsible for all types of behaviour etc. It has highlighted the role of earlier experiences and the need for better education to the child in the formative years.
4. Most commonly used methods of psychology are introspection method, observational method, experimental method, differential method, case-study method, interview method and psychoanalytic method.
5. Introspection is a process of examining one's own mental process of thought feeling and motives. An individual looks

within, observes, analyses and reports his own feelings. Introspection is also defined as the notice which the mind takes itself. It is the oldest method of Psychology.

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1.12. SUGGESTED READINGS

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UNIT – II HUMAN GROWTH AND DEVELOPMENT

*Human Growth and
Development*

NOTES

Structure

- 2.1 Introduction
- 2.2 Objectives
- 2.3 Concept of Growth and Development
 - 2.3.1 Meaning of Growth
 - 2.3.2 Meaning of Development
 - 2.3.3. Three concepts of Development
- 2.4 Distinction Between growth and development
- 2.5 Maturation and Development
 - 2.5.1 Meaning of Maturation
 - 2.5.2 Relationship between maturation, learning and development
- 2.6 Nature versus Nurture
 - 2.6.1 Meaning of Heredity (Nature)
 - 2.6.2 Meaning of Environment (Nurture)
 - 2.6.3 Differences Between Heredity and Environment
 - 2.6.4 Studies on Heredity and Environment
 - 2.6.4.1 Studies on Heredity
 - 2.6.4.2 Studies on Environment
- 2.7 General principles of growth and development
 - 2.7.1 Development is a product of interaction
 - 2.7.2 Development follows an orderly sequence
 - 2.7.3 Development is a continuous process
 - 2.7.4 Development goes from bilateral to unilateral trend
 - 2.7.5 Inter relationship of different aspects of development
 - 2.7.6 Development is individualized process
 - 2.7.7. Development is positive and negative both
 - 2.7.8 Development is cumulative
 - 2.7.9 Development proceed from general to specific
 - 2.7.10 Rate of development differs with sex
- 2.8 Let us Sum Up
- 2.9 Unit End Exercises
- 2.10 Answer to check your progress
- 2.11 Suggested Readings

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2.1 INTRODUCTION

Human beings keep changing. During their lives, they change in size, appearance and psychological makeup. The way they change differs from individual to individual. But the fundamental underlying patterns of growth and development remain more or less the same and take place in an orderly way. Each individual, with his unique heredity and the way he is nurtured, determines the way he traverses the broad highway of his life at his rate of progress. He will attain the size shape, capacities and developmental status in a way which is peculiar to him at each stage of life.

Growth is sometimes used to designate all the quantitative changes brought about in the structure and functions of the human anatomy and physiology. The term development means a progressive series of qualitative changes that occur as a result of maturity and experience. Thus at each stage certain developmental processes bring changes in the individual in different aspects of life: Physical, social, psychological and emotional. The speed of change varies from one individual to another but it follows a definite and predictable pattern. Every individual has to go through the various stages of childhood, adolescence, adulthood and old age. Both growth and development, at every stage follow certain principles.

In this unit, we shall discuss the concept and principles of human growth and development, why their systematic study is needed and how the teacher can facilitate growth and development during adolescence. We shall also discuss, in brief, various stages of development. You will also study the role of the teacher in facilitating the growth and development of school going children. You can observe the growth of your students over a period of a few years.

2.2 OBJECTIVES

This unit is meant to help you learn the concept, the broad principles and the stages of growth and development.

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

- Differentiate between growth and development
- Describe the stages of human growth and development
- Describe the characteristics of each stage of human growth and development
- Explain the principles of growth and development

2.3 CONCEPT OF GROWTH AND DEVELOPMENT

The terms growth and development are often used interchangeably. Actually they are conceptually different. Neither

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growth nor development takes place all by itself. Growth refers to quantitative changes in size which include physical changes in height, weight, size, internal organs etc. As an individual develops old features like baby fat, hair and teeth etc. disappear and new features like facial hair etc are acquired. When maturity come the second set of teeth, primary and secondary sex characteristics etc. appear similar changes occur in all aspects of the personality. During infancy and childhood the body steadily becomes larger taller and heavier. To designate this change the term growth is used. Growth involves changes in body proportions as well as in overall stature and weight. The term growth thus indicates an increase in bodily dimensions. But the rate of growth differs from one part of the body to the other.

Development, by contrast, refers to qualitative changes taking place simultaneously with quantitative changes of growth. It may be defined as a progressive series of orderly, coherent changes. The term progressive signifies that changes are directional, that they lead forward rather than backward. Orderly and coherent suggest that there is a definite relationship between the changes taking place and those that proceed or will follow them. Development represents change in an organism from its origin to its death but more particularly the progressive changes which take place from origin to maturity. Thus, development may be explained as the series of overall changes in an individual due to the emergence of modified structure and functions that are outcome of the interactions and exchange between the organism and its environment.

2.3.1. Meaning of the term Growth

In the strict sense of terminology the two terms growth and development have different meanings. The term 'growth' is used purely in the physical sense. It generally refers to increase in size, length, height and weight. Changes in the quantitative aspects, which could be objectively observed and measured, come into the domain of growth. Growth is one of the components of the developmental process. In a sense, development in its quantitative aspect is termed as growth.

2.3.1.1. Characteristics of 'growth'

- Growth refers to increase caused by becoming larger and heavier.
- It is quantities, additive, and argument.
- It is objectively observable and measurable.
- Growth does not continue throughout life, it stops when maturity has been obtained.

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- Growth may or may not bring development. For example, a child may grow (in terms of weight) by becoming fat, but this growth may not bring any functional improvement (qualitative change) or development.
- Rate of growth is not uniform. It proceeds more rapidly in the early years of life but slows down in the later years of infancy. Again, at puberty, there is sudden rise in the speed of growth.
- There exists wide range of individual differences among children with respect to growth.
- The rate of growth of different parts of the body is different.

2.3.2. Meaning of the ‘Development’

‘Development’ implies overall changes in shape, form or structure resulting in improved working or functioning. It indicates the changes in the quality or character rather than in quantitative aspects. Development is the result of growth, maturation and learning.

2.3.2.1. Characteristics of Development

- Development is progressive series of changes that occur in an orderly, predictable pattern as a result of maturation and experience. Development is ‘directional’ and ‘sequential’.
- Development is continuous in all are of mental activity. It does not stop with puberty as in the case of growth.
- The goal of development is to enable the individual to adapt to the environment in which he lives, i.e. development results in improved functioning of the individual.
- Development is a complex process of integrating many structures and functions.
- Development is of many aspects (eg, physical, emotional, intellectual, social and moral)and individual differences are seen in the different aspects of development.
- Rate of development is not uniform throughout the life span of an individual. Actually the child makes advancement during a particular period of development and takes rest in the next following period, to consolidate his development. In advancing therefore, he turns back and then moves forward again like a spiral. Thus it could be said that development is spiral and not linear.
- Development is influenced by maturation and learning.

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- Development is very much related to one's environment. Stimulating environment helps an individual to develop many skills.
- Development is based on, modelling the parents, teachers and other elder members.
- Since development is qualitative in nature, it cannot be measured directly. It could be accessed through keen observation in behavioral situations.
- Development is possible even without growth.eg. Even short stature people may exhibit strong physical functioning.

2.3.3. Three concepts of development

Development is maturation: According to Arnold Gessell, the role of physical changes is very important in development. The development from infancy to adolescence is governed by physical changes when physical growth of the particular stage gets matured only then development in that stage is possible. For example, a growing nervous system changes systematically and automatically and this results in predictable changes in bones and muscles. Thus major changes in the organism are based on maturation.

- i. According to Gessell, there is internal programming toward physical and cognitive growth and each year is characterized by certain behavioral changes. Development is always guided and controlled by these changes.
 - ii. Development is learning: According to Baer, "development is the behavioral changes which require programming and programming request time but not enough of it to call it age."
 - iii. Programming here means the sequence of learning which may happen naturally or it may be arranged in the life of an individual with the help of the environment. Thus, according to this definition, development is genetic and environmental both. Whatever we learn in the process of our life is related to development of us.
- Development is the synthesis of abilities: According to **Jean Piaget**, there are four basic elements that take part in the process of development is the result of synthesis of all these elements. They are given below;
 - Maturation - An automatic and innate process
 - Social transmission - learning through language, schooling or training given by parents.
 - Experiences - obtained from the outer environment

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- Equilibration - informally
- Whatever is learn or gained internally or externally is Equilibrated here.

2.4. RELATIONSHIP BETWEEN GROWTH AND DEVELOPMENT

Growth and development are closely related. Growth indicates increase, enlargement and augmentation. Development indicates progressive changes resulting in better quality, character and composition. Development is a wider and comprehensive term. It refers to overall changes in the individual. Growth is one of the components of development. Generally growth results in maturation (it is the biological ripening of the organism) at which training or learning if provided, brings forth optimum development in the individual's functioning. If the thigh muscles of an infant grow and become ripe (maturation) at the tenth month after birth. It starts walking which indicated development. Thus grow generally leads to development. Development leads to further growth and further development. As the child starts walking, changes (or growth) occur in the calf-muscles and in the palm of the foot. This growth leads to further development in the child viz. running at the eighteenth month. Thus growth and development are inter-related. However, in some cases, development is possible without growth as we see in the case of some children who do not gain in terms of weight, height or size, but they do experience functional improvement and development. Though growth and development are related, there are major differences between them which are listed below.

2.4.1. Differences between Growth and Development

Growth	Development
Growth is quantitative i.e. it indicates increase Enlargement and augmentation.	Development is both quantitative and qualitative and it results in improved functioning of the individual
Growth could be objectively observed and Measured	As development is mainly qualitative it cannot be measured: it could be assessed through keen observation in behavioral situations.
Growth does not continue throughout the life -span. It stops after maturation is obtained.	Development is continuous in all areas of mental activity: it does not stop after puberty
Growth is one aspect of development	Development is complex and many-sided.

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Growth occurs in different parts of the organism.	Development describes the changes in the organism as a whole and does not list the changes in parts.
Growth is not directional. Rate of growth is not uniform in all parts of the organism. Individual differences exist in growth among children	Developments progressive and sequential Rate of development is also not uniform Children differ in their level of development in different aspects-physical, social, emotional and intellectual.
Growth is not affected very much by learning.	Learning and experience affect development to a very great extent.
Growth may or may not lead to development.	Development in one aspect promotes development in other aspects (among physical, mental, social, emotional and moral) i.e. development is integrative.

2.4.2. Principles of Growth and Development

The changes brought about in the individual by the process of growth and development tends to show some well-defined principles. They are known as principles of growth and development. These principles are listed below:

- **Principle of continuity:** Development is continuous and never ceases. Any individual starting his life from a tiny cell develops his body, mind and other aspects of his personality through a continuous stream of development.
- **Rate of growth and development is not uniform:** Although development follows continuity, yet the rate of growth and development is not steady and inform at all times. It proceeds more rapidly in the early years of life, but slows down in the later years of infancy. Again, at puberty, there is a sudden rise in the speed of growth and development.
- **Uniformity of pattern:** Although development does not proceed in a uniform rate and shows marked individual differences, yet it follows a definite sequence or pattern (e.g. The child first learns to turn laterally then tittle so as to lie on its stomach and swim on the floor: then it sits stands and walks before it learns to run. Thus development is progressive and sequential and this pattern is found in every child)

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- **Development proceeds from general to specific responses:** In all phases of a child's development, general activity precedes specific activity. His responses are of a general sort before they become specific (e.g. an infant learns **gross movement** of hands before it learns the fine motor movements of its fingers. The young infant first grasps any object with the whole hand and gradually begins to pick with thumb and finger).
- **Principle of integration:** Development involves movement from the whole to the parts and from the parts to the whole.
- **Principle of inter-relation:** The growth and development in various dimensions like physical, mental, social, etc. are interrelated and interdependent. Growth and development in any one dimension affects the growth and development of the child in other dimensions.
- **Development is predictable:** With the help of the rate of growth and development of a child, it is possible for us to predict the range within which his nature of development is going to fall (e.g. from the trend of increase in height we can predict beforehand how much high the child will grow).
- Growth and development are a joint product of both heredity and environment
- Growth proceeds from head to trunk and center to extremities.

2.5. MATURATION AND DEVELOPMENT

2.5.1. Meaning of Development

Maturation is a natural process. It is the growth which takes place within the individual. The maturational changes are the result of unfolding and ripening of inherited traits and are relatively independent of activity, practice or experience. Maturation involves changes that are associated with normal growth.

2.5.2 Relationship between Maturation, Learning and Development

In the case of human activities, development occurs as a result of maturation and learning. No amount of teaching or exercise will enable a six month old baby to talk or walk. It is also equally true that the child does not learn the language just because he attains that stage or age, unless the language is taught to him. The language which he learns is that which he hears.

A number of studies have been conducted to show the importance of maturation for learning and development, of which two have been described below: i) **W.N. Kellogg and L.A. Kellogg** reared

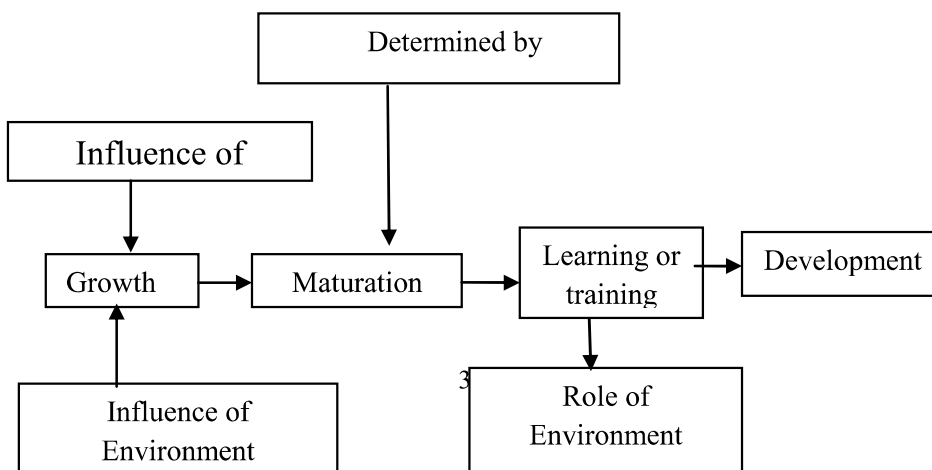
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an infant boy and an infant chimpanzee in the same human environment, treating them with the same affection and tenderness. The aim of the experiment was to see to what extent, the chimpanzee could be humanized by the human environment. The boy was two months older than the chimpanzee; still the chimpanzee was able to learn to skip, to open the door, to eat with a spoon, to drink from a glass, earlier than the boy. This was because the chimpanzee though two months younger was physically more mature. However, by 15 months of age the boy surpassed the chimpanzee in almost everything in physical strength. This experiment has led to the following inferences:

The chimpanzee, though of an inferior species, was superior to the human child in certain respects. This superiority was due to the earlier maturity (because of its heredity) of the chimpanzee. On the other hand, the boy even with his relative immaturity, was able to speak, to imitate and to solve a number of problems which the chimpanzee could not do, even though it was more mature as a chimpanzee could not do, even though the it was more the training given to the two was the same.

ii) **Gesell and Thompson's co-twin study:** In this experiment it was tried to find out whether the training of one twin in stair climbing could give an advantage over the other untrained twin. At 46 Weeks of age, neither of the twins could climb stairs. It was found that after 4 weeks of training she was able to climb without assistance and by 52 weeks she claimed 5 steps in 6 seconds. During all this period, twin C, the control twin, and no chance of climbing a stair. When she was 53 weeks old, she was placed on the staircase. She climbed the stairs unaided and took 45 seconds to climb five steps: but with a week of practice, she was able to climb five steps in 10 seconds. This experiment shows the strong influence of maturation. The two processes-maturation and learning-are closely related to each other.

Training given before 52 weeks, the period required for maturity proved to be ineffective in staircase climbing. But training given to the child when it attains the requisite physical maturation for climbing stairs, brings forth quick learning and faster development. Thus maturation could be considered as Physical readiness for learning.



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Maturation helps in the process of learning. Learning can take place at the stage for the type of learning has been achieved through the process of maturation. If the teacher understands the complexity of the changes that are going on, as a result of both process and the interaction between the two, he will not go straying his teaching. Forcing the child to attempt to learn some speech patterns, before certain maturation has occurred, can disrupt the normal development of speech in the child. On the other hand, failure at an appropriate time to provide specific training (deliberately planned and sequentially organized environmental influences) in speech may be cardinal educational error hampering the language development of the child. Similarly an infant attains the requisite physical maturation to hold a pencil and manipulate that at the age of 5. But giving training to children at the age of 3, in the L.K.G. class is highly ineffective as could be seen in the slow progress and there is always a danger of the hand written of such children becoming illegible and bad.

2.6. NATURE VERSUS NURTURE

The Nature and nurture are termed as heredity and environment. Two views are prevailing among the psychologist with regard to the growth and development of an individual namely heredity and environment. Some people argue that a person's heredity decides his growth and development, and others argue that it is environment which decides the individual's pattern of growth and development.

2.6.1. Meaning of heredity (Nature)

Heredity is the process by which characteristics of an individual are basically determined by genes received from the parents.

Dougal and Holland define, "One's heredity consists of all the structures, physical characteristics, functions or capacities derived from parents, other ancestry of species".

Woodworth defines, "Heredity covers all the factors that are present in the individual when he begins life not at birth, but at the time of conception about nine months before birth".

2.6.2. Meaning of environment (Nurture)

Environment is the process by which characteristics of an individual are determined by his/her surroundings and circumstances. The forces of environment begin to play their part and influence the growth and development of the individual, right from the time of fertilization of the ovum by sperm. Therefore, from the environmental point view, not only what happens after birth is important but also what goes on inside the womb of the mother after conception has equal significance. Boring, Langfield and Weld define, "the environment is everything that affects the individual except his genes".

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Dougel and Holland define, “Environment as a word which describes, in the aggregate, all extrinsic forces of influences and conditions, which affect the life, nature, behavior and the growth, development and maturation of living organisms”.

Woodworth and Morquis define, “Environment covers all the outside factors that have acted on the individual since he began his life”.

2.6.3 Differences between heredity and environment

The following table explains the difference between heredity and environment.

Heredity	Environment
Innate or inborn	Acquired
Genetic constitution	Environmental constitution
Body constitution	Mental constitution
Physical traits	Psychological traits
Biological in nature	Psychological in nature
Heredity fixes the traits during conception	Environment fixes the traits after birth
Only limited role	Wider role
Causing similarities or identifies between parents and children in their physical and mental make up	Causing differences between parents and children in their physical and mental make up
Heredity cannot be changes	Environment can be changed.

2.6.4. Studies on Heredity and Environment

Hereditariness conducted several researches to support that the heredity is the main cause for the formation of behaviour and character. Environmentarians, in their studies stressed that environment is the major cause for the formation of behavior and character. Some of the studies are presented below.

Studies on Heredity

The following are some of the studies which were conducted to support heredity as the main cause for formation of behavior and character.

Dugdatle did study on Juke’s family. Juke was a fisherman and corrupt. About 1000 persons were born on five generations out of which 300 died during infancy 310 were orphans, 130 were criminals

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and rest 120 was normal. Thus, the family inherited certain physical and mental traits from generation to generation which were responsible for their antisocial activities

Goddard studied Kallika's family, Kallikak was a soldier who married two women-one was feeble minded and another was an intelligent girl. Of 480 individuals descended from the feeble minded women, 434 were mostly feeble minded, criminals, sexual perverts and drunkards. From the descendants of the intelligent girl, 486 out of 496 individuals were talented. Thus, this study supports the heredity.

Sir Francis Galton conducted a study on family histories of 977 persons. Of 977 eminent men, 536 were found to have closed blood relationship and were famous. On the other hand, study on 977 common persons, only 4 near relative was famous.

Studies on Environment

The following studies support for environment as the main cause for formation of behavior and character.

Scottish Survey: Decuo's studies show that environmental changes brought about changes in the IQ of children. The most celebrated of these studies are the Scottish surveys of 1932 and 1947, as reported by the Scottish Council for Research in Education. In 1932, intelligence tests were administer 87, 498 Scottish children of nearly eleven-year old. In 1947, the tests were given to 70, 809 children of the same age. The average score showed a small but significant improvement over the fifteen year period.

Study of Fly Edith: These two identical female twins were separate childhood. One of them was married to a business man and the other to farmer. In the behavior, IQ and many other psychological areas, there were lots of differences between the two in the later part of their life.

Study of James and Reece: These two twins were reared in a hill and a village respectively. When their intelligence was marked the difference of 19 point was found. This indicates the influence of environment.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

1. Differentiate heredity and environment.

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2.7. GENERAL PRINCIPLES OF GROWTH AND DEVELOPMENT

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2.7.1. Development is a product of interaction

Development is a process which is the result of constant interchange of energy within the organism and his environment. Thus hereditary forces interact with environmental forces and the process of development goes further. These two forces are so closely interacted that is very difficult to isolate the contribution of either of them. The contribution of gene may be 10% as compared to 90% contribute of environment in the process of development.

2.7.2. Development follows an orderly sequence

The rate of growth and development is different in different individuals depending upon a number of factors but it does follow an orderly sequence in all the individuals. The psychologists have reported three important directional trends in the process of development.

- Cephalo caudal: Development starts from head and proceed toward heel. We see that development of head of a child is well advanced as compared to other parts of the body.
- Proximodigital: Development starts from the central part of the body. Then it spread to other outer or more distant part of the body. We see that an infant uses his shoulders and elbows first to reach an object and then be using his fingers and wrists.
- Locomotion: Locomotion develops in a sequence in all the individuals belonging to different cultures of the world. The rate of development for different infants may be different but every infant will have to pass through these stages at all cost. For example, an infant first learns to crawl, then to sit, then to stand and finally to walk. No infant can walk directly in the first stage.

2.7.3. Development is a continuous process

Development is a continuous process which begins from the time of conception in the womb of the mother and continues till death. But this process is not always smooth or gradual. Ups and down are most of the times seen in every stage of development. There are spurts in physical growth and psychological functioning. Sharp growth rate is seen at the time of spurts. For example, a sharp increase in height and weight in the early adolescent period, a fast rise in vocabulary during pre-school period, sudden improvement in problem solving abilities during adolescence and so on.

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2.7.4. Development goes from bilateral to unilateral trend

Infants up to the age of 2.5 years are both of their hands with equal ease. Then they learn to use any of their hands preferably. Similarly, in the beginning of cycle learning we use both the hands to control it but when we become fully experts in cycle learning we can control the cycle single handedly. Thus, development is a process of specialization also.

2.7.5. Inter – Relationship of different aspects of development

Different aspects of development are interdependent and interrelated. For example child's social behavior is interrelated with the physical development. If child is physical handicapped, his emotional development may also be slow with aggressive development in some emotions. Similarly, if social development of an individual is poor, his mental or physics development will also be slows.

2.7.6. Development is individualized process

All individuals develop in their own way depending on their genetic characteristics and the training received from the environment. Thus each child has his own rate of physical, social, mental and emotional development. If we observe ten years old children in a society, we find that there are great differences in their height, weight sociability, emotional expressions and learning readiness. Similarly the rate of growth is very high during infancy or pre-adolescent period and compared to other periods of life. Thus, rate of growth also changes with the change in stages of life.

2.7.7. Development is positive and negative both

Up to a certain period of human's life all the faculties of the individual develop but after that retardation starts especially after the age of 70. Physical and emotional retardations are seen during this age with zero social development. Mental development still continues but it too ultimately starts diminishing with the increase in age. Death is nothing but the collapse of all these processes of development.

2.7.8. Development is cumulative

Development is a cumulative process. Certain changes impress the observer and it looks as these changes are sudden but actually they are not sudden. They are the cumulative effect of all the changes in the individual. The child climbs the steps of the development one by one and then he reaches the zenith. The child first of all learns the words, then he learns the phrases, then sentences and finally he comes to know how the stories or essays are written. Thus each change in the child is the combination of his prior growth and experiences.

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2.7.9. Development proceeded from general to specific

In all types of development we find the principle of mass differentiation and integration. At the time of birth, the world is like big blooming confusion for the child. Then by and by his behaviors are refined and become goal directed responses.

2.7.10. Rate of development differs with sex

There is slight difference in the process of development between boys and girls. Girls mature earlier than boys at least emotionally. Girls mature earlier than boys at least emotionally. Girls are taller and behavior than boys in pre adolescence period but by the end of this period boys surpass them.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

2. Differentiate between development and growth.

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2.8 LET US SUM UP

In this unit, we have studied the concept of human growth and development. The stages of development and the characteristics of each stage have also been discussed. The principles of development, their importance and need to study them scientifically have been discussed. The difference between growth and development is analysed. Meaning of maturation and the relationship between maturation, learning and development is revealed. Meaning of heredity and environment, difference between heredity and environment is also revealed.

2.9 UNIT END EXERCISES

- Distinguish between growth and development.
- Explain the relationship between maturation, learning and development.
- Describe the principles of development.

2.10 ANSWERS TO CHECK YOUR PROGRESS

1. Innate or inborn
 - Genetic constitution
 - Body constitution
2. Growth means quantitative changes in size which includes physical changes. Development means a qualitative change at physical as well as mental levels.

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2.11 SUGGESTED READINGS

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UNIT –III DIMENSIONS OF DEVELOPMENT

Dimensions of Development

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3.1 Introduction

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3.3.2 Cognitive growth and development

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3.6.2 Educational implications of the period of adolescence

3.7 Let us Sum Up

3.8 Unit End Exercises

3.9 Answer to check your progress

3.10 Suggested Readings

3.1 INTRODUCTION

Human beings keep changing. During their lives, they change in size, appearance and psychological makeup. The way they change differs from individual to individual. But the fundamental underlying patterns of growth and development remain more or less the same and take place in an orderly way. Each individual, with his unique heredity and the way he is nurtured, determines the way he traverses the broad highway of his life at his rate of progress. He will attain the size shape,

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capacities and developmental status in a way which is peculiar to him at each stage of life.

In this unit, we shall discuss about various stages of development. You will also study the role of the teacher in facilitating the growth and development of school going children. You can observe the growth of your students over a period of a few years.

3.2 OBJECTIVES

This unit is meant to help you learn the concept, the dimensions and the stages of development.

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

- Explain the different dimensions of development
- Describe the stages of human growth and development
- Discuss the educational implications of the principles of growth and development
- Explain the role of the teacher in the facilitation of growth and development during adolescents

3.3 DIMENSIONS OF GROWTH AND DEVELOPMENT

3.3.1. Physical Growth and Development

It refers to strengthening of body and muscles with better proficiency and coordination of motor organs, if a person is able to do heavy work with ease, if he is able to do the task in lesser time, if he is able to do the task with accuracy and if he is able to do the task with neatness and beauty, then it is said that physical growth and development of the person is satisfactory.

3.3.2. Intellectual Growth and Development

It refers to the ability to draw out conclusion from jumbled information and to apply the inferences to real life situations in order to make the life happy and meaningful. If a person normally does what is expected to do, if he is able to mould the situation in his own factor, if he is able to manipulate the situation against the other and if he is not backward in any way in mental operations, then it is said that his mental growth and development is satisfactory.

3.3.3. Emotional Growth and Development

It refers to the accuracy of responses that an individual will exhibit under the influence of his emotions. These exhibited responses will be real as well. For example, if anger is not exhibited at the abuse given by any other person, it means that emotional growth and development is not satisfactory. Expressing sorrow at losses but not too much sorrow as it is beyond control is emotional maturity. If a person

gets angry at his results but he fully controls his anger according to the situation, then it is said that his emotional growth and development is satisfactory.

3.3.4. Social Growth and Development

It refers to improvement and refinement of behavior of an individual in social situations. If a person is stable in his behavior even in adverse situations, if the behavior of the person is fully acceptable to the society and if he is able to influence the society by his behavior, then it is said that the social growth and development of the person is satisfactory.

3.3.5. Moral Growth and Development

Generally, students at the middle and secondary school stage get confused when they find that people sometimes break the rules and that the rules that apply to some are not always applied to others. For example, we tell children not to tear pages from their exercise books. But many a time we take out one or two blank pages from their exercise books. Similarly, we teach them not to tell a lie. But at school and in the community as well, they observe many people telling a lie for petty things. Such experiences probably change the children’s concept of rules.

3.3.6. Language Growth and Development

Language is means of expressing, thinking and action. Had we not been given this power, we would not have been able interact with others and our social existence was not possible. Language may be verbal and not verbal both. Human being uses both types of languages at a time to inform other about his thinking and behavior and to the informed about their thinking and behavior. Thus, language development refers to the ability of a person to convince the people what he thinks right.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

1. What are the dimensions of development?

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3.4. STAGES OF DEVELOPMENT

Based on certain developmental characteristics psychologists have classified human life span into the following developmental stages:

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Parental stage: Germinal period (first 2 weeks) Embryonic period (2 to 8 weeks)
(from conception to birth)

Fetal period (9 week to birth)

II postal stages

- Infancy from birth to 2 years
- Childhood
 - (i) Early childhood from 3 to 6 years
 - (ii) Later childhood from 7 to 12 years
- Adolescence from 13 to 19 years
- Adulthood
 - (i) Early adulthood from 20 to 29 years
 - (ii) Later childhood from 30to 50 years
- Senescence from 50 to 60 years
- Old age from 60 years onwards

3.4.1. Physical Development

Physical growth refers to a process which begins about bodily a physiological changes-internal as well as external in an organism from the conception till his death. General pattern of physical growth:

- Increase in height and weight
- Changes in body proportions

A new born baby has as body length of 16 to 18 inches and weight 6 to 8 pounds. Boys weigh more than girls. Generally, growth is rapid and the head increases disproportionately in size. Weight increases by hundred percent in the first six months and up to five years an average of four pounds increase per year will be seen. Height also increases at the rate of four inches per year in the first 4 years. At the age of 5, a child will be about 35” to 40” tall and weigh 30 to 35 pounds. Of course, girls will be shorter and lighter. At the age of 3, the lungs and heart grow in size. Bigger muscles develop faster and earlier than smaller muscles. It is because of manual dexterity cannot be found below 3 years of age.

The following table may illustrate muscular development.

Behavior	Age in month (s)	Behavior	Age in month (s)
Turn from side to back	0.4	Creeps	10.0
Sit with support	4.0	Stands up	10.6
Turns from back to side	5.0	Walks with help	11.6
Effort to sit	5.4	Sits down	12.5
Sits alone for thirty seconds or more	6.2	Climbs as stair	13.0
Rolls from back to stomach	7.3	Jumps off floor, both foot	28.0
Babbles	8.6	Walks upstairs, alteration forward foot	35.5

But individual variations are not uncommon. In later childhood, the rate of physical growth is slow and steady. Children between 6 and 12 years put on 3 to 4 pounds. The increase in height between 9 to 12 years is only one inch per year. The lengthening the limbs are the most significant physical change during this phase. The legs grow very fast. Postural defects are likely to appear at this stage. The heart and lungs reach almost growth. Muscular development and co-ordination improve and by the age of six a child has a considerable mastery over the basic skills. But the eye muscles reach full growth only by nine years. Therefore, children should not be given long reading seasons up to this age. By twelve years of age, the muscular coordinating on is almost perfect and the child may improve in handwriting, manipulator skills and so on.

In adolescence physical growth is remarkably rapid and bodily changes occur in a fantastic way. Children rapidly grow out of their clothes, a problem for parents. The endocrine glands become very active and secondary sexual characteristics become pronounced. Boys reach the masculine stature. The voice breaks and becomes hoarse. Between 12 and 14 years of age, girls may grow faster than boys. Boys grow faster from the age of 14. Boys develop big muscles and needs hard physical work, girls reach puberty and experience rounding of the figure unique to women. Because, the rate of growth at this period is too much, muscular coordination is very poor. Adolescents, as a rule are clumsy and awkward in their words and deeds. In this world, there is no worse nuisance than a boy at the age of 14. He is neither

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ornamental nor useful. Then, he is at the unattractive growing age. He grows out of his clothes with indecent haste, his voice grows hoarse and breaks quavers, his face grows suddenly angular and unsightly.

Educational Implications

It has been observed by W.F. Dearborn, “There is organic need for strenuous, physical activity. Skeletal muscles are developing and require exercise. 9 to 11 years old dash breathe Leslies from place to place, never walk when they can run, never run when they can jump or do something more strenuous”. Some of the important activities which facilitate physical development are:

- Provision of nutritious diet
- Regular medical check-up and follow-up
- Provision of healthful environment
- Free and guided play activities
- Activities involving handling of tools and materials
- Exercise and morning walk
- Yogic exercises
- Preparing charts and models
- Proper postures
- Games and sports
- Opportunities for skipping, hoping, jumping, throwing, grasping etc.
- Excursions
- Community cleanliness programmes

3.4.2. Cognitive Development

Trying to teach a child that which is actual, too advanced or too difficult for him does not result in a better educated child. In fact, it is likely to harm him emotionally. One of the indexes to growth of intelligence is to the point of in vocabulary, which has two phases, words used and words correctly recognized. Increase in vocabulary in general is characteristic of mental growth and reaches its high points in the twenties, although it is possible that vocabulary ability increases slightly throughout most of adult life. Another index to the development of intelligence is the development of thinking through the stages of enumeration, description and interpretation. The teacher should be conscious of these stages and in teaching should try to stimulate the higher orders of thinking. The above indices evidence mental growth because they indicate increasing powers of perception, memory, imagination, and reasoning or problem solving. A person has mental or learning readiness for tasks when he has grown and developed to a level where he has the potentiality and capacity to learn these tasks readily. Generally, mental growth is most rapid in the first 5

years of life, nearly as rapid from ages 5 to 10, less so from 10 to 15 and much less so from 15 to 20. Natural mental growth probably stops at about the age of twenty. Bright children develop much faster than dull children and reach a much higher level at maturity. The bright probably develop over a little longer period than do the dull.

The table given below shows the increase in the average effective vocabulary during infancy.

Growth of vocabulary

Age in years and months		
Years	Months	
0	8	0
0	10	1
1	00	8
1	3	19
1	6	22
1	9	118
2	0	272
2	6	446
3	0	899
3	6	1222
4	0	1540
4	6	1870
5	0	2072

Vocabulary development depends on environment of children. A happy home and nursery school condition may be helpful in the proper mental development during this period. In later childhood, mentally a child at six years of age is ready to go to school. Its brain has reached eighty percent of its total development. A child at six can form simple concepts and the child evinces a keen interest in reading and writing. But it cannot attend to any one thing for a considerable time. Therefore long reading and writing sessions have to be avoided. But the ability to read and write improves by 9 to 12 years. It is the period when children are eager to learn and consequently pleasurable learning experiences have to be provided to sustain the motivation. It is the period when the children's horizon of interests widens and their curiosity reaches maximum development. They like to explore and find out for themselves the nature of things. Children between 6 and 7 years of age indulge in make-believe. They become realistic between 9 to 12 years of age. Between 6 and 7 years of age children are incapable of forming abstract concepts. Up to 12 years of age, a child's self-

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concept does not appear and it identifies itself with its superiors. By 12 years, a child is able to express clearly its feeling and experiences.

Adolescence is a period of rapid mental development. Ability to form concepts matures. He is able to generalize his experiences. Abstract concepts are formed and understood. Numerical ability reaches significant growth. The adolescent is capable of doing abstract reasoning. Consequently he likes debates and discussions and cannot take anything for granted. Therefore, he is seen to argue with elders, a tendency that may be labeled “impertinence and impudence”. The vague and diffused interests of childhood get distilled into concentrated and specific interests during adolescence. Boys like to read stories of privation and adventures and girls read stories of home life, love and beauty. An interest in fine-arts is common in many adolescents and so also in sports and games. Many adolescents are day-dreamers. Normal and occasional day dreaming is essential to let out pent up emotions. But, if it amounts to “withdrawal”, it becomes dangerous.

Educational Implications

Without education, proper mental development cannot take place. In order to bring about this development, teacher should take the following activities.

- Since, physical and mental development are correlated, the teacher should keep an eye on the physical health of the children.
- The child should be provided various opportunities for learning. In nursery schools, such opportunities are various and varied.
- While organizing education, due attention should be paid to the individual differences of the children.
- For higher mental developmental development, it is necessary that voluntary knowledge or perceptual knowledge should be developed to the maximum.
- For the mental development and education, language is necessary. Therefore, from the very beginning due attention should be paid to the development of the language.
- Learning by doing and experimental education should have proper place in the educational setup. With this process, a child can learn many things.
- Due attention should be paid to the fatigue, whether it is physical or mental.
- The curriculum should be prepared while keeping these stages of the mental development in view.

3.4.3. Emotional Development

Emotion is a complex and diffuses mental experience involving body and mind. To become emotional means to get excited, activated and stirred up. According to J.B.Watson, the only emotional reaction of

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neonates is generalized excitement. By 3 months, the excitement gets differentiated into distress and delight. By 6 months, distress partly splits into specific emotions such as fear, disguised and anger. By 13 months, delight partly gives rise to elation and affection. By 18 months, distress further gives rise to jealousy and affection becomes specific as affection for adults and affection for children. By 24 months, in addition to the above fear, disgust, anger, jealousy, distress, excitement, delight, relation, affection for adults, affection for children joy are emerges out of delight. Up to the age of one year, all emotions are connected with the infant's basic biological needs. When the infant's movements are restricted, it becomes angry. Love is happiness for the infant. It likes to be fondled. By 4 or 5 years, the child acquires many emotions as a result for its interaction with men and matter.

A liking for group life appears at 6. It is the gregarious instinct that paves way for the socialization for the child. The child learns to control its primal emotions. As the instincts of curiosity, construction and acquisition development during 6-12 years of age, the accompanying emotions are also seen. The instinct of self-abasement may lead to an unconditional surrender to parents and teachers, made possible by the mechanism of identification. In general, this period is one of consolidation and children do not experience any emotional calamity that would be experienced during adolescence.

Adolescence marks a period of emotional instability and in balance. A sudden change from great elation to total dejection may be seen in adolescent behaviour. The self-assertive instinct and sex instinct reach maximum development. Adolescents crave for recognition and love. They want to be consulted and feel insulted if their options are not taken into account in deciding policies either at home or at school. The gregarious instinct becomes dominant. The period of early adolescence (13-15) is more troublesome than late adolescence (16-19).

Educational Implications

There are several situations and things in the home and the school which make a child unhappy rather than happy. It is common to note that children experience too many unpleasant emotions like anger, fear and jealousy than positive emotions of affection, joy and pleasure. Here, it may be stressed that it is the experience of positive emotions that helps the child to develop a positive outlook on life. Following suggestions are offered to help children's emotional balance.

Hurlock states five causes which disturb emotional stability:

- Fatigue
- Poor Health
- Association with emotional people
- Thwarted desires
- Unpreparedness

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- Children should be helped to express their emotions in a natural way.
- Children should be helped to develop a realistic understanding about the situations that arouse pleasant situations.
- Children should be helped to learn how to control their feelings which may offend others.
- Children should be gradually directed to exercise more of internal self-control.
- Counseling may be useful in case of highly disturbed emotional state of mind.

3.4.4 Social Development

Social growth helps in improving one's personal relationship in learning and how one gets along with people successfully. Physical and mental growth contributes social development which is giving a person more capacity for dealing effectively with social situations. Physical and mental weakness and defects tend to maladjusted person. A child is very individualistic in early childhood, but living with people socializes him so that he evolves from extreme individualism to being a socialized person. Leadership is an evidence of social maturity. Students who are school leaders tend to be characterized by better scholarship, higher socio-economic status. Home and school environment can make a child feel frustrated, resentful, over dependent, inferior and insecure in many ways or the opposite. In school, children are accepted or rejected by others. Socio-metric methods may be used to determine the social acceptance and rejection of children within a group or class.

Persons are socially mature who can make friends, who are leaders, who have good emotional control, who cooperate with others, who become economically and socially independent, who have wholesome recreational interests, who maintain high moral standards, who have good manners and who get along with members of the opposite sex.

A neonate is no better than an animal in being totally self-centered. It wants its biological needs to be satisfied. Its mother is the first human being who moves closely with it and by 3 months the baby begins to have a linking for its mother. Then as it grows, it learns to smile at familiar persons and cry at the sight of strangers. By 3 years of age, the child is selfish to the extent that it wants to play alone and never gives anything to others. By the age of 3 or 5, children may play with other children, but they may quarrel suddenly and part. Home environment at this period decides socialization. The treatment given to them by the members of the family decided their social nature. Only child in a family is likely to become ego-centric.

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Later childhood is the period when children become less self-centered. School life usually commences at 6 and school is a potent socializing agency. The child gets injured to the unavoidable rubs and uncertain receptions it may get in later life. In a classroom it cannot have its own way. There are other children and teachers too. It learns to adjust grand spirit of blossoms at 6 years of age. The child learns to obey the command. It is a time when friendships are made. Group affinity increases by 9 or 12 years. Small excessive peer-groups are formed. They depend on their parents, but they value the group more than they value the affection of the parents. A child craves for peer approval.

The tendency to be in a peer group, which originated during later childhood, becomes pronounced during adolescence. Though boys and girls continue to be in the same group, interest in the opposite sex grows steadily. Some adolescents show withdrawal mechanism is a definite symptom of maladjustment and abnormality. Adolescents between 13 and 16 need a model to follow. It is a period of 'hero worship'. An adolescent identifies himself with his idol. Between the ages of 16 and 19 adolescents want to be recognized as an adult. The adolescents' craving for recognition and independence are very great. They like to be economically independent. Conflicts with adults, especially parents and teachers are quite common. This is a period when enduring friendships are formed.

Educational Implications

A teacher can play a vital role in the social development of the child under his charge. He exerts a great influence upon the development of the personality of the child. Following are the important suggestions for the social development of the child:

- Teachers and parents may encourage the children to mix in inter-caste rather than inter-caste and inter-regional rather inter-regional groups
- The teachers and parents should respect the personality of children
- Teachers should demonstrate democratic outlook and refrain from projecting their class images on students. They should not show any discrimination
- Common activities like camps, common needs, social service etc. should be frequently organized. Adequate stress may be laid on group activities
- Exhibitions may be organized from time to time. Children may be taken from time to time to public places like museums, courts, places of historical importance etc.

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- Work experience should be introduced in schools. This will enable the children to have firsthand experiences of the activities pursued in farms and factories.
- Children should be acquainted with the social events like the celebration of the birthdays of leaders.
- The introduction of common school dress, common lunch etc., in the schools and colleges will prevent children of poor and lower middle classes from suffering due to the inflated ego of the children of the well-to-do families.

3.4.5 Moral Development

The term moral is derived from the Latin word ‘mores’ meaning manners, customs and folk ways. Morality is indissolubly linked with the social system. The children have to learn what is good and what is bad, what is right and what is wrong. He has also to learn his duty. All these terms imply clearly that morality has reference to social relationship and social process.

Piaget’s views on Moral Development

According to Piaget, there are four stages:

- Anomy (the first five years)
- Heteronomy-Authority (5-8 years)
- Heteronomy-Reciprocity (9-13 years)
- Autonomy-Adolescence (13-18 years)
- Anomy: Piaget called the first stage ‘Anomy’, the stage without the law. At this stage, the behaviour of the child is neither moral nor immoral but non moral or a moral. His behaviour is not guided by moral standards. The regulators of behaviour are pain and pleasure. This is the “discipline of natural consequences” as advocated by Rousseau.
- Heteronomy: Discipline of Authority- The second stage of moral development may be called the discipline of artificial consequences imposed by adults. Moral development at this stage is controlled by external authority. Rewards and punishment regulate moral development.
- Heteronomy: Discipline of Reciprocity-At the third stage, there is the morality of cooperation with peers of equals. This stage is regulated by reciprocity which implies, “we should not do to others what will be offensive to us”. Conformity with the group becomes imperative.
- Autonomy: Adolescence-Piaget calls this stage as equity stage. The individual at this stage is fully responsible for his behaviour. The rules governing moral behaviour come from within the individual. Such autonomy is the ideal of moral development.

Kohlberg's Views on Moral Development

Kohlberg distinguished three levels of moral development as pre conventional, conventional and post conventional, each divided into two stages.

- Preconventional Level

Stage 1: Punishment and Obedience Orientation: The moral development determined by the physical consequences of an action whether it is good or bad, avoiding punishment and bowing to superior authority are valued positively.

Stage 2: Instrumental Relativist Orientation: Right action consists of behaviour that satisfied child's own needs. Human relations are considered in reciprocity. It may be seen in a pragmatic way.

- Conventional level

Stage 3: Interpersonal Concordance: At this stage, the child begins to like the good will of others and tries to please others to obtain their approval- good boy-nice girl. Good moral behaviours are those please others.

Stage 4: Orientation towards Authority: Focus is on authority or rules and one shows respect for authority.

- Post Conventional Level

Stage 5: Social Contract Orientation: Right behaviours are defined according to standards agreed upon by the group or society. Through a proper procedure, these standards can be changed.

Stage 6: Universal Ethical Principle Orientation: At this stage, the individual keeps not only the norms of society in mind but also the universal moral principles. An individual may be prepared to sacrifice his all, including life for the upholding of these principles.

Educational Implications

The school plays a very important role in the moral development of the child. Through the organization of various curricular and co-curricular activities, teachers can foster among children various moral qualities. In the teaching of different subjects like languages and social studies etc. teacher may stress moral qualities like love, sacrifice, self-control, truthfulness and uprightness, etc. a suggestive list of some activities for the moral development of children is given below:

- Organizing group projects and games, school panchayat
- Conducting daily morning school assembly
- Celebrating National days and festival
- Organizing Camps
- Screening appropriate films
- Staging dramas and plays

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- Stressing the main teachings of saints and seers
- Looking after the cleanliness of school campus, classroom and playgrounds etc.
- Looking after the school garden
- Organizing social service programmes
- Organizing girl guiding and scouting
- Celebrating festivals of different communities
- Organizing educational excursion and trips
- Arranging community and school get-together
- Organizing a comprehensive programme of guidance and counseling for bringing about moral changes.

Check your Progress

Notes: a) Write your answer in the space given below:
b) Compare your answer with the one given at the end of the unit.
2. Short note on Kohlberg's Moral Development

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3.5. DEVELOPMENTAL PROBLEMS OF ADOLESCENCE

3.5.1 The following are some of the notable problems of adolescents:

Problems related to somatic variation: Adolescents get bodily changes they attain property during these periods. The flow of blood during menstruation in girls and nocturnal emission in boys create worries which lead to fears and anxieties. Since ours is a conservative society, youngest are less to fears and anxieties. Since ours is a conservative society, youngsters are less oriented about the sudden physical change during puberty. Lack of scientific knowledge about sex hygiene and physiology can lead to guilty feeling and many other complexities among teenagers.

Inquisitive on sex: Adolescents are curious to know about related topics and are seeking answer to their innumerable doubts. In our society, parents are mostly unaware of explaining the sex related matters or shy about revealing them. Thus, some adolescents resort to socially unacceptable ways to satisfy their curiosity.

Transitional conflict: An adolescent is considered neither a child not an adult. He has to depend on his parents for his needs. But, at the same time, he wants to hold independent views and opinion like adult. Sometimes, parents expect to behave as an adult and at other times they

treat his as child. This attitude makes him to have a conflict in mind about his status.

Adjustment problems with parents: Adolescents want to be independent. But, often parents interfere in their choices and selections. For example, selection of friends, dress materials, recreational interest, study etc. So, the adolescent finds difficulty in adjusting to the needs and demands of the parents.

Adjustment difficulties with the community: In the growing society, everyone is running fast to stabilize his position in job and livelihood. Adolescents want to enjoy with their peers. But, they are expected to set the goal in life. So, they are not able to fix their mind whether to go with the goal enjoy in a non-committed way.

Adjustment difficulties with school discipline: School imposes some restriction on the part of adolescents. But, they expect freedom. This makes them to have adjustment problems with the school.

Financial problem: Adolescents are not financially independent. They are not able to fulfill their requirements of their pocket money. Excess demand or parents denial to give money make them have problems. In this circumstances, they sometimes go for stealing of parents money.

Conflicts between parental aspiration and aspiration of the children: Without understanding the interest and abilities of children, parents place high aspiration regarding the achievement of their children. When they do not come up to their expectations, then there is constant quarrelling among parents and adolescents. As a result, some adolescents go away from homes and commit suicide.

Problems related to physical appearance: Physical appearance and health are given more importance by the adolescents. Adolescents with the under developed or over developed physique handicaps, disease etc. and develop various complexes and they feel isolated from the group.

Heterosexual adjustment problem: Adolescents want to mingle with their opposite sex. The parents and teachers put restrictions on the part of youngest to have even friendship with opposite sex. These unsolved motivates aggravate and as a result they indulge in unwanted activities.

3.5.2 Overcoming the problems of adolescence

The following are some of the suggestions to overcome the problems of adolescents

Parents and teachers should explain to the children about the various aspects of growth and development related to specific periods. This would make them understand the changes occurring during adolescent period somatic change social change, sexual change, emotional change etc.

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- Sex related doubts should be clarified to them.
- Adolescents gain the development of secondary sexual characters. This development does not make them feel discomfort and guilty if they are property oriented.
- They need to be oriented about the menstruation cycle and hygiene
- Adolescents should be respected and be given freedom to share their feelings and problems
- Views of the adolescents are also to be taken for decision making. This will encourage them to have cordial relationship with the parents and teachers
- Based on the individual needs the curricular and co-curricular activities are to be planned so that they will all participate fully
- “Idle mind is the devil’s workshop”. A constructive work has to be given for streaming his energy
- Religious and moral education help to reduce the restlessness indiscipline dishonesty and aimlessness among the youth
- The vocational training has to be planned to make themselves sufficient in financial aspects.

3.5.3 Educational Planning for adolescence

Educational programmes are to be planned in such a way to accommodate the adolescents in property way. The following are some of the strategies for providing appropriate education to adolescents.

- Sex education should be imparted to the individuals for understanding of their own physique and development sex related queries etc.
- Adolescent’s needs and interests are different. The school should have proper library, playground, art and craft rooms etc. to cater their needs.
- Adolescence is a period demand respect and recognition. They should get involved in setting garden creating department library, social activities, recreational activities etc. through which they develop a sense of recognition and responsibility.
- Adolescents want independence in every action. Hence, the school curriculum must provide ample opportunities of self-study and freedom to select learning subjects and materials
- Guidance and counseling should be set at school to provide service to the needs and aspirations of individuals

- Schools have to differentiate between discipline and freedom. They should not bring discipline in terms of all restrictions in their freedom
- Creative abilities are to be strengthened by rewards and awards
- Adolescents imitate their role models. The great personalities of the world are focused to them for selecting as role models, through which they develop the qualities to bring out productivity to the society
- A regular parent teacher meet brings down majority of problems of an individual. They discuss the personal, educational, health and emotional adjustments of the individual.

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Check your Progress

- Notes:** a) Write your answer in the space given below:
 b) Compare your answer with the one given at the end of the unit.
3. Write notes on characteristics of adolescence

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3.6. DEVELOPMENTAL TASKS AND ITS EDUCATIONAL IMPLICATIONS

3.6.1 Concept of development tasks and special needs of adolescents

When a child reaches the age of adolescence, he developed some special ends and objectives related to the need of that particular age. These ends are called development tasks. They are inescapable requirement imposed by the person himself or by the society. An adolescent must be competent to achieve these ends. Failure to achieve competency has a crippling effect on the personality development of the adolescent.

Havinghurst proposed a system of development tasks for American adolescents. He described in detail about the developmental process and its relation to educational objectives. Development task has been defined by Havinghurst as a task which arises at or about a certain period in the life of the individual, successful achievement of which leads to his happiness and success with later tasks while failure leads to unhappiness in the individual disapproval by the society and difficulty with later tasks.

From the above discussions, we see that development tasks of adolescents are especially related to the needs very specific to that particular age. Such important needs are given below:

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Achieving matured social relations: It is a must for the adolescents to achieve a well matured relationship with both the sexes. A masculine or feminine role that a child has to play is decided at this age. For this purpose, he/she harnesses only when the relationship of the adolescents with different types of people are matured and stable.

Need for affection social and security: A desire for social approval and social acceptability is universal in all adolescents. If a person is accepted by his friends, peers teachers, relatives etc. at home in the neighborhood and in the school; he experiences a great sense of self confidence and security. In order to fulfill this very type of need, they take part in elections or in sports and become captain, members, president, secretary, monitor in charge of co-curricular activities etc.

Desire for affection and love from parent teachers and other responsible positioners of the society is found intense during this period. If such needs are not fulfilled, they get frustrated and sense of insecurity develops in them. There are many situations which tell us that they struggle for their social status and security and avoid being rejected by the people such as fear of failure in the examination, fear of losing the sympathy of teachers and parents fear of being rejected in the society and at home etc. These fears may cause hostility aggression anxiety anger isolation frustration and so on.

Thus, love, affection and social approval are necessary for the emotional security of the adolescents. If they are deprived of these human rights they may face emotional problem which may further lead them to anti-social and delinquent behavior.

Need for independence: In adolescence stage, he/she is physically, mentally and emotionally well developed and has gathered experience of the world. Therefore, he thinks of getting freedom from the parents and other members of the society and develops a desire to lead the life in his own way. Some psychologists call this tendency, psychological weaning of the adolescents whereas others, describe this as process of distillation. But, both mean that at this stage of development, the adolescent students try to stand on their own feet try to take their own decision try to plan their future life independently and try to lead their life themselves. However for emotional satisfaction of their need for love, affection and sympathy, they still need the support of parents and their elders surely.

The adolescents feel themselves capable of shouldering responsibility of the world. This is why, they glamour for adults status to be granted to them by their society. But, the society including teachers considers that still they are immature and need protection directions and control. This state of affairs puts the adolescents in No Man's land where they feel that neither they belong to childhood nor to adulthood. That is why at this stage their development has been characterized by indecisions confusion, insecurity uncertainty of status,

fear of coming into class with their parents and elders, feeling of anxiety caused by many restrictions put on them and so on. If the situation is handled properly, this state may develop into various emotional problems.

Participating in adventurous and risky tasks: The desire for adventure is more dominant in all the adolescents. Even cowardice people want at least to see such tasks or to read such stories. Adolescents like thrilling and risky activities like climbing a tree, beating someone on the way to school playing more risky shots in the playground or visiting lonely and haunted places of the locality. These adolescents get satisfaction from such experiences. They accumulate such experiences for further narration and recall. Due to this reason all adolescents have been found reading detective or romantic stories through excess involvement of adolescents in such activities is very harmful as far as other roles of life is concerned.

Need for maintaining health and body building: Almost all adolescents want to build their muscles and body. For this purpose, they do various types of exercises and consume highly nutritious food. They join various types of clubs for this purpose also. They also do some exercise for increasing their sexual power.

Need for friendship with opposite sex: Such type of needs are every strong in this age. Every boy wants the company of a girl and vice versa. If society is orthodox and it is not permissible to have such relations in the society then homosexuality is adopted by adolescents which is safer for them.

Such needs are aroused due to basic changing taking place in the sex glands. This sex urge may find expression in many ways. They may sex related stories they may see necked films they may go through the habit of masturbation. If such sex urge is completely suppressed, it may cause serious emotional problems. Mental conflicts, guilty feeling, phobia, anxiety etc. may grow out of this stress. If we call all such urges and impulses as sinful and dirty and suppress them to the maximum, it will retard the growth of the adolescents.

Drug addiction: This need is not universal nature and it depends on the environmental which the child is reared. If there is a fashion on drugs, wine or any other types of alcoholic drinks in the society, the adolescents will adopt it. These drugs are also used to escape the real pains of life for the time being, but consumption of all such items will lead to depression and paranoid symptoms.

Adjustments of personal appearance: Personal appearance is an important part of the adolescents' personality. They are concerned about their personal appearance. It influences their personal and social development and very often there social status in the group is

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determined by their personal appearance. A beautiful and charming face is the center of affection of the whole group and this makes the adolescents more confident and more secure. Pleasing faces get more affection from their parents' teachers and other members of the society besides persons of good appearance get more approval of the opposite sex whereas, an unimpressive personal appearance or poor complexion causes a fear of being rejected by the group. No adolescents can tolerate such a situation. That is why, they may resort to excessive attention to make up and clothes.

Requirement due to physiological changes: When a child become an adult may physiological changes especially in the internal organs of the body and sexual organs take place and many of them can cause emotional problems too if not tackled properly. Similarly, if the growth of the adolescents abnormal in any way it may also cause emotional stress and strain. The problem becomes more serious if the adolescent hides his defect. Thus, proper adjustment to these physiological changes is a must.

Need for utilization excess energy: Adolescence is a period full of energy and activism. If this energy is not utilized in constructive works, he may take part in strike or other forms of violent activities in the college campus. Most of the adolescents feel that, they are living in a vacuum or helplessness. This feeling can give rise to apathy or aggression towards the old people of the society. Indifferent attitude towards adolescents may also create sense of being oppressed and exploited. Since adolescents are more idealistic the older people so they cannot tolerate injustice of any type. They can use demonstration and destruction both against the prejudices prevailing in the society.

Need from a set of values: Adolescents need to form a set of values to establish good relations with parents, relatives, teachers and friends. They have to be sympathetic and helpful to their friends. They have to be obedient and respectful with their teachers. Their behavior should be so decent that everybody in the society is pleased with them. Failure to learn codes of life observance of law and her social political and aesthetic norms etc. may pose serious problems of adjustment for these adolescents. If they are not properly adjusted in the society, they would not let the others sit peacefully either.

Need for self-support: Adolescents happen to develop a desire to become independence of their parents. Now they want to be economically self-supporting. Therefore, vocational planning comes to the fore front in their minds. In some adolescents, vocational aims dominate almost their every thought and action. Uncertainty about getting jobs worries them. In some cases, it develops a persistent emotional tension. Some of their emotional problems grow out of their inability to clearly see their vocational goals. In big cities, adolescents

constantly see growing competitions in the field employment. They feel frustrated and react to this situation emotionally. Some adolescents develop worries anxieties and other emotional problems which may affect their academic programmes and social adjustment.

3.6.2 Educational implications of the period of adolescence

Keeping in a view the peculiar needs of adolescents their education will have to be molded and modified in the following way

Education for proper physical and motor development: Physical and motor development especially building of the body and formation of muscles is most needed during adolescence. So, proper exercise and suitable games and sports along with proper diet are recommended for them. But, their particular interest must be taken into account while framing physical education curriculum for them.

According to medical science, if this stage is left unexercised flabby constitution of the body for the rest of life is the result.

Arrangement of picnics and excursions: School should arrange tours and excursions for them to visits historical, geographical and research places and educational institutions. This will give them knowledge and increase their cultural horizon. It also releases their pant up feeling and stresses and channelizes their energy.

Training of emotions: Many negative emotions are injurious for them throughout their life. Even positive emotions are harmful, if they are expressed in an uncontrolled manner. So, sublimation or training of these emotions is necessary through literature art, music and dance. Discussion, debates essay writing or speech competition, participation in play or drama or seminars can also help them a lot so. They should also be organized now and then by the schools and the society.

Sex Education: Sex urge is found strong and uncontrolled during the period of adolescence. If proper sex education is not given to them, they may adopt many sex practices which are harmful for their life and morals i.e., masturbation, homosexual relations, unsafe practice of intercourse with girls etc. So, such an education is must for adolescents.

Educational Guidance: All adolescents differ in their ability and interest. They are helped by the school to select subjects according to their mental level and interest. Vocational guidance is also given to them according to their paying capacity and need.

Freedom with vigilance: Adolescents are given freedom by parents and teachers to the maximum level possible but proper vigil is also made to see what they are doing. If their job is constructive they are not interfered by the society.

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Organization of co-curricular activities: In order to develop the adolescents, physically, mentally, socially and emotionally in a proper manner, various types of co-curricular activities are also organized in the school. These activities will engage them most and they will not have time to destruct the society any way.

Library attachment: Adolescents should also be brought to the library to study books on various topics. Public libraries should also be established at various places for this purpose. These books will give them knowledge and entertainment.

Democratic atmosphere: School should maintain democratic environment. Due respect to the students should be given. Such type of co-curricular activities be planned and executed which encourage cooperation and brotherhood among adolescents. They should be given opportunities to participate in such activities so that they may exhibit their talent and develop democratic qualities. By organizing various games and other activities adolescents can be kept away from anger and jealousy.

Religion and moral education: Adolescents do not get right direction in such matters and they suffer from wrong ideas. As a result of this, they lack decision making behavior. As such moral religious and liberal education be imparted so that they may be able to distinguish between right and wrong.

Use of proper teaching method: Subjects should be taught with proper methods of teaching which are according to their needs and stage development, so that they can develop the thinking and reasoning powers and can use them in their daily life.

Mature behavior with the adolescents should not be underestimated as child. They should treat as adults so that their thinking becomes mature. They should also be given full respect by elders.

Organization of parent teacher association: Parent teacher association should be establishment in every school so that the teacher and parents can solve the problems of adolescents.

Facilities for vocational subjects: Education and training for various vocations can be arranged so that adolescents may adopt some useful vocations in their future life.

Medical care: Adolescents are very much anxious of their health and physical development. School should arrange medical checkup camps in the schools for these students where they should also be given proper health advices by expert doctors.

Physical and health education: Keeping in view, the special physical and physiological needs of these students physical and health education

as a subject should be compulsory taught in the school in theory and practice both.

Nursing of creativity: Adolescents is a period in which creative potential is especially seen. For this purpose they should be provided opportunities to participate in music, dance, arts etc. and an assignment of preparing science model should be given to them by the teach.

Community service: For proper development of adolescents a close relationship should be established between the community and the school. Schools should treat them as treasures of the community and the later should feed the school to the maximum level possible. Many athletes and players are identified at this stage. Community should help the school to identify such adolescents to that they can be referred to proper sports cults for their better training and rehabilitation.

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Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

4. Write note on concept of development tasks.

.....
.....

3.7 LET US SUM UP

In this unit, we have studied the concept of dimensions of development. The stages of development and the characteristics of each stage have also been discussed. As you have seen, adolescence is a period of transition between childhood and adulthood. Accompanying it, they face a number of problems. During this period, adolescents are considered neither as children nor as adults. Their status remains ambiguous. They are prone to rebel against authority. What baring these characteristics adolescents have upon the instructional; process and for dealing with their particular problems have also been discussed. What you as a teacher can do to attend to these problems and how you help the development of a balanced personality of your students have also been dealt with in order to create a better understanding of students needs and problems.

3.8 UNIT END EXERCISES

- Trace those events from your own childhood and adolescence stages that reflect the characteristics of these periods.
- “Adolescence is a period of storm and stress”. Discuss with convincing arguments

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- Teachers can do a lot to help adolescents develop a balanced personality. How? Discuss your experiences in this regard.

3.9. ANSWERS TO CHECK YOUR PROGRESS

1. The dimensions of development are Physical, Cognitive, Emotional, Social, Moral and Language development.
2. Kohlberg distinguished three levels of moral development such as pre conventional, conventional and post conventional, each divided into two stages.
3. The characteristics of an adolescent are as follows:
 - Growth spurt: A rapid increase in height and weight
 - Puberty: Rapid development of the reproductive organs that signals sexual maturity
 - Body images and adjustment critically appraising their body and self-image
 - Extremely sensitive and perceptive about their own physical appearance
4. When a child reaches the age of adolescence he developed some special ends and objectives related to the need of that particular age. These ends are called development tasks. They are inescapable requirements imposed by the person himself or by the society. An adolescent must be competent to achieve these ends. Failure to achieve competency has a crippling effect on the personality development of the adolescent.

3.10 SUGGESTED READINGS

- Craig J Grace (1983) *Human Development*, Prentice Hall, INC, Englewood Cliffs, New Jersey
- Sanden Vander W. James (1989) *Human Development* Refred A. Knopg INC New York
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UNIT-IV COGNITIVE DEVELOPMENT – I

Cognitive Development - I

NOTES

- 4.1 Introduction
- 4.2 Cognitive Development
 - 4.2.1 The Concept
 - 4.2.2 Piaget's Concept of Cognitive Development
 - 4.2.3 Cognitive process
 - 4.2.4 Stages of Cognitive Development and Accomplishments
- 4.3 Attention
 - 4.3.1 Definition of Attention
 - 4.3.2 Kinds of Attention
- 4.4 Factors Relating to Attention
 - 4.4.1 External Factors
 - 4.4.2 Internal Factors
- 4.5 Span of Attention
- 4.6 Inattention and Distraction
- 4.7 Sensation and Perception
 - 4.7.1 Meaning of Sensation
 - 4.7.2 Meaning of perception
 - 4.7.3 Laws of Perception
 - 4.7.4 Error in perception
- 4.8 Imagery
- 4.9 Let us Sum Up
- 4.10 Unit End Exercises
- 4.11 Answers to check your progress
- 4.12 Suggested Readings

4.1 INTRODUCTION

A discussion on cognitive development will help you understand children's comprehension, underlying mechanisms and methods to facilitate the development of cognition. Divergent thinking deals with the dimension of creativity and its process and the characteristics of creative children. Besides, we discuss the implications of cognitive development for teachers so that they facilitate cognitive development of their students.

4.2. COGNITIVE DEVELOPMENT

4.2.1. The Concept

Development is the process of quantitative and qualitative growth

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of the child and the emergence and differentiation of capabilities over time. It is the function of maturity as well as interaction with the environment.

Cognition means to perceive, comprehend, and conceive or simply to know. Cognitive development would then mean the growth and capability of knowing, comprehending, or understanding over time, facilitated both by maturity and interaction with the environment. Cognition involves the ability to construct mental images involving thought, reasoning, memory and language. Mental images are constructed by an individual as the surroundings (the world around) are observed, understood and internalised as a mental process. Thus, every individual has a unique model based on a unique process of observation. This is how a learner learns about the world around him/her.

According to Burner, cognitive development occurs in three phases-enactive (doing), iconic (object models of picture) and symbolic (signs and symbols). For instance, for a young child cognising what an apple means would be touching or holding or tasting it (enactive mode), later as he grows up seeing pictures of it or a model of it (iconic model), and still later gradually deciphering the word “apple” (symbolic mode).

4.2.2. Piaget’s Concept of Cognitive Development

Jean Piaget offers a rich framework for conceptualising the development of the child’s thinking and cognition during the span of his growing/development to an adult. To him, Cognitive development means how knowledge is acquired and developed through successive stages and at various age levels. Hence, his theory of cognition is sometimes called **genetic epistemology**. It focuses attention on the interaction between his biological inheritance and his environment for cognitive development.

4.2.3. Cognitive Process

In order to progress further into Piaget’s cognitive development processes, we could be cognitive or understand the fact that all cognition takes place due to two processes:

- **Assimilation** which means taking in or absorbing stimuli/information from the environment, and
- **Accommodation** which means making room for or adjusting to incoming stimuli/information.

These twin processes together facilitates adaptation. Adaptation is an ongoing process which helps the individual internalize or store in all that one comprehends. This then, forms schemes or mental representation or maps of the world.

4.2.4. Stages of Cognitive Development and Accomplishments

The table below shows the major accomplishments at each stage of development.

Stage (age)	Type of thinking	Major accomplishments
Sensory-motor stage (0-2 years)	Sensory-motor	Pre-verbal Repetition of movements Tribal/Error behavior. Emergence of goal Directed behavior Object permanence, Animism.
Pre-operational stage (0-7 years)	Transductive thought Intuitive thought	Egocentrism, Imitation. Perceptual reasoning, Imaginary play Centration. Inconsistent casual reasoning.
Concrete operation stage (7-11 years)	Inductive thought	Decentration Diminished Ego-centrism, Explanation Conserves, Seriates etc. Makes Transformations Classifies, Fantasizes, etc.
Formal operation stage (11 year onwards)	Deductive thought	Applies logic, Infers, Verbal hypothesis, Idealistic thinking, Collaboration with others Proportionality probabilistic and combinatorial reasoning, Casual relations.

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Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

1. Fill in the blanks:

- a. Cognition means.....
- b. Accommodation means.....
- c. Cognitive development is a product of interaction between.....

2. Cognitive development according to Bruner occurs in three phases. List them.

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4.3. ATTENTION

Attention is the process of the mind to get an experience in our environment. We will attend to an object which attracts us. A dominating stimulus in the environment gets attention. So, attention is a process which produces interest to select the particular stimulus from various stimuli in the environment.

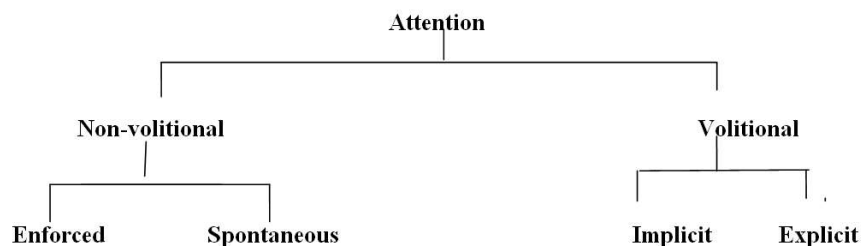
4.3.1. Definition of Attention

A few definitions are presented below to understand the proper meaning of the term 'attention'.

- ❖ Dumville (1938): "Attention is the concentration of consciousness upon one subject rather than upon another".
- ❖ Morgan and Gilliland (1942): "Attention is being keenly alive to some specific factor in our environment. It is a preparatory adjustment for response".
- ❖ Ross (1951): "Attention is the process of getting an object of thought clearly before the mind".

Therefore, attention can be defined as a process which brings individual's focus on specific stimulus among various stimuli in the environment.

4.3.2. Kinds of Attention



Non - volitional or involuntary attention: It refers to attention to an object or an idea without any conscious effort. For example, attention towards members of opposite sex, bright color or sudden loud noise. This attention has two sub-types as follows.

- a) **Enforced non-volitional attention** refers to the attention aroused by the instincts. Sex instinct makes a person to attend to the opposite by the sentiments.
- b) **Spontaneous non-volitional attention** refers to the attention aroused by the sentiments.

Volitional or voluntary attention: It refers to attention to an object or an idea with conscious effort. For example, attention towards

answering questions in examination or solving an assigned mathematical problem. This attention has two sub-types as given below.

- a) **Implicit volitional attention** refers to the attention aroused by a single act of will
- b) **Explicit volitional attention** refers to the attention which is aroused by repeated acts of will.

4.4. FACTORS INFLUENCING ATTENTION

The factors which are influencing attention are broadly classified into two, external factors and internal factors.

4.4.1. External factors

External factors are those characteristics of outside the situations stimuli which compel our attention. Let us consider these characteristics.

1. **Nature of the stimulus:** The most effective stimulus captures maximum attention. Well colored picture, beautiful woman or handsome man can attract more attention.
2. **Intensity and size of the stimulus:** In comparison with weaker stimulus, the stronger stimulus attracts more attention. Highly colored dress, bright light, a loud noise and a strong smell attract more attention. Similarly, a big object attracts more attention than a small object.
3. **Contrast, change and variety:** The differences in objects or approaches call for more attention. Similarly, the altered version from conventional method attracts attention. The same way, varieties of approaches in method of teaching, using audio-visual aids, to promote attention of the children which enables fast learning.
4. **Novelty:** The new and unique things or approaches grab our attention.
5. **Repetition of stimulus:** Repetition secures attention. The children learn when the teacher gives repeated practice or training. It captures our attention while repeating several times.
6. **Movement of the stimulus:** A moving stimulus attracts more attention than that stands still. Some actions like blinking eye of a baby and flying objects catch our attention. The teacher using film shows or PowerPoint presentation with animation gets more attention of children than a teacher using charts.

4.4.2. Internal Factors

A person's own interest, motives, urges and basic needs have a great value to attend to a task or an activity. Let us see how these inner factors secure attention.

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1. **Interest:** One’s interest on an object brings his attention towards it. A boy interested in cricket will be more interested to watch cricket than watching any other games. A student, who is interested in the teaching of a particular teacher never, misses his class. A wise teacher is able to draw the attention of his students while he teaches, by making his teaching connected to the basic needs, drives and interests of the students.
2. **Motives:** The motives like thirst, hunger, sex, curiosity and fear, exercise a definite influence upon attention. A hungry person will definitely search for food. A teacher should create the thirst for knowledge and curiosity for learning to fetch attention of the learners.
3. **Habits:** Formation of habit generally makes one attend to the task regularly. A regular reader of newspaper is restless when it is delayed. Similarly, by setting a regular time-table for studies, students are made attentive in learning tasks.
4. **Mindset:** Mindset means the tendency or bent of the whole mind. A person always attends to the objects towards which his mind has set. A young child always goes to the cartoon channel ignoring all the other programmers in TV.

Check your Progress

Notes: a) Write your answer in the space given below:
b) Compare your answer with the one given at the end of the unit.

3. What are the external factors influencing attention?
.....
4. What are the types of attention?
.....

4.5. SPAN OF ATTENTION

Span of attention refers to the number of independent, distinct or separate stimuli that can be attended to by an individual, at a glance viz. in a very brief period of time. Span of attention (also known as perceptual span) denotes the number of objects that can exist in the focus at a time.

4.5.1. Determining ‘Span of Attention Experimentally’:

Span of visual attention is found out by using a simple apparatus called Tachitoscope which exposes visual material to the subject seated in front of it, for a very brief period of time (say one second). Cards using dots of different numbers are used in such experiments, showing one at a time. The maximum number of dots that

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a person can correctly report three times in the experiment denotes his span of attention. This experiment reveals that the adult span of attention is between 6 and 8 for ungrouped dots. This implies that the number of objects that one could attend at any given moment is limited. In using flash cards for recognition, this has to be borne in mind by the teacher. For this reason only, fast moving automobile vehicles are given registration numbers with digits ranging from 4 to 6. Similarly, telephone numbers and postal pin code numbers are also of 6 or 7 digits. If numbers containing more digits are used, then they may not be attended to by us.

4.6. INATTENTION AND DISTRACTION

Inattention means, not paying attention to a particular stimulus or to any stimulus. We do not pay attention to a particular stimulus, because we are not interested in it. Inattention is caused by the absence of objective and subjective factors that determine one's attention. For example, lack of interest, motivation, or need on the part of the individual cause inattention.

Distraction, on the other hand, refers to attending to irrelevant stimuli that are not part of the main assigned task. A student would like to attend to the lecture in the classroom but he may be distracted because of the noise coming from outside. Distraction results in poor productivity and wastage of energy resulting in fatigue.

4.7. SENSATION AND PERCEPTION

4.7.1. Meaning of Sensation

Sense organs are called as 'Gateways of knowledge' because knowledge comes through sense organs. A blind man cannot see the color of flower but knows the color by hearing. All of our information about the world comes to us by way of our senses. Sense organs are the receptors of the external stimuli. We see through our eyes, we hear through our ears, we feel the taste through tongue, we smell through our nose. Incoming stimuli are received by our organs. Each sense organ responds to particular type of physical energy.

Following table gives us an idea of sense organs

Visual sense	Eyes	Visual stimuli	Vision
Auditory sense	Ears	Auditory stimuli	Hearing
Olfactory sense	Nose	Olfactory stimuli	Smell
Gustatory sense	Tongue	Gustatory stimuli	Taste
Tactile sense	Skin	Tactile stimuli	Touch

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We become aware of objects, things, events and persons through our sense organs. In the absence of sense organs the world becomes meaningless. The conscious mind becomes aware of the environment only through the functioning of the five senses. We come into contact with the world through our sense organs. This functioning of the five senses is called sensation. Sensations are elementary, basic conscious experiences. They form the first step in the acquisition of knowledge. In the view of Murphy, sensation is the elementary capacity to become aware of an aspect of the world.

The senses are the channels through which we come to know about the world. Vision enables us to find our way through crowded streets, to enjoy the beauty of a flower etc. Hearing makes possible use of speech for communication among people. Through the chemical senses (nose and tongue) of taste and smell we avoid spoiled foods. The skin sense enables us to feel the pain, cold etc.

4.7.2. Meaning of Perception

Perception is the process of becoming aware of objects, qualities or relations by way of the sense organs. While sensory content is always present in perception, what is perceived is influenced by set and prior experience, so that perception is more than a passive registration of stimuli impinging on the sense organs.

Perception refers to the way the world looks, sounds, feels, tastes or smells. Perception is what is immediately experienced by a person. From another view point, perception can be defined in terms of the processes giving rise to our immediate experience of the world. Simply, perception is the way how you perceive and understand things, objects qualities or events stimulating the sense organs. It refers to a person's immediate experience of the world. The behavior of a person depends on his perception. For example, if a student perceives that doing well in his studies at school, it will take him to better future.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

5. Define perception.

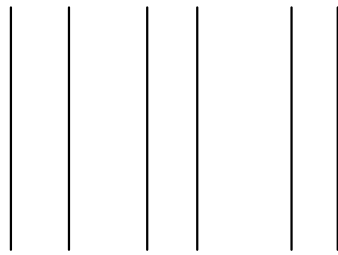
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4.7.3. Laws of Perception

The law of Proximity: Perception depends upon the closeness or nearness of the objects. For example, people sitting nearer to each other in a place seen as a group or seen easily than the people sitting in a

scattered manner. In a garden, plants in group are perceived easily and readily, than a single plant. This is based on the principle of nearness.

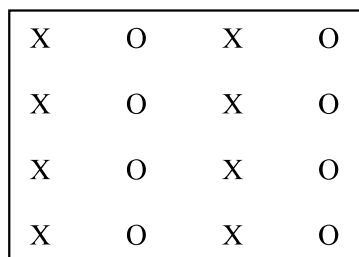
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Law of Proximity

Example: We see three pairs of vertical lines instead of 6 lines. The law of proximity says that items which are close together in space or time and to be perceived as belonging together or forming an organized group.

The law of similarity: Objects with similar qualities like shape and size stand out in distinct groups in the visual field. Here, grouping is done on the principles of similarity.



Law of similarity

Example: We are more likely to see two columns of 'x' and two columns of 'o' than rows of 'xoxo', even though we normally read letters horizontally while going through a book.

The law of closure: The human mind has the tendency to close small gaps in our perception of objects and see it as a complete object. This is the principle of filling up gaps while perceiving objects. For example, in the following figure the broken lines are seen as a complete one, a rectangle.



Law of closure

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The law of closure makes our perceived world to form more complete than the sensory stimulation that is presented. The law of closure refers to perceptual processes which organize the perceived world by filling in gaps in stimulation.

The above three laws explain how perception takes place. Our perceptual experience is based on the arrangements of objects or things. Most of our perception is influenced by the factors similarity, proximity and closure.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

6. Write the laws of perception

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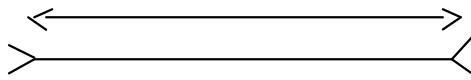
4.7.4. Error in Perception

Our perception is not always correct. At times, our perception goes wrong. When we interpret a stimulus correctly it is perception, when we misinterpret a stimulus it is wrong perception or error in perception. For example, we misunderstand a stimulus, i.e., we see a rope as snake. If you look a snake, it is wrong perception. Wrong perception is called as illusion. An illusion is a distortion of sense perception due to the arrangement of the stimulus components rather than to some characteristic of the perceiver.

Illusion: An illusion is wrong perception. Illusions are perceptions that do not agree with trustworthy perceptions. Illusion is a misinterpretation of the relationships among presented stimuli, so that what is perceived does not correspond to physical reality. Especially, it is an optical illusion.

For example: Seeing a rope as snake – **Visual illusion:** mistaking the voice of a person from neighboring room (only hearing the voice not seeing the person) as your friend’s **voice-auditory illusion.**

a) Muller-Lyer Illusion: This was explained by Muller and Lyer (1889). In this illusion, two straight lines of equal length are perceived unequal. Each of the two straight lines ends with a pair of oblique lines each side, but the directions of the oblique differ in the two straight lines. In one straight line, the oblique lines are turned inward to form arrow heads, in the other they are directed outward to form feather-heads. The feather-headed line is perceived longer than the arrow-headed line. Physically, they are equal, but subjectively or psychologically, they are unequal. This illusion is called optical illusion.



Muller-Lyer Illusion

b) Horizontal-Vertical illusion: Illusion caused by simultaneous perception of two straight lines, one horizontal and the other vertical. Though these lines are equal, the vertical line appears to be longer.



Horizontal-vertical illusion

2. Hallucination: When you perceive something when there is no stimulus, it is known 'hallucination'. Hallucination is a sense experience in the absence of appropriate external stimuli. It is misinterpretation of imaginary experiences as actual perceptions. For example, when a person sees someone in the room who is not there, it is hallucination.

Educational implication

Like attention, illusion is one important factor in influencing human behavior. Our behavior is influenced by our perception. It is necessary to have correct perception of objects and events for effective learning and adjustment.

4.8. IMAGERY

Perceptual thinking represents the basic level of thinking in which sensations arising from sensory stimulation from the objective basis. Thinking can proceed without such sensory inputs and when it does so it is operating on a higher and more formal level, using images.

"Images" are mental forms which enable the individual to think of things even when they are not present before him and even when he is not getting any sensations as a result of object stimulation of sense organs. The mental capacity to form images is referred to as 'imagery'. Prior sensations are necessary for subsequent imagery and we could have images corresponding to the various sensory channels.

4.9. LET US SUM UP

We have understood the concept of Cognitive Development and defining Attention, Sensation, Perception and Imagery. Then, we have tried to describe the factors of attention, laws of perception and errors in perception. We have discussed in brief about the Piaget's concept of

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cognitive development, Cognitive process and stages of cognitive development and accomplishments.

4.10. UNIT END EXERCISES

Give an article from any journal to two groups of students and ask them to read and be ready to answer the questions on it. When they complete the reading, ask some specific questions on the content discussed in the article. On the basis of answers analyze, categorize and classify students as the deep learners and surface learners.

4.11 ANSWERS TO CHECK YOUR PROGRESS

1. a. To perceive, comprehend and simply to know
b. Making adjusting to incoming information
c. Maturation and Environment
2. Enactive, Iconic, Symbolic
3. Nature of the stimulus, intensity and size of the stimulus, contrast change and variety, novelty, repetition of stimulus and movement of the stimulus
4. Types of Attention
5. Perception is the process of becoming aware of objects qualities or relations by way of the sense organs.
6. Law of proximity
Law of similarity
Law of closure

4.12 SUGGESTED READINGS

- Aggarwal , J.C (2007) *Essential of Educational Psychology* New Delhi:Vikas Publishing House private Limited
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UNIT-V COGNITIVE DEVELOPMENT – II

*Cognitive
Development - II*

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- 5.1 Introduction
- 5.2 Concept Formation
 - 5.2.1 Concept- Meaning
 - 5.2.2 Kinds of concept
 - 5.2.3 Factors affecting concept
- 5.3 Piaget's Stages of Cognitive Development
- 5.4 Reasoning and problem solving
 - 5.4.1 Meaning of reasoning
 - 5.4.2 Characteristics of reasoning
 - 5.4.3 Steps involved in reasoning
 - 5.4.4 Meaning of problem solving
 - 5.4.5 Characteristics of problem solving
 - 5.4.6 Approaches of problem solving
- 5.5 Meta cognition
 - 5.5.1 Meaning and definition of meta cognition
 - 5.5.2 Elements of meta cognition
 - 5.5.3 Importance of meta cognition
 - 5.5.4 Meta cognitive principles for intellectual alertness
- 5.6 Implications for the teacher
- 5.7 Let us Sum Up
- 5.8 Unit End Exercises
- 5.9 Answers to Check Your Progress
- 5.10 Suggested Readings

5.1 INTRODUCTION

A discussion on cognitive development will help you understand children's comprehension, underlying mechanisms and methods to facilitate the development of cognition. Divergent thinking deals with the dimension of creativity and its process and the characteristics of creative children. Besides, we discuss the concept formation and Piaget's stages of cognitive development. This unit also discusses about the reasoning and problem solving of students studying at various levels. Finally, it discusses about the meta cognition and the implications of the teachers towards the cognitive development of students.

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5.2. CONCEPT FORMATION

5.2.1. Concept - Meaning

Concept is a symbolic construction that presents some common and general features of objects or events. The human ability to form concepts enables us to divide things into classes. With a concept of 'red' for example, we can sort objects into 'red' and 'not red'; with a concept of fruit, we can classify things into "fruit" and "not fruit". The features we select define the concept and form the basis for making classifications. Since, concepts are ways of classifying the diverse elements in the world around us, they are convenient tools to use in thinking about the world and solving problems. Concept is the properties or relationships common to a class of objects or ideas. Concepts may be of concrete things. A 'symbol' is anything that stands for or refers to something other than itself. When a symbol stands for a class of objects or events with common properties, we say it refers to a concept.

5.2.2. Kinds of concepts

The following are the kinds of concepts

- a) **Simple Concept:** Simple concepts are defined by the presence of a single feature or attribute. 'Red' is a simple concept.
- b) **Complex concept:** Complex concept is a concept defined by several common properties. Many of the concepts we use in thinking are defined by several common properties.
- c) **Conjunctive concept:** Conjunctive concepts are defined by the joint presence of two or more features of objects or events.
- d) **Disjunctive concept:** In a disjunctive concept any one of several properties put an object in the class of the concept.
- e) **Relational concept:** Relational concepts are formed on the basis of the relationships among features. In everyday life, we use more of relational concepts. For example, when we say such as "more than", "taller than" and "near", they are all relational concepts.

Concept Formation

Concept learning utilizes the psychological processes of generalization and discrimination. Abstraction and generalization are the two important processes involved in concept formation.

Abstraction: Abstraction is an analytical process, wherein essential attributes are taken into consideration ignoring accidental properties and necessary qualities. For example, the concept 'horse' arises from a number of percepts of horses. After seeing a number of horses, one tries to perceive a number of qualities such as shape, color, size etc. and

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attempts to sort out the common qualities which is common to all the members of the class 'Horse'.

Generalization: Generalization is another important aspect of concept formation. Generalization is the detection of the principles common to a class of objects, events or problem. Generalization is the process by which a quality or qualities so abstracted is referred to a number of similar objects.

5.2.3. Factors affecting concept

Transfer is one factor which affects concept attainment. When people know a concept similar to the one being learned, they can learn the new one rapidly. This is positive transfer.

Distinctiveness is another factor of concept attainment. It is the degree to which the common elements are isolated, grouped or otherwise made conspicuous.

Ability to manipulate is the third factor in concept attainment. It is the ability to manipulate the materials involved in the concept. Rearranging, redrawing or reorganizing materials containing the common properties helps the people to discover the concept.

Instructional set is the fourth factor of concept attainment. If people are told try to discover the common elements, they do better than if they are not given such directions.

Educational implications of concepts

Many human learning involves the attainment of concepts. Much human thinking uses them. Therefore, the ability to make and use concepts is of practical value for students for effective learning. Learning involves developing and using concepts in educational matters. Concepts facilitate learning of an individual since concept formation depends on experience. Wherever possible, provide direct experience to the children in school. Pupils should be encouraged to express precisely than ideas orally and in written form.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

1. Write the kinds of concepts.

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

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5.3. PIAGET'S STAGES OF COGNITIVE DEVELOPMENT

According to him, there is an orderly sequence of stages in cognitive development. Thus, progression from one stage to another is always fixed. The child cannot adopt the strategies of a later stage at an early stage of development. It is because, he must have to acquire and exercise the strategies and schemas of earlier stages. For example, in order to understand words, the child must know letter first or we cannot teach "Electronic Physics" to a child of primary class.

The stages of cognitive development are related in the sense that they represent the forms of adaptation, but these forms are qualitatively different, that is the adaptive functions are transformed as the child moves from one stage to the next. This theory of development is quite different from the theory of associationists who emphasize the gradual accumulation of responses.

Important stages of Piaget's theory of mental development are given below.

I. Period of sensori-motor adaptation (from 0-2 years): The infant starts this stage by his reflex activities and then he reaches to the stage of sensori-motor schemes by practice and accommodation. The intellectual development at this stage is marked by the following characteristics.

Object concept formation: Objects exist in the mind of an adult whether they are present before the person or not. But, in the psychological world of a child, only those objects exist which have a psychological presence for the child i.e. he can look and touch it. As soon as they are removed from the eyes of the child, they cease to exist for the child. When the child experiences the same object repeatedly, he develops the concept of permanence of objects. This concept is developed in the first year of life. When this type of structure is formed in the mind, practice of concepts is started by the child.

Co-ordinate space: Spatial world at first is totally uncoordinated for the child. Each sensory modality has its own space. By the end of two years, the child develops the concepts which are marked by the coordination among different objects and between objects and body of the child.

Objectified casualty: The concept of cause and effect relationship is established when action of the child brings about an effect. Then, this effect is taken as the cause of that event.

Objectification of time: By the end for two years, the child is also able to objectify time.

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II. Period of symbolic and preconceptual thought (2-4-years): Ideas begin to develop in the mind of the child at the third year. By imitation and observation, he demonstrates that he is capable of extending his physical world to metaphysics. He begins to use symbols in the 4th year. Now, he can represent the environment in the absence of perceptual cues only on the basis of ideas.

III. Period of intuitive thought (4-8 years): At this stage, the child can use various concepts in different situations, i.e. he is able to generalize his past and present experiences. His thoughts are not based on logical reasoning. It is rather governed by intuition. The child can talk about this and that momentary static condition in a separate manner, but he cannot properly integrate various sets of conditions into an integrated whole due to lack of logical weakness i.e. logical coherence is not found here. For example, a child can write fine sentences representing various topics but he cannot write a compact essay.

IV. The period of concrete operation (8-12 years): Here, the child is able to direct his attention away from the static conditions i.e. he can accommodate with all the successive changes taking place in the system. It means that he reorganizes the future on the basis of his past experience as trends at present. Reasoning power of there is well developed during this period examples of what a child can do are handling manipulating the numbers in various ways various operations, arrangement of object materials into various groups and sub group ordering of objects according to one or attributes and so on. Piaget has described “grouping” for this stage of cognitive development.

V. Period of formal (abstract) operation (12-18 years): During this period, the thought process of the child becomes systematic, consistent reasonably well integrated. Really guides contemplation process of the child. The formal operation of thinking starts with the formulation of hypothesis, (deductive reasoning) and reached at its peak when hypothesis is tested experiments, i.e. inductive reasoning. At stage, the boy can manipulate any abstract idea in his own way and form new idea entirely different from the old one. His wisdom lays the expertise administration of the unforeseen. Whenever an adolescent faces any problem with a help of formal operation of thought, he identifies various relevant variables which may be helpful in the solution of and then all these variables are manipulated by him. Thus, development of formal operation capacity enables the adolescent to transfer understanding from one situation to another and to evaluate the results on the basis of its pros and cons.

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5.4. REASONING AND PROBLEM SOLVING

5.4.1. Meaning of reasoning

It is the process of higher order thinking where general principles are employed to draw relevant inference. Gates has defined reasoning as “Reasoning is a productive thinking in which previous experiences are organized in new ways to solve problem”.

5.4.2. Characteristics of Reasoning

1. It is needed when we cannot arrive at the solution of a problem by applying direct approach responding.
2. It helps in developing insight for learning problem solving.
3. It goes in the direction given to the learner, i.e. is always goal directed.
4. It is productive thinking not a wastage of time or energy we will get something after employing the process
5. It works as an important tool for solving problem
6. It is creative and reflective in nature.
7. It is a function of intelligence. A dull child is not supposed to employ reasoning process.
8. It is inductive and deductive both
9. Reasoning ability develops gradually. It means that experiences are also helpful in development reasoning power along with intelligence.
10. There may be more than one logic to drawn inference, i.e. reasoning is multidimensional.

5.4.3 Steps involved in reasoning

1. **Identification of the problem:** Problem is first identified by the person, i.e. what he has do to and how.
2. **Defining the Problem:** Problem in handled defined by the person in operational term analytical approach is followed to define each and every aspects of the problem one by one.
3. **Formulation of hypothesis:** Hypotheses are formulated by the person in the third step. This gives him the direction in which he will go for collecting data. The extent of enquiry is also determined by the hypotheses.
4. **Collection of Data:** In order to verify the hypotheses whether they are true or false, relevant data are collected (if needed).
5. **Tabulating and systemizing data:** Jumbled information are tabulated and classified for the purpose of statistical treatment (if needed).

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6. **Verification /evaluation of hypotheses:** It helps the person in three ways:

- a) Whether conclusion satisfies the demands of the problem, i.e., hypotheses is true or false.
- b) Whether conclusion is consistent with other known facts and principles or it is against them.
- c) Fixing the limitation of the conclusion i.e., to what extent it can be applied to different situations.

5.4.4 Meaning of problem solving

It is the highest level of learning in the hierarchy according to Gagne. From application of facts and principles to their evaluation, it involves everything. Thus, it is the highest level of thinking process. Some of the definitions of problem solving are given below.

1. Gates - Problem solving is a form of learning in which the response must be discovered.
2. Skinner – Problem solving is the framework or pattern with in which creative thinking or reasoning takes place.

5.4.5 Characteristics of problem solving

1. It is a process of removing obstacles that appear to interfere with the realization of goals. Thus, it is a perceptual and goal directed process.
2. It is a selective process in the sense that only relevant facts or information are selected to reach the goal.
3. Problem solving ability of a person depends on his reasoning power.
4. Re-organization of experiences is also needed here.
5. It is a creative process that gives us something new.

5.4.6. Approaches of problem solving

Psychologists have mentioned two approaches of problem solving

- (a) Cognitive approach (b) S.R. approach

Cognitive approach: Perception of total situation is needed here and it is done by linking various components and restructuring the cognitive field. It has already been discussed in the learning by insight theory.

Stimulus-Response approach: Trial, effort and regular reinforcement are needed here. By this process, problem is solved by gradually eliminating the errors and by increasing the chance of correct responses through reinforcement.

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Check your Progress

- Notes:** a) Write your answer in the space given below:
b) Compare your answer with the one given at the end of the unit.
2. What are the approaches of problem solving?
.....

5.5. METACOGNITION

5.5.1. Meaning and definition of metacognition

Metacognition refers to higher order thinking that involves active control over the thinking process involved in learning. Meta cognition is often simply defined as “**thinking about thinking**” or ‘**learning to learn**’. Cognitive strategies are used to help to achieve a particular goal while Metacognitive strategies are used to ensure that the goal has been reached (**Saravanakumar.AR, 2006**).

Activities such as planning how to approach a given learning task, monitoring comprehension and evaluating progress towards the completion of a task are Metacognitive in nature. Because, meta cognition plays a critical role in successful learning, it is important for both students and teachers. Metacognition has been linked with intelligence and it has been shown that those with greater metacognitive abilities tend to be more successful thinkers.

5.5.2. Elements of metacognition

The term metacognition is most often associated with John Flavell (1979). According to Flavell, Metacognition consists of either metacognitive knowledge and meta cognitive experience or regulation.

i) Metacognitive knowledge

Metacognitive knowledge involves executive monitoring processes directed at the acquisition of information about thinking processes. They involve decisions that help

- ❖ To identify the task on which one is currently working.
- ❖ To check on current progress of that work,
- ❖ To evaluate that progress, and
- ❖ To predict what the outcome of that progress will be,

Flavell further divides Metacognitive knowledge into three categories:

- a) Knowledge of person variables
- b) Knowledge of task variables and
- c) Knowledge of strategy variables

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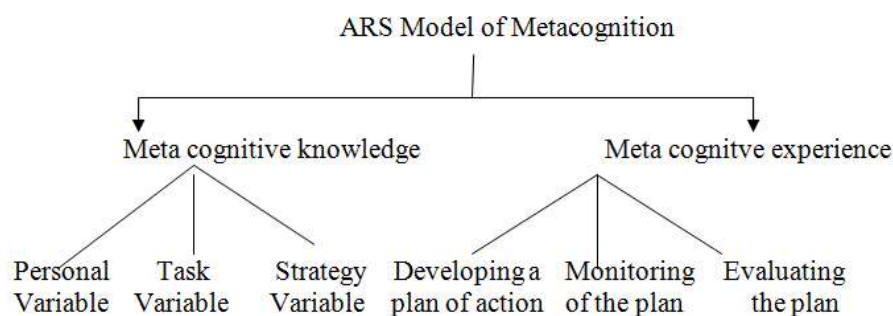
Stated very briefly, knowledge of person variables refers to knowledge about how human beings learn and process information, as well as individual knowledge of one's own learning processes. For example, you may be aware that your study session will be more productive if you work in the quiet library than at home where there are many distractions. Knowledge of task variables includes knowledge about the nature of the task as well as the type of processing demands that will place upon the individual. For example, you may be aware that it will take more time for you to read and comprehend a physics text than it would for you to read and comprehend a Tamil prose text.

ii) Metacognitive Regulation

This involves the executive regulation processes directed at the regulation and overseeing of the course of learning. The executive control process consists of

- (a) Developing a plan of action
- (b) Maintaining/Monitoring of the plan
- (c) Evaluating the plan

For example, after reading a paragraph in a text, a learner may question himself about the concepts discussed in the paragraph. His cognitive goal is to understand the text. Self-questioning is a common meta cognitive comprehension monitoring strategy. If he finds that he cannot answer his own questions, or that he does not understand the material discussed, he must then, determine what needs to be done to ensure that he meets the cognitive goal of understanding the text. He may decide to go back and re-read the paragraph with the goal of being able to answer the questions he had generated. If, after re-reading through the text, he can now answer the questions, he may determine that he understands the material. Thus, the meta cognitive strategy of self-questioning is used to ensure that the cognitive goal of comprehension is met.



5.5.3. Importance of metacognition

Metacognition enables students to benefit from instruction and influences the use and maintenance of cognitive strategies. While there are several approaches to metacognitive instruction, the most effective one involves providing the learner with both knowledge of cognitive

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processes and strategies (to be used as meta cognitive knowledge), and experience or practice in using both cognitive and meta cognitive strategies and evaluating the outcomes of their efforts (develops meta cognitive regulation). Simply providing knowledge without experience or vice versa does not seem to be sufficient for the development of metacognitive control.

The study of metacognition has provided educational psychologists with insight about the cognitive processes involved in learning and what differentiates successful students from their less successful peers. It also holds several implications for instructional interventions such as teaching students how to be more aware of their learning processes and products as well as how to regulate those processes for more effective learning.

5.6. IMPLICATIONS FOR THE TEACHER

1. The teacher should not give readymade solution to the problems. He should use inductive and deductive methods of teaching to develop reasoning power in his students.
2. Self-learning is the best learning. It is possible only when students are trained to solve the problems themselves.
3. While giving problems to students for solution, the maturation level, intelligence and experiences of students should also be taken into account.
4. After giving problems to students they should be only moderately motivated. Excessive motivation is an impediment in the way of problem solving.
5. Divergent thinking is necessary for reasoning and problem solving so, confirmatory behavior of learning should be discouraged. They should be flexible in his attitude for this.
6. Sensation and perception both simultaneously for problem solving. They should help the students to perceive the as a whole.
7. Active involvement of students is necessary developing problem solving ability in diagrams, models and figures should be use concrete materials should be manipulating conceptualize the abstract problems.
8. In the opinion of Harlow, practice is necessary for developing insight. The teacher should chance of practice to his students.
9. There should be free discussion and question in the class.
10. Cues prompts should be given to sure only when it is very necessary.

5.7. LET US SUM UP

We have discussed in brief the meaning of concept, reasoning, problem solving and metacognition. Then, we tried to describe two

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types of approaches deep approach and surface-approach. Under the concept formation, kinds of concept and factors affecting concept are discussed. Piaget's stages of cognitive development are briefly explained. Characteristics of reasoning, steps involved in reasoning, characteristics of problem solving and approaches to problem solving are also revealed. Elements of metacognition and importance of meta cognition are briefly discussed.

5.8. UNIT END EXERCISES

Take any topic of your interest and try to identify the processes of differentiation, integration and restructurisation of the cognitive approach.

5.9. ANSWERS TO CHECK YOUR PROGRESS

1. Kinds of concepts

- Simple concept
- Complex Concept
- Conjunctive Concept
- Disconjunctive Concept
- Relational Concept

2. a) Cognitive approach b) S-R Approach

5.10. SUGGESTED READINGS

- Aggarwal , J.C (2007) *Essential of Educational Psychology* New Delhi:Vikas Publishing House private Limited
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UNIT VI – LEARNING

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 - 6.2.2 Importance of learning in human life
 - 6.2.3 Characteristics of learning
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6.1 INTRODUCTION

Learners are unique in themselves. They may differ in their mental capacities, interests, attitudes and values. They may also differ by virtue of their being male or female, rich or poor, of one caste or the other. You have also studied how individual differences can be explained on the basis of environmental and hereditary factors.

In this unit, we shall discuss how learning takes place in an individual and what the different types of learning are. You will learn conditions of learning, maturation and the process of learning. You will also learn factors relating to thinking and reasoning. You will learn the fundamental learning theories of Thorndike, Pavlov, Skinner, Kohler, Lewin and modern learning theories of Piaget, Burner, Gagne and Ausubel.

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6.2 NATURE AND IMPORTANCE OF LEARNING

6.2.1 Meaning of learning

The knowledge we acquire, the language we speak, the habits, attitudes and skills developed in us are all due to learning. Psychologists defined learning as a relatively permanent change in behavior, which occurs as a result of activity, training, practice or experience. This definition of learning has three important elements:

- 1) Learning results in change in behavior.
- 2) It is a change that takes place through practice or experience .
- 3) Before it can be called learning, the change must be relatively permanent. It must last a fairly long time. But, behavioural changes brought about by fatigue, drugs, illness, warm up etc. are transitory in nature and hence they are not included under learning.

Thus, learning could be defined more simply as “profiting from experience”.

6.2.2 Importance of learning in human life

Learning is basic to human behavior. Learning plays a central role in the language we speak our customs, attitudes and beliefs, our goals, our personality traits (both adaptive and maladaptive) and even in our perceptions. As a consequence of learning, the human child which starts with a few inborn patterns of behavior called instincts (like breathing, blinking, sucking the nipple of the mother, kicking the limbs, cooing and crying) for its adjustment to its environment, could constantly refine its modes of dealing with its environment and become more independent, effective and self-reliant in its functioning. Human infancy is the longest as compared to other organisms. This turns out to be a blessing in disguise as it becomes the period of learning. Because of their superior learning behavior, human beings emerge as par excellence among all living organisms. Speaking, laughing, restoring to finer and gentle recreations, acquiring fine motor abilities, owing culture and practicing different fine arts are all unique to human beings only. As a result of learning, the child tries to inherit social heritage and refine it further.

6.2.3 Characteristics of learning

The following are the important characteristics of learning:

1. Learning is universal. All living beings learn.
2. Learning is continuous. It is a perpetual activity that takes place from ‘womb to bomb’.

3. Learning results in improved performance.
4. Learning is purposive. A child's learning in and out of school is closely linked up with its goals, purposes and satisfactions. Nobody learns anything without a purpose.
5. Learning is multiple and integrative. For purpose of research, Psychologists often try to distinguish different kinds of learning such as verbal learning, perceptual learning, motor learning, conceptual learning, problem-solving and emotional learning; but these distinctions, though useful, are artificial. For example, a girl who learns shorthand does not learn a motor skill only. She also learns many arbitrary relationships between short visual symbols (verbal, motor and associative learning). At the same time, she certainly learns some attitudes about shorthand, the commercial world and herself (emotional learning).
6. Learning is contingent upon experience. 'Learning' is not something to be given; it is to be gained by self-experience. A person's knowledge or learning is the result of that person's experience'.

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6.3 TYPES OF LEARNING

Learning has been classified by psychologists in many ways depending upon the cognitive, affective and psychomotor domains like verbal learning, conceptual learning, attitudinal learning, perceptual learning etc. Some specific types of learning are presented below.

1. **Motor Learning:** The learning of all types' motor skills may be included in this type of learning. Learning swimming, riding a horse, driving a car, flying a plane, playing the piano, hitting a moving target, drawing a diagram, performing experiments and handling various instruments are examples of such learning. Skills to perform such activities can be acquired through systematic and planned ways of learning methods and devices.
2. **Perceptual Learning:** Child gets sensation through sense organ. While giving meaning to this sensation, perception takes place. It means that objects around him are meaningful to him and he perceives them. He learns the names of different objects in order to differentiate them.
3. **Associative Learning:** New concepts are associated or linked with the old concepts and knowledge to acquire learning.
4. **Conceptual Learning:** A concept is a generalized idea about things, persons or events in the form of a mental image. The concept of 'house' is a mental image that throws up the similarities or common properties of all the different houses we know.

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5. **Animal Learning:** Animal learning is a motor learning. Motor learning is done by actions, signs and symbols. Animals learn by motor activities like running, jumping, climbing, eating and drinking etc.
6. **Sensory Motor Learning:** Learning is a sensory motor process. Sensory motor learning is a coordinative activity of both sensory organs and physical activities by using arms, hands, fingers, legs, toes and the body movements.
7. **Attitudinal Learning:** Child develops certain attitudes towards the living or non-living things through which learning take place.
8. **Verbal Learning:** Human learning is mostly verbal. The language we speak and the communication devices we used are the product of verbal learning. Signs, pictures, symbols, words, figures, sounds and voices are employed by the individual as essential instruments for engaging in the process of verbal learning.
9. **Discrimination Learning:** When the child is presented with two or more stimuli which differ in some detail, the child distinguish the differences. In such a way, the child learns by discriminating the things or objects.

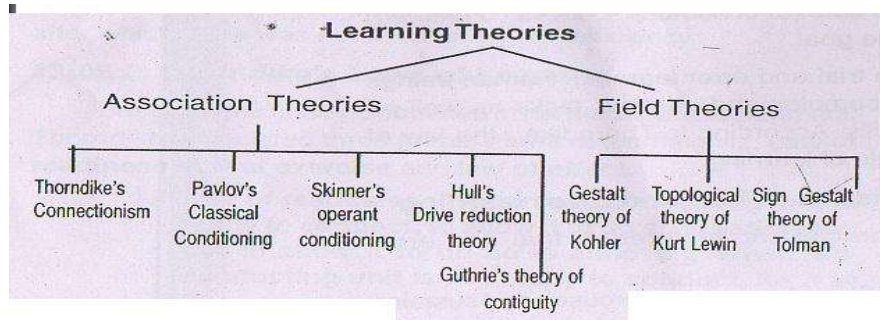
6.4 LEARNING THEORIES

The versatility of man's adjustment to diverse environments and the commanding heights achieved by him in arts, science, philosophy as well as his rich cultural accomplishments are all founded on his unparalleled learning capacity. Learning is said to occur whenever one adopts new behavior patterns or attitude. Psychologists have observed different learning situations and studied the nature of the learning process. As learning is a complex phenomenon, different people view it differently, giving importance to one or the other aspects of learning process. Thus, psychologists hold different views on the intrinsic and basic nature of learning process and each set of views attempting to explain learning process is came to be known as a theory of learning. Every theory of learning attempts to explain the following basic six questions pertaining to learning.

- a. What is learning? Or how one learns?
- b. What are the reasons for individual differences in learning?
- c. How one forgets?
- d. What is the role of practice and understanding in learning?
- e. How learning in one area is transferred to other areas?
- f. What are the ways of motivating pupils to learn?

6.4.1 Classification of learning theories

A number of learning theories have emerged and these may be classified under two major systems - Association Theories and Field or Cognitive Theories



6.4.2 Difference between association and field theories

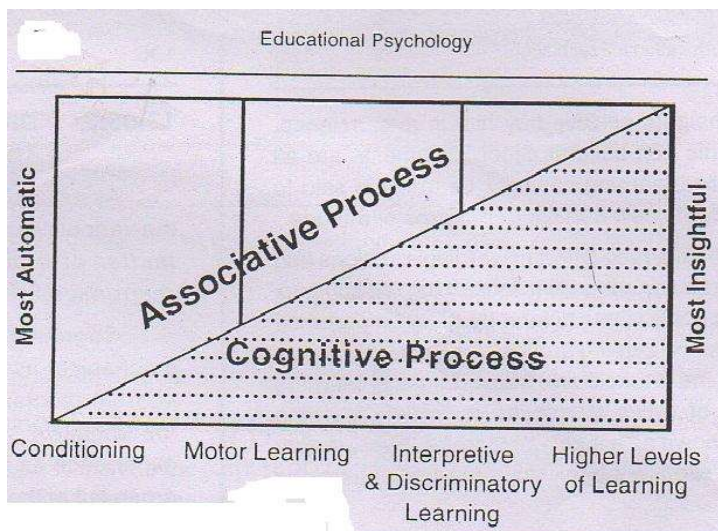
Association theories (also known as S-R theories) include the various learning theories which try to explain learning as ‘a matter of connections established between stimuli and responses’. Cognitive or field theories of learning are critical of mechanical associationism. They place greater emphasis on internal mental processes like perception, attitudes etc. and the cognitive structures which man might acquire from past experience as the basis of learning. Field theories of learning arose out of the Gestalt point of view according to which human experiences have certain “ field properties” that make a ‘total’ or ‘whole’ phenomenon greater than the sum of its individual parts. Field is the total psychological world in which an individual operates at a given moment. An individual reacts not to the environment as it is but as he perceives it at the moment of behavior. What is important in learning is not the awareness of isolated elements but the meaning the situation has for the individual. Relation among elements is more important than the elements themselves. Learning involves structuring the cognitive field and formulating cognitive patterns corresponding to the relation among stimuli in the environment. Due to learning, our experiences are reorganized so as to make them systematic and meaningful patterns. Learning is not building simple perceptions into complex patterns, but one of proceeding from ‘a complex unit that is partially understood to a gradual clarification’. Field theories emphasize organization, relationship, meaningfulness, insight and cognitive clarity.

The major differences between Association and Field theories are listed below:

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S.No	Association Theories	Field Theories
1	Learning is formation and strengthening of S-R connections, aided by reinforcements.	Learning is organization of experiences into a cognitive structure: central element of learning is the perception of relationship between whole and parts, means and results.
2	Learning proceeds from simple to complex; learning is additive and integrative.	Learning begins with the perception of the whole imperfectly and progressive clarification of the whole and of parts in relation to the whole.
3	Associationists are mechanistic in their interpretation of learning.	Field theorists interpret human behavior as dynamic, cognitive and purposeful.
4	Associationists do not attribute any motive or purpose for human behavior, including learning.	All human behavior including learning are motivated and goal directed.
5	Emphasis is on drill and practice under condition of reinforcement.	Emphasis is on the development of 'insight'.
6	Transfer of learning is due to the principle of common or identical elements present in the two learning tasks.	Transfer is due to the transposability of relationships between the two tasks learned.

However, it now appears that learning tasks involve a mixture of associative and cognitive learning with simple conditioned responses which are most automatic depending more on associative process and complex and abstract human learning depending more on cognitive process. The following diagram clarifies this fact.



6.5 THORNDIKE'S TRIAL AND ERROR LEARNING THEORY

Thorndike's connectionism also referred to as 'trial and error learning' is based on experiments conducted by him. Thorndike spoke of learning as a trial and error process developing neural connections between stimuli and responses. When a stimulus is presented, the organism picks a response and connects it; by repeated trials the organism eliminates the errors and selects the appropriate response for the stimulus and connects it. Learning is a matter of accidental hitting of correct response which is 'stamped in' as a result of satisfaction. A trial is defined by the length of time (or of number of errors committed) in a single reaching of the goal. Animals mostly use trial and error learning. Human beings too resort to it to learn complex and abstract tasks as well as tasks involving motor skills. According to Thorndike, the law of effect is the basic principle of learning.

6.5.1 Characteristics of trial and error learning

There are four characteristic features of trial and error learning

- i. There is some sort of motive that arouses and sustains the activity. This motive appears in the form of a need, a problem or goal. This impels one to activity
- ii. The organism makes several different kinds of responses to the situation i.e. varied responses
- iii. There is a progressive elimination of the irrelevant, unsuccessful forms of activity
- iv. Finally, there is progressive integration and establishment of the response by which the goal is achieved.

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6.5.2 Thorndike's Experiment

He placed a hungry cat in the puzzle box. A piece of fish in a dish was kept outside the box. The box could be opened by correctly manipulating a latch. On seeing the fish, the cat became restless and made frantic efforts such as biting, clawing and dashing the walls before the latch moved accidentally and the door opened. On subsequent trials such incorrect responses i.e. biting, clawing and dashing are gradually stamped out and the cat was found to have eliminated all the wasteful movements (errors) and it operated the mechanism (latch) with considerable ease in the first attempt itself. This experiment shows that learning is simply selecting and connecting the correct response with the given stimulus by a process of progressive reduction of incorrect responses and stamping in the correct response through trial-and error. If the trials were continued even after learning to do the tasks correctly, efficiency of performance of the cat increased (time taken to finish the task correctly, decreased) and reached the maximum level, after which there was not much in gain in efficiency.

6.5.3 Thorndike's Laws of learning

Based on the findings obtained in his puzzle box experiment, Thorndike enunciated three primary laws of learning viz. law of readiness, law of exercise and law of effect.

1. **Law of readiness:** When any conducting unit is ready to conduct, to allow it do so is satisfying, not to allow it do so is annoying. When any conducting unit is not ready to conduct, for it to conduct is annoying. Thorndike's law on readiness is a law of preparatory adjustment and not a law about growth.

Educational implications:

- a) The teacher should see that the child is motivated to learn before he begins to teach. Motivation is the royal road to learning. Preparatory exercise that will hasten the state of readiness can be given. The teacher should introduce a lesson by relating it to the background experience of the child.
 - b) Interest inventories and aptitude tests can also be administered to know the entry behavior of the learners, especially in admitting students for specialized courses.
2. **Law of Exercise:** When a modifiable connection is made between a stimulus and response, other things being equal, that connections strength increases if it is repeated a number of times. This is called the 'law of frequency'. This is akin to what we mean when we say practice makes perfect.

Another principle governing trial and error is that an act which has just recently been performed has an advantage of being repeated once again, for the simple reason that it is fresh in the experience of the

organism. This principle is called 'law of recency'. These two laws of frequency and of recency are grouped together under the name of law of exercise.

Educational implications:

- a) After learning anything, adequate practice or drill should be undertaken to ensure that learning becomes stable and effective.
 - b) Periodical review of learned material is necessary.
 - c) Mere drill or exercise is not enough continuous feedback is also necessary.
 - d) Bad habits can be eliminated through disuse, leading to atrophy or forgetting.
3. **Law of effect:** It refers to the strengthening or weakening of a connection as a result its consequences. The law states, "when a modifiable connection is made between a stimulus and a response and is followed up by satisfying stable of affairs, its strength increases; when followed by dissatisfying state of affairs, its strength decreases".

Educational implications:

- a) As rewards further learning behavior, judicious use of praise and encouragement in the class promotes better learning
- b) As "success leads to further success", school activities can be arranged in such a way that all learners may have some degree of success and confidence in their work i.e. all assignments should be so graded that everyone gets some success initially.

6.5.4 Limitations of Thorndike's theory of learning

The following are the important limitations of Thorndike's theory of learning

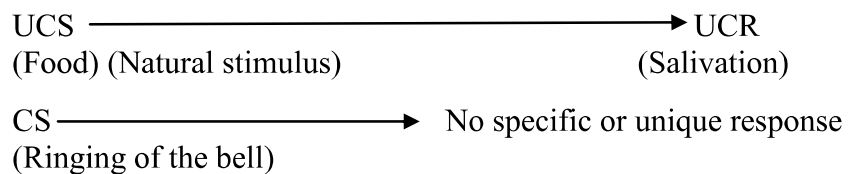
- 1. Thorndike's theory of trial and error is true only for motor learning and that too learning a complex task in an unfamiliar situation. All human learning does not take place at the physical level alone.
- 2. Thorndike's theory reduces to the capacity to form S-R bonds, i.e. learning becomes mechanical and the cognitive skills like thinking, reasoning, comprehending, imagining etc. have no relevance in learning. This may be true in animal learning. Human beings are unique for their intelligence and the use of their sharpened cognitive capacities.
- 3. According to Thorndike, what fixed the correct pattern of activity are recency, frequency and effect of the elements that through association go to make up the pattern of activity. But, this is not true in the case of complex high order learning. A complex algebraic problem cannot be solved by repeatedly doing the problem, without proper understanding.

6.6 PAVLOV'S CLASSICAL CONDITIONING THEORY

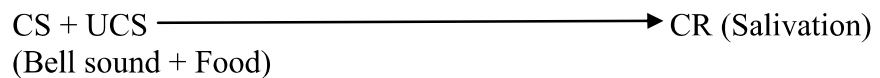
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Russian physiologist Ian Pavlov, during his experimental work on dog's digestive process, accidentally noticed the secretion of saliva in the dog on the sight of food or hearing the footsteps of the caretaker. Conditioning can be defined as "a process in which a neutral stimulus which is not associated with any specific natural response, on pairing with a natural stimulus, acquires all the characteristics of natural stimulus". For example, if food is presented, saliva flows. Food is the 'natural stimulus' (or unconditioned stimulus-U.C.S.) that can elicit the 'natural response' (or unconditioned response-U.C.R.) Salivating. The sound of a bell which is a neutral stimulus, not associated with any specific response originally, when paired with food a number of times, acquires the characteristics of food and starts eliciting the response of salivation, even when presented alone. Now, we say the dog has been conditioned to the sound of bell and we refer the bell sound as 'conditioned stimulus' (C.S) and 'salivation' as 'conditioned response' (C.R.). The classical conditioning of Pavlov is also called 'stimulus substitution' because we substitute a neutral stimulus, through the process of 'contiguity' (occurrence of two events in quick succession). Symbolic representation of classical conditioning is given below:

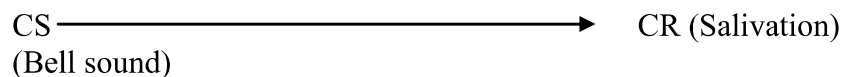
Stage I (Before conditioning)



Stage II (Process of conditioning)



Stage III (After conditioning)



Conditioning appears to be the simplest type of learning and the basis for further and more complex types of learning. Most of the animal learning could be explained through the concept of conditioning. Conditioning appears to be an important means of learning among human beings too, particularly in childhood. Simple patterns of behavior, learning of words and their associated meanings, new emotional responses may be all satisfactorily explained using the concept of conditioning.

6.6.1 Educational Implications

- Classical Conditioning is used in language learning by associating words with pictures or meaning
- It can be used to develop favourable attitude towards learning, teachers, subjects and the school
- Developing good habits in children such as cleanliness respect for elders punctuality etc through the use of conditioning
- Breaking of bad habits and elimination of conditioned fear, through the use of deconditioning process

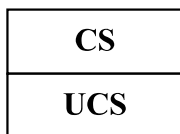
6.6.2 Limitations of Conditioning Theory of learning

Complex areas of learning involving generalization, abstraction, reasoning, understanding and problem solving cannot be explained by conditioned process. It can describe only those learning related to emotional shaping and habit formation.

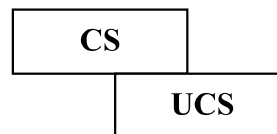
6.6.3 Laws of Conditioning

From his experiment of conditioning, Pavlov derived the following five laws

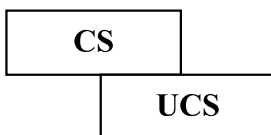
1. Law of causation: According to this law, a conditioned response is established by a series of contiguous pairings of CS and UCS. That is, when the UCS and CS are presented in temporal contiguity (associated in time) a conditional response gets established.



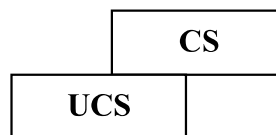
(Simultaneous conditioning)



(Delayed Conditioning)



(Trace Conditioning)



(Backward Conditioning)

(Temporal relationships in conditioning)

Best conditioning occurs when the CS and UCS are presented simultaneously or CS is the signal heralding the occurrence of UCS.

2. Law of experimental extinction: If the CR is elicited without reinforcement by the presentation of the UCS, then the CR gets weakened and finally disappears. Suppose the salivation is conditioned by ringing the bell without presenting the reinforcing agent viz. food (UCS) after a few trails the response (the amount of saliva) gradually

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reduces and finally the response may not occur at all. The dog probably thinks that it cannot be fooled any further. However, this disappearance of the CR is not permanent. When the dog is again brought from rest, it once again salivates on hearing the bell. This immediate recovery of conditioned responses is called spontaneous recovery.

3. Law of Generalization: Once the CR is established it may be elicited by any stimulus similar to the original CS. If conditioning was established using bell as the CS, the CR will occur even for a buzzer. If fear response is obtained for a policeman, it may be obtained for anybody in Khaki uniform.

4. Law of discrimination (or selective conditioning): A selective CR can be established by selective reinforcement. Suppose a CR is established to a bell sound the same generalization is shown to a buzzer sound also. If the CR that follows the bell sound is reinforcement by presenting the UCS and the CR that follows the buzzer sound is not reinforced then the CR to the buzzer sound gets weakened and becomes inactive.

5. Law of higher order conditioning: The pairing of a neutral stimulus with a UCS results not only in it's becoming a conditioned stimulus for the response but also in it's becoming a reinforcing stimulus in its own right. Thus, what was formally a CS (say bell sound) can be used in a second pairing phase to phenomenon second order or higher order conditioning. Second order conditioning is weak as compared to first order or primary conditioning.

6.6.4 Concept of Reinforcement

Any stimulus is areinforce if it increases the probability of occurrence of a particular desired response. For example, in Pavlov's experiment, food was presented immediately after the dog heard the bell sound and started salivating. Here to increase the occurrence of the conditioned response viz. salivating on hearing the bell sound food was presented as reinforce.

6.7 SKINNERS OPERANT CONDITIONING THEORY

B.F. Skinner believed that no stimulus is capable of eliciting a unique response from an organism. It is the organism which emits all kinds of responses spontaneously. For example, a cat without any reason licks its face with its tongue a dog barks a pigeon pecks at dots. All such responses are emitted responses whenever an organism emits a desired response it could be made to occur frequently by suitably rewarding it by presenting a reinforcing stimulus. Thus, reinforcement of desired response is the essence of operant conditioning whereas in classical conditioning stimulus substitution takes place by pairing the neutral stimulus with a natural stimulus or UCS. Operant conditioning

is called type R-conditioning in contrast to classical conditioning in which there is type S (stimulus) conditioning. An important point in operant conditioning is that reinforce must come after the desired response has been made and not before it. Here to get the reward or prize, the organism has to operate in (or to deal with) its environment in a particular way. So, this type of learning is also termed as operant conditioning. As the organism expresses a response or behavior pattern and through that tries to fetch the reward this type of learning is also known as instrumental conditioning.

6.7.1 Skinner's Experiment

Skinner's box is a cage in which a white hungry rat is placed. A simple response of pressing a lever was chosen as a unit of desired behavior. The movements of the rat were electrically recorded and cumulative record of the behaviour of the rat was obtained. The rat by chance pushed the bar and got a pellet of food it repeatedly pressed the bar and got a pellet of food. After eating that pellet of food it repeatedly pressed the bar and every time got food pellets. Food reinforced the bar pressing responses and soon the rat became conditioned to that response. Reinforcement is central to operant conditioning. In another experiment conducted on pigeon, the pigeon moves about the cage. It was trained to peck a disk. Every time it pecked, food was supplied. Thus, food reinforced the behaviour of pecking the disk, called an operant. The law of operant conditioning states that, if the occurrence of an operant is followed by the presentation of a reinforcing stimulus, the strength of operant is increased. If the response (operant) is not reinforced, it results in the extinction of the response. Extinction of a response means its becoming less and less frequent.

6.7.2 Schedule of Reinforcement

Schedule of reinforcement refers to the pattern according to which reinforces follow responses. There are mainly two types of schedules. One is continuous reinforcement, in which reinforces is given for every response. The second is intermittent reinforcement, in which only some of the responses are followed by reinforcement. If the intermittent reinforcement depends on the rate at which responses are emitted, this is called a ratio schedule. If, on the other hand, it depends on the passage of time, it is called an interval schedule. Furthermore, each of the ratio and interval schedule can be either fixed or variable. All these give us four main kinds of schedule

- ❖ **Fixed ratio schedule:** Here, reinforce is given after every fourth or every eighth or every tenth response.
- ❖ **Variable ratio schedule:** Here, reinforce is presented after a different number of responses on different occasions and not

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consistently after a particular number of responses as in the fixed ratio schedule.

- ❖ **Fixed-interval schedule:** Here, a fixed interval of time must elapse after one reinforce is given before another can be goal. In this way, when a fixed-interval two minute schedule is in operation, the subject cannot get more that one in two minutes, no matter how fast he responds. Therefore, in such a case he may as well respond only once in two minutes.
- ❖ **Variable-interval schedule:** Here, reinforce is given in a variable fashion, sometime sooner and sometimes longer after the previous one. Since, the subject is unaware of when reinforce will come, the only way for him to get all available reinforces as and when they are given would be to respond continuously. Experiments show that in general subjects make more responses per reinforce on any kind of intermittent schedule than on continuous reinforcement. If reinforcement is finally terminated altogether, resistance to extinction is also greater after intermittent than after continuous reinforcement. To obtain rapid steady responding, high resistance to extinction, the variable ratio schedule is the most effective.

6.7.3 Shaping

Shaping is the technique by which Skinner trained animals to perform acts which are not within their normal range of behaviour. The complex behaviour is shaped through a series of successive approximations, each made possible by selectively reinforcing certain responses and not others. Thus, behaviour is gradually brought closer and closer to the designed pattern. By the shaping of operant behavior, Skinner had trained rats to press a lever to obtain a marble, carry the marble to the other side of the cage, drop it in a hole and then run to a third place in the cage to get food. Similarly too, he half trained pigeons to play a game of ping-pong, pecking a ball back and forth across a table.

6.7.4 Skinner's Contribution to Education

Skinner's operant conditioning theory has found application in education in the following ways:

1. **Individualization of instruction:** Programmed learning, teaching machines, computer assisted instruction etc. have their basis in Skinner's theory of reinforcement of selective response.
2. **Behaviour modification techniques:**
 - Use of instructional objectives;
 - Performance contracting;
 - Learning for mastery and
 - Teacher Effectiveness Training (T.E.T).

6.7.5 Comparison between Classical and Operant Conditioning

S.No	Classical Conditioning	Operant Conditioning
1	It was developed by Russian physiologist Pavlov and is called Type-S conditioning (respondent)	It was development by B.F.Skinner and is called type-R conditioning (operant).
2	Essence of learning is stimulus substitution.	Essence of learning is response modification through selective reinforcement.
3	The occurrence of conditioned response (C.R.) is reflexively forced by unconditioned stimulus (UCS).	The response is more voluntary and spontaneously emitted.
4	Reinforcement (in the form of UCS) occurs without regard to subject's behaviour.	The reward is contingent upon the occurrence of desired response.
5	Law of contiguity is the basis of conditioning.	Law of effect is the basis of conditioning.
6	It is related and controlled by autonomous nervous system in the organism.	It is controlled by central nervous system in the organism.
7	It focuses on single S-R bondage.	A chain of sequential responses can be formed through 'shaping'.
8	Classical Conditioning	Operant Conditioning
9	The classically conditioned deflexed may have zero strength initially.	The operant cannot have zero strength because it has to occur at least once before it can be reinforced.
10	Here UCR and CR are the same.	Here UCR and CR are different.
11	Respondent behaviour is internal.	Operant behaviour is external. It is the behaviour with which the organism operates on the environment.

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6.7.6 Differences between Reinforcement and feedback

Reinforcement refers to the strengthening the probability of occurrence of a desired response either by presenting the organism after the operant response is exhibited, with a positive reinforcement be any rewards like food, toys, money etc. Feedback refers to the knowledge of results of one's own actions. It has been demonstrated that in the case of growth up adults, knowledge of results of one's own action itself serves as a positive reinforce and enhance the level of performance. Thus, feedback is one of the means of achieving reinforcement of desired responses.

Though both rewards and feedback serve as means of reinforcement, the former operates at the physical level and the latter at the psychological level. Reinforcement rewards is highly suitable for children and animals while feedback proves to be more effective and satisfying as reinforce for making adults.

6.8 GESTALT THEORY OF INSIGHT LEARNING

Meaning of ‘Gestalt’

‘Gestalt’ the German word means ‘whole’, ‘pattern’ or ‘configuration’. According to Gestalt psychology, the whole is always greater than the sum of the parts. The parts do not have any meaning outside the whole. For example, when we analyse the following figure in terms of its components, it may appear to consist of a straight line, two dots two arcs and a triangle. But, when we perceive the picture globally, it immediately becomes meaningful by reminding us the picture of a human head. We organise the individual parts so as to form a meaningful pattern and the ‘whole’ conveys a new meaning. In this process (of perception), our past experience plays a leading role. To understand or learn a task means to perceive the whole with the structure of its components and their functional relationship. Thus learning, according to Gestalt psychologists, involves the reorganization of experience into systematic and meaningful pattern.

6.8.1 Insight learning and its educational implications

Insight learning stresses learning as a cognitive process. Insight is the mental process by which new and revealing combinations of data are suddenly perceived. Insight is restructuring the perceptual field resulting in the immediate comprehension of previously unseen relationship. Kohler’s classical experiment on insight learning of chimpanzees is important. Thorndike’s cat exemplified trial and error. But, in Kohler’s experiments, the chimpanzee learns by insight, recognizing immediately the relevance of a particular line of activity for reaching the goal. In one of Kohler’s experiments, the chimpanzee, Sultan, was left inside a cage and a bunch of bananas was kept outside. Inside the cage, two sticks were placed, one long and the other short. One was hollow at one end so that the other stick could be thrust into it form one long stick. The banana was so placed that neither of the two sticks will be long enough to reach it. When the experiment started, it attempted trying with the longer stick. On realizing that it could not reach, the monkey gave up the attempt and just sat down in a corner and was playing with these two sticks. While playing like this, accidentally one stick fell into the hole of the other but not properly. This gave the animal a ‘brain wave’ or a ‘flash of idea’. The animal straightaway joined the two sticks firmly and got the bananas. Kohler emphasizes the suddenness with which the right solution appeared. It

was not a gradual learning or trial and error learning. What really happened in the case of the chimpanzee was not the learning of a particular skill of manipulating the sticks but learning to perceive the whole situation, the possibility of combining the two sticks and the possibility of thus reaching the bananas.

6.8.2 Factors that influence insight

- a. **Intelligence (capacity):** The more intelligent the organism is the greater will be the insight.
- b. **Experience:** Past experience helps insightful solution
- c. **Presentation of the problem.**
- d. **Initial effort;** Initial efforts also develop insight. It may be called trial and error effort made by the learner.

6.8.3 Steps involved in insightful learning

The following are the stages involved in insightful learning:

- a. Preparation (sensing or survey of the problem)
- b. Incubation (period of apparently no action)
- c. Insight or illumination (the solution appears as a flash)
- d. Evaluation (verifying utility of the solution)

6.8.4 Comparison of insight learning and trial & error learning

S.No	Trial Error Learning	Insight Learning
1	Advocated by Thorndike, an associationist	Put forth by the Gestalt psychologists.
2	Learning is considered essentially consisting of selecting and connecting an appropriate response with the given stimulus through the process of trial and error.	Learning is through the development of insight, which is nothing but reorganization of the field of perception.
3	Learning is a mechanical process and does not involve any higher mental process.	Learning takes place as a result of meaningful experience.
4	Learning is perfect through practice or drill.	Learning relies more on one's background experiences and the ability to perceive the totality of given situation.
5	Reinforcement of learning is through the use of positive reinforces like rewards or negative reinforces like	Reinforcement of learning is through 'feedback'.

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	removal of electric shock.	
6	Forgetting of any task is attributed to the disuse of learned responses (theory of atrophy).	Forgetting is due to the interference of present experiences with those of the past due to retroactive and proactive inhibitions. (theory of interference).
7	Transfer of learning from one situation to another, is primarily attributed to the presence of identical elements.	The Gestalists accept Judd's generalization theory of transfer. Generalized principles, common patterns of relationship are transferred.
8	Learning can be objectively observed and the amount of learning can be measured i.e. learning is objective and measurable.	Learning is a subjective experience and is qualitative in nature; hence it cannot be measured.
9	The solution to a task emerges gradually after repeated trials.	The solution to a task emerges in one stroke (insight). However associationists accuse that the organism may have a number of unsuccessful trials conceived by the organism mentally which is not observable from outside as in the case of trial and error experiments.
10	Exhibited by organisms of low intelligence. However human beings also resort to this when confronted with an unfamiliar difficult task.	Generally exhibited by organisms of higher intelligence like chimpanzee, human beings etc.

6.9 ROBERT GAGNE'S THEORY OF HIERARCHICAL LEARNING

Robert M. Gagne was one of those who had turned from the study of basic problem in a laboratory to the practical tasks of training in the air force during World War II. He found that the best known psychological principles like reinforcement are inadequate in their application in certain fields like radar tracing, aerial gunning etc. as a result; he proposed a taxonomy of learning known as hierarchy of learning. Gagne proposed that all learning were not alike. He divided

learning into 8 types or categories, and arranged them in a hierarchy because; each kind of learning begins with a different capability for performance. The mastery attained in performance of one type becomes the prerequisite for the next higher type of learning.

The varieties of learning that Gagne distinguished are:

1. **Signal Learning:** The individual learns to make a general response to a signal. This is similar to the classical conditioned response of Pavlov.
2. **S-R Learning:** The learner acquires a precise response to a discriminated stimulus. What is learnt here may be connection as enunciated by Thorndike, or discriminated operant (Skinner).
3. **Chaining:** In this, what is acquired is a chain of 2 or more S-R connections. The conditions for acquiring this have been elaborated by Skinner.
4. **Verbal Association:** This is the learning of chains that are verbal. The conditions for this resemble those for other chains like motor chains.
5. **Discrimination Learning:** The individual learns to discriminate and make a different identifying response to as many stimuli that may response each other in physical appearance.
6. **Concept Learning:** The learner learns to give a common response to a class of stimuli that may so differ from each other widely in physical appearance but have some common characteristics or attributes.
7. **Rule Learning:** A rule is a chain of 2 or more concepts. It helps to control behaviour in the manner suggested by a verbalized rule of the form, "If A, then B", where A and B are two previously learned concepts.
8. **Problem solving:** It is a kind of learning that requires the internal events that are usually called thinking. Two or more previously acquired rules are somehow combined to produce a new capability that depends on higher order rule.

According to Gagne, one should master a lower order learning, before attempting to learn the next higher order learning. For example, if one should get the skill of solving, a particular type of problem in mathematics he should get the skill of solving a particular type of problem in mathematics he should know the rules and the formulae related to that type of problem. To know these formulae and the rules to apply them, he should know the concepts involved in these rules or formulae. To get at the concepts, one should know the general methods of linking numbers and the differences among the method of thinking.

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6.10 COGNITIVE THEORIES - KOHLER'S EXPERIMENT

6.10.1 Cognitive Theories

Other names of the cognitive theories are Gestalt theories and field theories. Cognitive theorists' views are different from behaviorists. They emphasized more importance on mind in learning than stimulus-response mechanism. Their concern with mental events is reflected in topics such as memory, attention, perception and concept learning. The cognitive psychologists recognize individual difference in cognitive development. Some cognitive theories are discussed below.

6.10.2 Learning by insight theory

Wolfgang Kohler, a German psychologist, postulated the theory of learning by insight. This gestalt theory is based on the concept of whole is meaningful than sum of its parts. Similarly, learning is taking place not as a part, but as a whole. Insight is learning that appears to occur in a flash and that involves the solving of a problem. It is a form of problem solving that appears to involve the (often sudden) understanding of how elements of a situation are related or can be recognized to achieve a solution (Wade, 1998).

6.10.3 Kohler's Experiment

Kohler (1925) put the Chimpanzee inside a cage. A bunch of bananas were hung from the roof of the cage. A box was placed inside the cage. The Chimpanzee tried to get the bananas by jumping, but could not get due to height. The Chimpanzee finally used the box placed below the hanging banana and climbed on the box and got the bananas. In another experiment, the Chimpanzee required two or three boxes to reach the banana. The Chimpanzee namely Sultan was able to learn placed of one box on the other and succeeded in getting the banana. In another experiment, a bunch of bananas were kept outside the cage. Two sticks were placed inside the cage. After several trials, the animal joined the two sticks and pulled the bananas in with a stick.

6.10.4 Characteristics of insight learning

The following are the characteristics of insight learning

1. Insight is the sudden grasping of the solution for a problem
2. Insight alters the perception of the essential relationships in total situation
3. Insight is facilitated by the previous experience
4. Insight is related to intellectual ability of the learner
5. Insight learning involves understanding and reasoning about the problem
6. Insight poses alternative mode of trial suddenly to solve the problem.

6.10.5 Educational Implications of Kohler's Theory

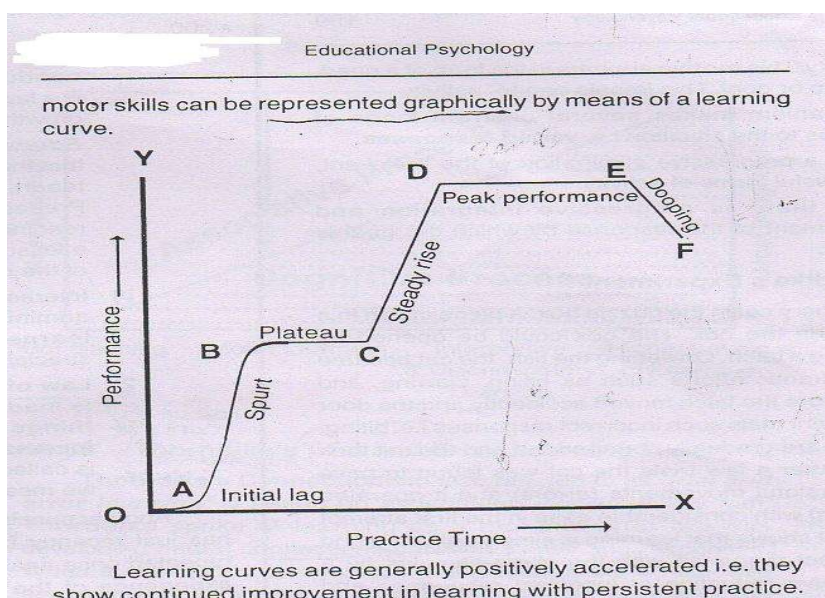
The following are the educational implications of Kohler's theory of insight learning

1. The teacher should present the concept as a whole to facilitate insight learning
2. The theory focuses the motivational part also. So, the teacher should try to arouse the motivation among the learners to learn
3. The theory observes that understanding is essential for solving the problem. The teacher should encourage the students to understand the task by avoiding of rote learning and mere mechanical repetition
4. The intellectual capacity of the learners is also contributing for the insightful learning. The learning tasks are to be graded based on the intellectual capacity of the children.

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6.11 LEARNING CURVE

The Measured results of growth in learning especially of motor skills can be represented by means of a learning curve.



Learning curves are generally positively accelerated i.e. they show continued improvement in learning with persistent practice. Positively accelerated learning curves exhibit certain general characteristics. In the initial stage (OA), the gain is slow and gradual. This may be due to the fact that the individual often does not possess sufficient practice in all the basic skills for the learning activity undertaken.

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After the initial slow rate, there will be spurt (AB) in learning due to familiarity with the task. It is followed by Plateau (BC) which is a period of apparently no progress in learning in spite of continued practice. If the learner persists in his learning activity, he makes steady progress further (CD) and reaches the maximum limit or zenith (DE) which is different for different individuals always determined by the physiological limits of the individual. The portion EF of the curve represents the decline in the performing due to 'aging'.

6.11.1 Plateau in the learning curve and the reasons for it

In any task of learning, the rate of learning will be slow at the start due to newness of the task. After gaining certain degree of familiarity with the task, there occurs a spurt in the rate of learning, and is followed by a 'period of no progress' (called plateau). 'Plateau' may arise due a number of factors like

- i. Decline in interest and motivation, after initial phase of learning
- ii. Boredom and fatigue due to continued practice
- iii. Absence of feedback resulting in loss of involvement in learning
- iv. Low level of aspiration which makes the learner satisfied with the progress already achieved
- v. Choice of inappropriate method of learning does not allow progress beyond a particular level (e.g. primary school children who learn by rote memorization, become slow learners after 8th standard)
- vi. Modern psychologist believes that plateaus are 'periods of consolidation' during which earlier learners are organized and established, before launching new strategies to acquire further learning. It is just like a 'base camp' in mountaineering where in stock taking is done and new strategies are planned for further assault.

6.12 TRANSFER OF LEARNING

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

The following are some of the definitions given by psychologists

- Sorenson (1948) stated transfer refers to the knowledge, training and habits acquired in one situation to another situation.
- Peterson M.J. (1957) defined transfer is generalization, for it is the extension of idea to a new field.

- Bigge B.L. (1964) focused transfer of learning occurs when a persons learning in one situation influences his learning and performance in another situation.

Therefore, the influence of perviously learned or task on new situations or tasks are known as transfer of learning.

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6.12.1 Types of Transfer

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

1. **Positive transfer:** A positive transfer takes place when the previous learning task facilitates the present learning task. For example, the knowledge of addition and subtraction in mathematics facilities the learning of multiplication and division. Learning Urdu may help to learn Hindi. Learning pedaling of tricycles makes the pedaling of bicycles easier.
2. **Negative Transfer:** Transfer is negative when learning in one situation hinders, interferes or workers the learning in another situation. For example, having learned to drive on right-hand side by USA people may find it difficult to drive in India where vehicles are to be driven on the left-hand side.
3. **Zero Transfer:** When one learning situation does not influence the learning in another situation significantly, it is said to be zero transfer. For example, learning of mathematics has no effect on the learning of swimming.

6.12.2 Theories of Transfer of Learning

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

1. Theory of Mental Discipline (Faculty Theory)

This is also known as formal discipline theory. This theory focuses the mind which is composed of several facilities such as memory, attention, imagination, reasoning and judgement. These facilities are strengthened through exercise or practice. Such properly strengthened faculties function automatically in all the situations. For example, learning mathematics and grammar gives training to the mind, which will be helpful in learning other subjects.

2. Theory of Apperception

Apperception is a process of relating new ideas to old one. The storage of old ideas is called as appreciative mass. Apperceptionists like Herbert advocate the building up of a necessary appreciative mass in the minds of the learners for promoting transfer. Old ideas or mental states may lie in the sub-conscious mind which may be utilized for further learning in the shape of transfer of memory to the conscious layer of our mind.

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3. Theory of Identical elements

Thorndike is the author of this theory. According to his theory, transfer takes place from one situation to the other because there are a number of common identical elements between the practiced and to be practiced activity. If some elements present in the original situation must also be present in the new, they facilitate transfer. Transfer takes place from one situation to another to the extent that there are identical or common elements to both.

4. Theory of Generalization

This theory was put forth by Charles Judd in 1908. Judd's theory of generalization emphasizes that what is learned in one situation is transferred to another situation because while learning in the first situation the individual grasps the general principles. These principles are then applied to new situations. According to Judd, transfer of learning can be facilitated by teaching the students general principles rather than specific solutions.

5. Theory of Transposition

This theory was put forward by Gestalt psychologists. They emphasized the role of insight in the mechanism of transfer of learning. The process of gaining or developing insight into the use of concepts and generalizations in one situation and employing it afterwards in other situations is called transposition.

6. Theory of Ideals

This theory was put forward by W.C. Bagley. He tried to explain mechanism of transfer in terms of ideas. The ideals like love for wisdom, thirst for knowledge, tolerance for difference of opinions, spirit of enquiry etc. are transferred from one situation to another. Therefore, every attempt should be made to develop desirable ideas among the children.

6.12.3 Factors affecting transfer

Some of the factors that influence the transfer of learning are pinpointed as below

1. Generalization is the crux of transfer of learning. Our teaching learning process should follow the method of generalization.
2. Identical components between the two learning situations should be properly identified by the learner from which the learner can transfer from one situation to another.
3. Positive attitude and self-confidence make an effect on transfer of learning.
4. Transfer of learning is more effective if teachers and students are conscious of the goals.

5. The amount of transfer is closely related to the intelligence of the learner. Brighter students tend to transfer their learning more effectively than dull students.
6. Transfer is more likely to occur among extroverts than introverts.
7. Learner should avoid rote learning. He must develop the habit of learning through proper understanding and insight.
8. Over learning is the factor which influences the transfer.
9. A student who has mastered the instructional material accurately and thoroughly will achieve greater transfer.

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6.12.4 Educational Implications of Transfer of Learning

The mechanism of transfer of learning has educational implications as follows

1. Curriculum should be based on the principles of generalization and identical elements. This would help the students to gain the experiences and these experiences are applied to the new learning.
2. Positive transfer is ensured by avoiding of negative transfer in learning situation.
3. The students are trained in such a way to identify association, similarities and dissimilarities among the learning situations. This will help them to transfer the previous knowledge to the new one.
4. Teacher should train the students to use insight in learning a new task.
5. The learner is provided multi-media and sensory aids for proper understanding and gaining of the required knowledge and skills.
6. Ideals possess a great transfer value. Therefore, the curriculum should have the ideals to teach the learners which will enable them to transfer it in all activities of life.

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Check your Progress
Notes: a) Write your answer in the space given below:
b) Compare your answer with the one given at the end of the unit.

- List three types of transfer of learning.
.....
- One learning of an individual does not influence another learning is said to be _____ transfer of learning.
a) Positive b) Negative c) zero
- Whose theory represents the theory of identical elements in transfer of learning?
a) Pavlov b) Thorndike c) Watson d) Skinner
- Verbal learning is
a) Learning a new language
b) Oral Practice
c) Understanding Verbal information
- Verbal learning takes place through
a) Subsumption
b) Dissociation
c) Subsumer

6.13. TEACHING FOR TRANSFER

Many of the things we do or perform in day-to-day life are often influenced by our precious experiences of learning and teaching. The learning of addition and subtraction helps a child in learning multiplication and division. Learning of Mathematics helps in solving numeric problems in Physics. Similarly, if one has learnt to play tennis one finds it easier to learn playing ping pong or badminton. In this way, learning or teaching in one situation influences our learning or performance in some other situation. This influence is usually referred to the carryover of learning from one task to another. The learning or skill acquired in one task is transferred or carried over to other tasks. Not only the learning of the tricks of a trade or the knowledge and skill acquired in a particular subject is transferred to other situations, but also the habits, interests and attitudes get transferred and try to influence the activities of the individual in future.

6.13.1 Habit interference

The second major theory of forgetting holds the mechanism of interference responsible for forgetting. Interference is the negative inhibiting effect of one learning experience on another. This theory holds that, we forget things because of such interference. The interfering effects of things previously learnt and retained in our memory with the things of more recent memory can work both

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backward and forward. The psychological terms used for these types of interference are retroactive inhibition and proactive inhibition. In Retroactive inhibition, the acquisition of new learning works backward to impair the retention of the previously learned material. For example, a second list of words, formulae or equation may impair the retention of a first list. Proactive inhibition is just the reverse of the retroactive inhibition. Here, the old learning or experiences retained in our memory works forward to disrupt the memory of what we acquire or learn afterwards. For example, we may find it difficult to learn a second language when vocabulary or grammar from the first interferes; or learning a new formula may be hampered on account of the previously learnt formulae in one's memory.

In both types of these inhibitions, it can be easily seen that when similar experiences follow each other, they produce more interference than dissimilar experiences. Because in this latter case, all experiences are so intermingled that a state of confusion prevails in the mind and consequently the individual faces difficulty in retention and recall. The interference theory, as a whole, has successfully provided an adequate explanation of nature and normal forgetting for both, short-term and long-term memory. However, for explaining abnormal or morbid forgetting we need to look for explanation elsewhere.

6.14 REMEMBERING (MEMORY)

Memory denotes the ability or power of mind to retain and reproduce learning. This power of ability helps in the process of memorization. Both the terms 'memorization' and 'remembering' carry the same meaning. While differentiating memory and remembering, Levin (1978) says "Memory can be linked to a giant filing cabinet in the brain, with data sorted, classified and cross-filed for future reference. Remembering depends on how the brain goes about coding it input". It is this sense that the terms memory and remembering, in spite of their being noun and verb respectively are used synonymously.

6.14.1 Memory

What we learned are stored in our brain. This process is technically called as memory. We learn a lot of things in our life. But, we remember very selective things, remaining are faded. This fading of information from our memory is technically called as forgetting. So, forgetting is the failure to recall the information stored in our mind. Memory is a store house. It stores information. This information is recollected. Memory in general is an ability to remember things that happened a short or long time ago. So, our mind has the power of retaining and reproducing the information. According to Woodworth, four main elements involved in memory are learning, retention, recall and recognition.

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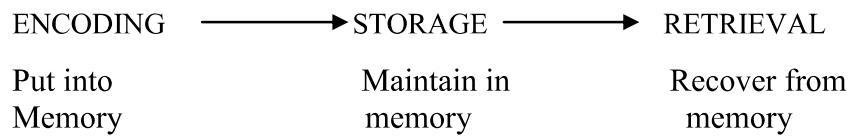
6.14.2 Definitions of memory

Psychologists put forth various definitions for memory. Some of the important definitions of the eminent psychologists are presented as below.

- Guilford (1968): “Memory is retention or storage of information in any form”.
- Eysenck (1970): “Memory is the ability of an organism to store information from earlier learning process, experience, retention and reproduce that information in answer to specific stimuli”.
- Bootzin (1991): “Memory is the cognition process of preserving current information for later use”.

6.14.3 Stages of memory

Memory has three stages: encoding, storage and retrieval.



The first stage, encoding consists of the placing information in memory. This occurs when we study. The second stage is storage, when the information is retained in memory. The third stage, retrieval, occurs when the information is recovered from storage-for example, when we take an examination.

6.14.4 Nature and types of memory

Information arriving from the environment is placed in our brain. Memorization takes place in terms of learning, retention, recall and recognition. Memory processes differ, based on storing during of matters. Sense organs are the gate ways of knowledge.

1. Sensory store or memory contains all the information from the environment captured by the sense organs. Sensory memory holds images for a fraction of a second. This process is known as Sensory Register. Sensory memory includes several types such as iconic memory, echonic memory etc.
 - a) The brief holding of visual data is called iconic memory.
 - b) The capacity to hold onto sounds for a short time is called echonic memory.

Sensory register is a brief holding point for sensory information. During this brief period, we select information for further processing. Some of the information captured by sense organs are transformed to brain for memory stores.

Memory stores are the capacity of the brain that records the learnt information through sensory receptors. The memory stores can be categorized based on the duration of storage of information such as short-term memory and long-term memory.

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2. **Short-Term Memory (STM):** A memory store holds a limited amount of information for a relatively short period (approximately 20 seconds). After that, information will disappear unless rehearsal. So, a limited-capacity store that can maintain unrehearsed information for about 20 seconds. Short-term store, the information that is attended to, has been renamed working memory. Working memory has two distinct stores: phonological store and visual-spatial sketchpad. Phonological is responsible for holding and manipulating material relating to speech, words and numbers. Visual-spatial sketched stores information in a visual or spatial code.
3. **Long-term Memory (LTM):** An apparently permanent and for practical purpose unlimited memory store can be termed as TLM. So, LTM is an unlimited capacity store that can hold information over lengthy period of time. LTM has two long term memory systems declarative memory and procedural memory. Declarative memory is the storehouse of factual information such as dates, names, facts, places and past experiences. This declarative memory has two types namely, episodic memory and semantic memory. Episodic memory recollects past experience in a organized and orderly way. Semantic memory stores words, facts, general information, concepts and rules of learning most of the things. Procedural memory contains memory of motor skills. For example, tying shoes, playing musical instruments, riding a bicycle, hitting a ball, typing etc.
4. **Episodic Memory:** Memory for information tied to a particular place and time, especially information about the events or episodes of one's own life, is called episodic memory. So, episodic memory is connected with episodes and events associated with one's life. For example, if a person has been on an excursion and, on his return, narrates all that he did or experienced, he is able to do by the exercise of his episodic memory.
5. **Semantic Memory:** Semantic memory is memory for meaning, including words, facts, theories and concepts declarative knowledge. Semantic memory is thus based on general knowledge coupled with meaning interpretation, generalized rules, principles and formulae.

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6. **Photographic Memory (Eidetic imagery):** According to Haber (1979) the term 'photographic' stands for a kind of memory possessed by an individual who can remember a scene in photographic detail.
7. **Paranormal Memory:** This is the unusual type of memory which traces concerning one's previous life or lives that can be partly completely retrieved by the individual.
8. **Working Memory:** Baddeley (1986) defines Working memory is the temporary storage of information that is being processed in any range of cognitive tasks. Working memory is not exactly the same as short-term memory because short-term memory usually means just storage. But, working memory includes both temporary storage and active processing the work bench of memory-where active mental effort is applied to new and old information.

6.14.5 Factors of Recall

There are several factors responsible for recall. Some of the factors are given below:

1. **Association of ideas:** Recall is influenced by association of ideas. Sequential ideas, similarity of things, relationship of matters, frequent usage of methods and materials make to have better recall.
2. **Mental set:** It influences recall. For example, a person who is interested on cricket recalls all information related to it easily.
3. **Motive:** Motivation helps to recall the events.
4. **Sound body and mind:** Healthy body and mind make recall easier.
5. **Feelings:** Painful and pleasure events are easier to recall than simple or ordinary events.
6. **Effort:** Sincere effort makes recollection of things favourably.
7. **Absence of inhibition:** Recall is better in the absence of any inhibition.
8. **Perfection of clues:** Clues are essential for the recall of anything in the mind.

6.14.6 Recognition

That form of remembering indicated by a feeling of familiarity when something previously encountered is again perceived.

- Perceiving something as having been experienced before, as being familiar, a method of measuring memory.
- Identification of recalled materials is recognition.
- Wade & Tavis (1998) defines, Recognition is the ability to identify previously encountered material.

NOTES**Types of Recognition**

There are two types such as indefinite and definite recognition.

- **Indefinite recognition:** We are vague in familiarity to identify the place or person or event.
- **Definite recognition:** We are definite to identify the thing or place in our past experiences.

Factors of recognition

1. **Confidence:** Even correct recognition becomes infected due to absence to confidence.
2. **Mental set:** Favourable mental set facilitates correct recognition and unfavourable mental set is responsible for incorrect recognition.

6.14.7 Difference between recall and recognition

Peterson (1967), Kintsh (1968) and Anderson & Bower (1972) said that recall and recognition are different processes

S.No	Recall	Recognition
1.	It implies revival of memorized things.	It implies the identification of memorized things.
2.	Clues are essential for recall	Recognition is possible even in the absence of recall.
3.	It is the process of retrieval of memorized things.	It requires only decision not retrieval.
4.	Recall needs effort, it is more difficult consists of series of processes: a search through memory retrieval, and then a decision.	It is easier than recall because it involves fewer and steps.
5.	It depends upon learning, retention and recognition.	Memory to a great extent depends on recognition.

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6.	In recall, a specific piece of information must be retrieve like fill-in-the blanks question.	In recognition person is asked to identify the correct one in a list of alternatives.
7.	Recall is active. When a teacher gives and extempore lecture without any hints then it is recall.	Recognition is passive. He speaks with the help of hints.

6.15 FORGETTING

The inability to retrieve previously stored information is called forgetting. Anything stored in the memory is subject to forgetting. Forgetting may be slow or fast depending upon the individual, the situation and the nature of the information.

6.15.1 Definitions of Forgetting

Psychologists define forgetting scientifically. Some of the definitions are focused at follows.

- Drever (1952): Forgetting means failure at any time to recall an experience when attempting to do so or to perform an action previously learnt.
- Munn (1967): Forgetting is the loss, permanent or temporary, of the ability to recall or recognize something learned earlier.

6.15.2 Ebbinghaus’s curve of forgetting

The first research on forgetting was conducted by German psychologist Ebbinghaus in 1885 by using non-sense syllables. He himself worked as a subject for his research and described his results by plotting a curve of forgetting. He memorized a list of non-sense syllabus and then tested himself at various intervals. The result of material forgotten was as follows:

Time elapsed	Amount forgotten
20 minutes	47%
One day	66%
Two days	72%
Six days	75%
Thirty-one days	79%

Ebbinghaus concluded that: (a) the amount of learnt forgotten words depends upon the time lapsed after learning; and (b) the rate of forgetting is very rapid initially and then gradually reduces proportionately as the interval lengthens.

6.15.3 Types of forgetting

Based on the nature of forgetting and the manner in which it occurs, forgetting is classified as follows:

1. **Normal or Nature Forgetting:** In nature forgetting, forgetting occurs with the lapse of time in a quite normal way without any intention of forgetting on the part of the individual.
2. **Abnormal or Morbid Forgetting:** An individual intentionally trying to forget something is called abnormal or morbid forgetting. We don't want to remember some unpleasant and painful experiences and memory in our life. As a result, we deliberately repress such memory into the unconscious level.
3. **General forgetting:** An individual suffers a total loss in his recall of some previous learning.
4. **Specific forgetting:** The individual forgets only one or the other specific parts of his earlier learning.
5. **Physical or organic Forgetting:** A person loses his memory due to factors of age, diseases, biological malfunctioning of the brain and nervous system, accidents and consumption of liquor or other intoxicating material, which is termed as physical or organic forgetting.
6. **Psychological Forgetting:** The loss of memory occurs due to psychological factors like stress, anxiety, conflict and temper provocation, lack of interest, aversion, apathy and repression or similar other emotional and psychological problems and this is termed as psychological forgetting.

6.15.4 Causes and theories of forgetting

Psychologists focus a number of theories of forgetting. Some of the main theories are presented as below.

1. **Decay of Memory Trace:** The learning results in the formation of 'memory trace or engram' in the brain. What is learnt or experienced is forgotten with the lapse of time. The cause of such forgetting is considered to be disuse of information over a period of time. When time passes, through disuse, these memory traces or learning impressions get weaker and weaker and finally fade away. The theory has proved a failure in many instances, for example, swimming, riding a bicycle, where forgetting does not occur even after years of disuse.
2. **Interference Theory:** This theory holds that we forget things because of some interference. The previously learnt blocks or interferences with the recall of more recent memory. This is

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termed as interference. There are actually two kinds of interference (a) Proactive and (b) Retroactive.

- a) **Proactive Interference/Inhibition:** Acting forward. In proactive interference, something previously learnt interferes with recall of newly learned material. For example, we find it difficult to remember a friend's new phone number, because of the interference of the old number we have already learnt.
 - b) **Retroactive Interference/Inhibition:** Action backward. It refers to difficulty to recall of old information because of learning new information. For example, one has difficulty on a biology subject test because of the new learning of psychology.
3. **Repression theory:** The repression is also known as motivated forgetting. Repression, according to Freud's psychoanalysis, is mental function, which actually pushes the unpleasant and painful memories into the unconscious and so tries to avoid. This kind of forgetfulness is motivated and intentional.
4. **Amnesia:** Amnesia refers to loss of memory. The loss of memory is much more extensive than normal forgetting. Some people cannot remember anything about their past. Others can no longer recall specific events, people, places, or objects.

There are several types of amnesia:

- **Localised amnesia** involves inability to recall events that occurred in a specific period of time (e.g. the first few hours after a profoundly disturbing event).
- **Selective amnesia** refers to the inability to recall only a certain subset of events related to a particular period of time.
- **Generalized amnesia** refers to the inability to recall any events of the person's past life. This type occurs rarely.
- **Continuous amnesia** refers to the inability to recall events subsequent to a specific time, up to and including the present.
- **Systematized amnesia** is the loss of memory for certain categories of information, such as memories relating to a particular person or place.

6.16 MEASURES FOR PROMOTING RETENTION

Learning

The following points answer the question ‘How do we promote retention?’

1. One has to schedule his study timing which will help him to go with the materials in time. It will avoid rushing, missing, and by passing of materials what is to be learnt.
2. Robinson (1970) suggested the SQ3R method-Survey, Question, Read, Recite and Review. This method has proved helpful to the students.
3. Over learning improves the retention of material. So, we have to study the material until we feel we know all of it and then go over it several more times.
4. One has to use distributed practice instead of mass practice. Studying at a stretch will not give full benefit whereas spaced learning will be helpful for remembering.
5. Systematic logical sequence of organizing material in memory would help us to recall in a better way.
6. One has to use acronym to remember the material in order. An acronym is a term formed the first letters of a series of words, for example, SQ3R, VIBGYOR and USA.
7. To establish a good memory for names and faces, we should
 - a) Be sure we hear the name clearly when introduced,
 - b) Repeat the name when acknowledging the introduction,
 - c) If the name is unusual, polite ask to spell it. The names are to be associated with their individual characteristics like hair-style, style of behaving, talking style etc.
 - d) Providing our own examples to the concept learnt will help for easy understanding and remembering.
 - e) Practice of summarizing the learnt materials makes us to recall the materials. This will avoid forgetting.
 - f) Periodical revision of the learnt materials helps us to remember the materials.

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Ausubel’s method always begins with an advanced organizer. This is an introductory statement of a relationship. As indicated earlier, the function of advanced organizers is to provide scaffolding for new information. This is a kind of conceptual bridge between the new material and student’s current knowledge. The organizers can serve

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three purposes. They can direct your attention to what is important, they can highlight the relationship among ideas, they can remind you of the relevant information you already have. In teaching a lesson on the caste system in India, the organizer may deal with the classification of classes in a society. A teacher introducing a unit in poetry might ask what poetry is. Then provide a poetic quote defining poetry, while writing text books, and lessons we first give an over view. This can be treated as an example of advanced organizer.

6.17 LET US SUM UP

Understanding the nature of the learning process help us in solving the problems related to the educational processes. To understand as to how human beings learnt is, therefore, important for attaining competence in teaching. Psychologists differ in opinion regarding the nature of the leaning process. However, they point towards the fact that learning is more or less a permanent modification of behaviour.

Several theories have been proposed to explain the process of learning. The underlying principles of these theories are not mutually exclusive rather they differ in their emphasis; therefore, we cannot find a single theory which may explain all the aspects of the learning process. There are certain conditions which influence learning of the students. The type of curriculum, teaching methods and maturity level of the student are just a few of such influencing conditions.

One of the important characteristic of learning is that it is transferable. But the amount of transfer may vary. There is no complete transfer of learning from one subject to the other. The transfer is possible between two situations, if there is identity of the context, identity of procedures and identify of attitudes and ideals. Thus, transfer help in optimizing learning. Memory is a special faculty of the mind to conserve or retain what has been previously experienced or acquired through learning and then, at some later stage, to retrieve or reproduce it in the form of recall or recognition to enable us to utilize such learning in different situations of daily life.

6.18 UNIT END EXERCISES

1. Discuss the educational implications of any three Learning Theories.
2. Select a child from your neighborhood or from the class you teach, who despite being intellectually normal fails to get good marks in particular subject(s) or passes a class after several repetitions.

- a) Meet his/her teachers, guardians, friends, brothers and sisters. Find out what they say about this problem. Write down systematically the information you collect.
- b) On the basis of the information you have collected and your own impression, write down the possible reasons the learning problems of the child.
- c) What remedies do you suggest to resolve the problem?
- d) Clearly write down the theoretical bases underlying the causes and remedies you mention.

6.19 ANSWERS TO CHECK YOUR PROGRESS

1.
 - a) **Positive Transfer:** Learning of one activity sometimes makes the learning of another activity easier.
 - b) **Negative Transfer:** When previous perform puts hindrance in the performance of the subsequent task.
 - c) **Zero Transfer:** Previous learning has no effect on the subsequent learning.
2. c) Zero
3. b) Thorndike
4. c) Understanding verbal information
5. a) Subsumption

6.20 SUGGESTED READINGS

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UNIT –VII INDIVIDUAL DIFFERENCES

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Structure

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7.1 INTRODUCTION

In this unit, we are going to study the psychology of individual differences, heritability of intelligence, cognitive domain and Piaget's approach to cognitive development. We are also going to discuss about exceptional children. Identification, causes, education of students with gifted, slow learners, mentally retarded. At the end of this unit, educational provisions for students with orthopedic and loco motor impairment are discussed.

7.2 INDIVIDUAL DIFFERENCES

No two learners are alike. Individual differ in their physical characteristics, emotional characteristics, personality traits, interests, achievement etc. Mass procedures fail to accomplish the objectives of education unless they are supplemented by adequate attention to the individual. This makes increasingly necessary to have a definite provision of certain form of guidance which must treat the individuals as an individual

7.2.1 Definition of Individual Differences

Every individual is a typical human being in himself. Being alike in some aspects we are definitely different in so many other aspects. These differences that distinguish one from another and also make one as a unique individual are named as 'individual differences' in the terminology of psychology. Two different explanations given for the term individual differences in the "Dictionary of Education" by Carter B Good are:

- Individual differences stand for variations or deviations among individuals with regard to single characteristics or a number of characteristics
- Individual difference stands for those differences which in their totality distinguish one individual from another

7.2.2 Meaning of individual differences

It is a familiar fact that members of the same species resemble each other in so many aspects. That is why when observed causally or superficially, all ants or rats, hens or cows look alike to us. We also as human beings have so many common characteristics and are alike in so

many aspects. The common prosperities and characteristics distinguish and separate living species from one another.

7.2.3 Different types of individual differences

Human beings are found to differ from each other and among themselves in varieties of ways and dimensions. Some of the important varieties of these individual differences are

1. **Physical differences:** Individuals are different in height weight, colour of skin and eyes, colour and texture of hair, size of hands, arms and head, structure and functioning of internal organs, facial expressions, mannerisms of speech, walk, hair styles and other such native or acquired physical characteristics.
2. **Mental differences:** People differ in their intellectual abilities and capacities like thinking and reasoning power of imagination, creative expression, concentration etc. In the field of general intelligence, also we find tremendous differences between individuals. On the basis of intelligence, people are classified as idiot, imbecile, moran, borderline, normal, bright, very superior and genius.
3. **Differences in motor ability:** Differences found in motor skills such as reaction time, speed of action, steadiness manual and finger dexterity, resistance to fatigue etc.
4. **Differences in achievement:** Differences exist in achievement and in knowledge even among individuals who had almost the same amount of intelligence and had been subjected to equal amount of schooling and experiences.
5. **Emotional differences:** In some individuals, positive emotions like love, affection etc. is more prevalent whereas in others negative emotions like anger, disgust etc. is more powerful. Individuals also differ in the manner they express their emotions. Some are emotionally stable and nature while others are emotionally unstable and immature.
6. **Differences in interest and aptitude:** There exist great variations among the individuals in relation to the specific tastes and interest. Some take interest in the meeting people, attending social functions and are very fond in picnics and group excursions. Others feel happy in solitude, avoid social gatherings and are interested in meditation or enjoy the company of books. In a similar way, people are found to have different aptitudes. Some individuals have mechanical aptitude while others have scholastic musical or artistic aptitude.

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7. **Differences in attitudes belief and opinions:** Individuals are found to possess varying attitudes towards different people, groups, objects and ideas. Their attitude may be positive, negative or neutral in nature.
8. **Learning differences:** Individual differences are found in the field of learning also. Pupils differ in their rate of learning styles, learning motivation and persistence in learning.
9. **Differences in social and moral development:** Some are found to be adjusted properly in the social situations and lead a happy social life, while others are socially handicapped, unsocial or anti social. Similarly people are found to differ in respect of ethical or moral sense.

Thus we can conclude that, as a whole, the personality of an individual is unique in itself. In all the dimension and aspects of behaviour and personality traits, individuals differ from each other.

7.2.4 Stages of cognitive Development

Piaget (1970) suggested that children throughout the world proceeds through a series of four stages in a fixed order. Piaget's four distinct cognitive development stages are:

- Sensory motor stage (Birth to 2 years)
- Pre operational stage (2 to 7 years)
- Concrete operational stage (7 to 12 years)
- Formal Operational stage (12 years to adulthood)

Sensory motor stage (Birth to 2 years)

According to Piaget, the sensorimotor stage is from birth to two years during which a child has little competence in representing the environment using images, language or other symbols. In the first two years, infants learn about their world primarily through their senses and actions. Instead of thinking about what is going on around them, infants discover by sensing (sensory) and doing (motor). The major accomplishments of the period are the following

Coordination of reflexes: During the first 4 months, the uncoordinated reflexes which are present at birth are coordinated into simple schemes

Object causality: Infants gradually learn that, there is a relationship between their actions and the external world (objected causality). They discover that, they can manipulate objects and produce effects.

Object permanence: A newborn baby does not realize that objects are permanent. For infants, below eight months old, what is out of sight is purely out of mind. Gradually, by the age of 8 months, the infant

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develops the concept of object permanence and understanding that objects continue to exist even when they are not immediately in view.

Imitation: Infants may try to imitate the actions or facial expression of an older person.

Pre operational stage (2 to 7 years)

Piaget's pre operational stage is a period from 2 to 7 years of age which is characterised by language development. During this stage, the child acquires the ability to form mental images of objects and events and thus begins to think symbolically. This stage is further subdivided into two:

- a. The pre conceptual phase (2 to 4 years)
- b. The intuitive phase (4 to 7 years)

A. The pre conceptual phase (2 to 4 years): This is the period of rudimentary concept formation. During this period, the child develops the ability to identify and classify objects. The other features are as follows:

Representational thought: The child develops the ability to form mental symbols to represent objects or events that are not present. The symbolic function of cognitive development can be seen in deferred imitation and symbolic play.

(i) **Deferred imitation:** The child shows the ability to imitate action performed earlier by adults

(ii) **Symbolic play:** The child demonstrates make believe play in which he uses signs and symbols in place of real objects.

(iii) **Transductive reasoning:** The mode of reasoning of the child at this stage is transductive in nature i.e. he reasons from the particular to the particular.

(iv) **Ego centrism:** The child at pre conceptual phase cannot think beyond his own view. He tends to assume that, others see the world just as he himself sees it.

(v) **Animistic Thinking:** Pre operational children display animistic thinking children which attribute human feelings and motives to non living objects. Thus, a three year old child might state that thunder occurs because the clouds are angry and mother nature brings rain.

B. The intuitive phase (4 to 7 years): During this period, the cognitive behaviour of the child is still controlled by perception. His reasoning is based on intuitive rather than on systematic logic. But, he is able to use concepts as stable generalization of his past and present experiences. The child in the intuitive sub stage lacks understanding of relational terms and ability to serials objects. His logic is limited with

irreversibility and his thinking is marked by an inability to conserve in terms of quantity as well as number.

Concrete operational stage (7 to 12 years)

According to Piaget, the concrete operational period is from age 7 to 12 years which is characterized by logical thinking loss of egocentrism. The child's thought process is limited to real events observed or the actual objects operated by him. The important features of this stage are

- a. **Inductive deductive reasoning:** The child begins to think in terms of a set of interrelated principles rather than single bits of knowledge. He can now make use of inductive and deductive approaches in terms in terms of reasoning and arriving at conclusion
- b. **Flexibility in thinking:** The child sheds his egocentrism and he is able to take viewpoints of others
- c. **Understanding the principle of conservation:** The child develops the ability to conserve both in terms of quantity and number of objects. He can now very well think that the change is appearance of an object does not alter either its quality or its number.
- d. **Classification and serialisation:** The child develops the ability to classify objects. He develops the understanding of rational terms and also the ability of serialization.
- e. **Reversibility of thought:** At this stage, the child learns to carry a thought backward and forward in time.

Formal Operational stage (12 years to adulthood)

According to Piaget, the formal operational period is from age 12 to adulthood which is characterized by abstract thinking. At this stage, the child thought process becomes quite systematic and reasonably well integrated. The following are the important features of this period.

- a. **Abstract thinking:** The child develops abstract thinking. He uses symbolism in the process of thought and learns to deal with abstraction by logical thinking.
- b. **Hypothetical reasoning:** Systematic assumption of possible solutions (hypothesis) is derived by the child for the problem. Then, the child tests these hypotheses to see which one is the correct solution for the problem.
- c. **Problems solving:** The individual follows the systematic approach in solving the problems. He formulates multiple hypotheses and a number of alternative solutions

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d. **Transfer of knowledge:** The individual is able to transfer his learnt knowledge from one situation to another.

Stage	Age	Major Characteristics
Sensorimotor	Birth-2 years	Development of object permanence, development of motor skills, little or no capacity for symbolic representation
Pre operational	2-7 years	Development of language and symbolic thinking, egocentric thinking
Concrete operational	7-12 years	Development of conservation, mastery of concept reversibility
Formal operational	12 years - adulthood	Development of logical and abstract thinking

Check your Progress

Notes: a) Write your answer in the space given below:
 b) Compare your answer with the one given at the end of the unit.

1. Match the following

	Stage	Age
i.	Sensorimotor	2-7years
ii.	Pre operational	7-12 years
iii.	Concrete Operation	12 years to adulthood
iv.	Formal operational	Birth to 2 years

7.3 NATURE OF INDIVIDUAL DIFFERENCES

Human traits or qualities are not found in the dichotomous state of “present” or “absent”. All persons do have common traits. But, the amount and proportion of such traits differ from person to person leading to uniqueness of personality and behaviour. So, individual differences are of quantity and proportion and not of quality they are one of degree not one of kind. Human attributes are present in the form of “Normal distribution” with majority exhibiting ‘average degree’. Individual differences lend variety and colour to life.

7.4 FACTORS CAUSING INDIVIDUAL DIFFERENCES

1. Differences among individuals can be attributed to variations in hereditary environment or environmental stimulation or both. It can be observed that people belong to different

hereditary stock and hence differ in their native environment and characteristics.

2. Similarly, environment influences and simulations experienced by the individuals' right from their conceptions in the womb of their mothers cause differences among individuals.
3. Maturation, learning and training are also responsible for the occurrence of individual differences among human beings
4. Differential amount of secretion of hormones by ductless glands in different individuals result in the differences in individuals functioning.
5. Differences in physical stature and intelligence of individuals are largely determined by heredity while variations in interests, morality discipline, attitude etc. are due to environmental influences.

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7.5 SIGNIFICANCE OF INDIVIDUAL DIFFERENCES TO A CLASSROOM TEACHER

The notion that individuals differ in their various abilities capacities and other personality characteristics should help the practicing teachers realize the following:

1. In any group, there are individuals who deviate from the norms of the groups
2. Every teacher should know the abilities, potentials, interests, attitudes and other personality characteristics of each student and try to render individual guidance to children for the maximum development of their potentialities

7.5.1 Tackling the problem of individual differences in the classroom

Crow and Crow wrote that, since we supposedly are teaching individuals not group of individuals it is the function of the school within its budgetary personal and curriculum limitations to provide adequate schooling for every learner. No matter, how much he differs from every other learner. The following suggestions can helpful for the teacher in this direction.

1. Proper knowledge of the individual potentialities: The first in catering to individual difference is to know the potential of each individual child through intelligence tests, cumulative records, interest inventories, attitude tests and tests of personality traits.

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2. Ability Grouping: In the light of the results derived from the various tests students of a class can be divided into homogeneous groups according to their abilities. Such division can prove beneficial in adjusting instruction to vary individual differences.

3. Adjusting the curriculum: To meet the requirement of varying individual differences among the pupils, the curriculum should be as flexible and differentiated as possible. It should have the provision for a number of diversified courses and curricular experiences so that pupils may get opportunity to study and work in the areas of their own interests and abilities.

4. Adjusting the methods of teaching: The teacher should try to follow a different procedure or method of instruction suiting the requirements of varying ability groups of his pupils.

5. Adopting special programmes or methods for individualizing instruction: Special programmes like Dalton plan, Winnetha plan, the project method or use of programmed learning material could be made to enable students to learn at their own individual rate.

7.6 OBJECTION TO ABILITY GROUPING IN EDUCATION

1. It emphasizes intellectual at the expense of other aspects of pupil's personality
2. It fosters feelings of superiority and inferiority among children
3. It is undemocratic and works against the principle of 'equality'
4. Teachers because of their low expectation of pupils in the slow learning stream may even teach them less
5. Ability grouping is uneconomical and pose administrative problems
6. Teachers assigned to normal or below average streams may themselves feel inferior
7. It eliminates the stimulation of the gifted on other pupils
8. Non availability of appropriate tests to assess pupil's abilities, parents opposition for bringing segregation among students etc. pose practical difficulties to implement the system of ability grouping in education.

7.7 CARE OF EXCEPTIONAL CHILDREN

The fact of individual differences implies that teachers have to cater to a wide variety of pupils during the course of their professional

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work. Hence, it is essential to know about the nature and needs of such exceptional children who in some dimension or other deviate significantly from normal and average pupils. According to Samuel A. Kirk, an exceptional child is one who deviates from the average or normal child in mental, physical or social characteristics to such an extent that he requires a modification of school practices or special education services in order to develop to his maximum capacity. Exceptional children are classified as under:

Intellectually Exceptional:

- a. The gifted and creative
- b. the slow learner and
- c. the mentally retarded.

Physically Exceptional:

- a. Impaired vision
- b. Impaired hearing
- c. Impaired speech
- d. Crippled and
- e. Brain injured.

Emotionally and Socially Exceptional:

- a. Delinquents

Multiple Handicaps:

- a. The children who have more than one defect given above.

7.8 GIFTED CHILDREN

3 to 5% of children have their I.Q 130 and above and such children are labeled as “gifted children”. There are two types among the gifted i) intellectually gifted and ii) specifically talented in certain fields like music, drawing and painting etc.

Intellectually gifted children have a greater proportion of the general factor ‘G’ in their intelligence. According to Terman, they surpass the average children in (a) desire to know (b) originality (c) determination (d) perseverance € common sense (f) achievement motive (g) logical thinking (h) analytical ability and (i) sense of humor

Children with special talents like gifted in music, drawing etc. may have dominant ‘S’ factor in their intelligence, but, their I.Q may not be that much as that of the intellectually gifted children

7.8.1 Identification of the Gifted

1. Individual tests of intelligence could be administered and identify those as the gifted whose I.Q is above 130.

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2. In school examinations and achievement tests, gifted children occupy the top 5% of ranks.
3. Appraisal of social and emotional maturity and adjustment (gifted children will be far superior to others)
4. Use of interest inventories: Interest of the gifted children will be superior and multiple in comparison with children of equal age.
5. Teachers' judgment based on his observation of the child both inside and outside the class.

Paul Witty has suggested the following for observing the children for their giftedness.

- a. Good Vocabulary
- b. Language proficiency
- c. Interest and linking for books
- d. Ability to concentrate for a longer period than is usual for children
- e. Interest in exploration and discovering relationship
- f. Early development of ability to read
- g. Early interest in calendars and telling terms.

7.8.2 Education of the gifted children

Grade Acceleration Method: It involves advancing the gifted child rapidly from grade to grade in school so that he enters college earlier than others i.e. achievement and not time spent should be the criterion of promotion. But, acceleration of many years might put a gifted child in a group of students who are older and physically socially and emotionally more mature than him. This exposes him to the danger of maladjustment. Further, grade acceleration method is possible only if a concentric curriculum design for different grades is followed.

Ability Grouping: Pupils are classified into 3 streams – gifted, average and slow learners from teaching. Each stream will have learning materials, instructional methods and assignments suited to the nature of pupils. Each stream can progress as its own rate without being pushed or pulled beyond its ability. However, this kind of segregation develops superiority and inferiority complexes among the pupils of different streams for physical education and co-curricular activities.

Cross sectional grouping: Here, a pupil takes one subject with a particular class group and another subject in which he shows superior proficiency with pupils of a higher class. Individual differences in physique have to be taken into consideration in seating craft work and physical education activities.

Enrichment method: Here, the gifted are kept along with others in the same class but given advanced assignments special projects etc. Similarly those gifted with extraordinary talent in specific fields could be provided with enriched programmes for the full flowering of their talents.

Special schools for the talented: Gifted children could be identified through “Talent search Examination” and they could be educated in special schools with enriched curriculum, better infra-structural facilities and facilities for interaction with experts in the respective fields. “Navodaya schools” have been started with this aim, in mind viz. scheme for grooming the talented out socially deprived children.

7.9 SLOW LEARNERS

Slow learning children were formerly spoken of as educationally backward pupils. According to Cyril Butt, any pupil who shows an educational retardation of 2 years and more of his age can be classified as backward. The I.Q of such backward children will be generally between 70 and 80. It is said that, about 8 to 10% of school pupils may come under this category. Backwardness may be general affecting achievement in all school subjects or specific relating to one or two aspects of school work only like reading writing or arithmetic.

7.9.1 Causes of backwardness

Academic backwardness may be natural due to heredity factors or conditioned due to environmental causes. The former is often severe and in many cases, not completely remediable. But, the latter may be of different degrees depending upon the nature of the outside influence.

Certain pupils known as disadvantaged pupil often tend to remain at a disadvantage when compared to other pupils of equal intellectual ability in academic achievement and may become backward. The culturally deprived child, the child from the economically lower social class, the child from minority homes, the culturally different child e.g. Indian children studying in the U.S or U.K are all such disadvantaged pupils whose talents may not flower academically unless special care is taken of their needs. Particularly, cultural and intellectual deprivation in early years affects one’s academic performance severely and its effect is often cumulative.

7.9.2 Identification of the slow learners

Use of standardized individual intelligence tests:

1. Children with I.Q in the range 70 to 80 are identified as slow learners

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2. Tests for sensory acuity memory, emotional and temperamental characteristics, standardised achievement tests in school subjects, recreational activities, medical examination reports, developmental history, family and environmental back ground should be used to collect comprehensive data from which the case history of the child should be prepared. Analysis of such complete case histories will reveal whether the child is really backward, the nature of its backwardness possible causes and point the way for remedial education. The help of guidance clinics are the great value to teachers in such measure. A child guidance clinic usually is staffed by a doctor, psychologist, psychiatrist and a social worker who gathers the data for any pupil referred to the clinic.

7.9.3 Education of the slow learners

1. For children with conditioned backwardness of a remedial nature, special classes in normal schools are needed
2. Individualizing instruction and individual attention are needed for these children
3. Ensuring adequate drill and practice every day after teaching a concept
4. Use of A.V. aids, model and charts are to be excessively used to concretize instruction for the slow learners
5. Teachers should be sympathetic and provide for activities that build self confidence through success
6. Physical defects, if any found in slow learners are to be removed with medical assistance. If there is any sensory defects it should be minimized through appropriate training arranged for with the help of medical and paramedical personnel.
7. Teacher should have the knowledge of social cultural background of the slow learners as they greatly influence ones interest attitudes, habits, ambitions, adjustment etc. This knowledge will help the teachers to advise for parental education and procure parental cooperation
8. An enriched environment through proper preschool education will help to reduce incidence of conditioned backwardness in schools.

7.10. MENTALLY RETARDED

The American association of Mental Deficiency in its manual on terminology defines mental retardation as “sub average general intellectual functioning which originated during the development

period and is associated with impairment in adoptive behaviour”. This sub average intellectual functioning group includes all individual whose performance on suitable objective tests of general intellectual ability is more than one standard deviation below the population mean. This definition gives emphasis on:

- a. Symptoms and not the etiology
- b. Coexistence of deficit in both adoptive behaviour and general intellectual functioning

Doli gave an inclusive definition of mental retardation based on six criteria

- a. Social incompetence (inherent inability for managing themselves)
- b. Mental sub normality
- c. Developmental arrested sub normality
- d. Constitutional origin
- e. Obtains at maturity (i.e. take place during development period)
- f. Essentially incurable

Thus, mental retardation is a multifactor phenomenon and as such they are to be educated in special schools with special care and methods. The main aim of special schools is to give such pupils suitable training so that they would have acquired sufficient knowledge and skills to be independent and self-supporting citizens in society.

7.10.1 Mental Retardedness

Rosen Fox and Gregory define mental retardation refers to a chronic condition present from birth or early childhood which is characterized by both impaired intellectual functioning as measured by standardized tests and impaired adaptation to the daily demands of the individuals social environment.

If some children with no apparent physical disabilities do not make satisfactory progress in the school, it is just possible that they are mentally retarded. Such children should be carefully examined and their I.Q should be ascertained through psychological tests. After it is ascertained that they are mentally retarded we may proceed towards making necessary adjustment for them in education. It is not difficult to provide for such children in a class of normal children. It is generally seen that a dull child is not only quite good but even better than other normal children in activities that involve some physical extension and practical affairs. Therefore, for such children, we need not emphasize learning of difficult portions of the prescribed courses. Such children may be encouraged to think of some practical things in relation to the same. For example, in geography, history and economics lessons they may be advised to prepare certain charts and pictures. Some special

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forum may be organized for them in such subjects. In mathematics and science lessons, their attention may be drawn to their practical applications in day to day work. In some other subjects, they may be encouraged to acquire some appropriate skills relevantly. In language lessons, the power of expression on their part may be encouraged.

It will not be psychologically proper to run separate school or class for mentally retarded children. A separate school may not be feasible also and a separate class is likely to make them more spectacular in the eyes of other children so it will be better if they are kept in a common class, where normal children are also taught. But, in a common class, the teacher will have to pay some special attention to them. The teachers should assign some separate scholastic work to them according to their individual progress. This he should in addition to the general teaching. The teacher should give special home to children in view of their particular mental growth. Thus, if the mentally retarded children are taught with other common children with special attention given to them at times, their adjustments in education may be satisfactory.

7.10.2. Factors of mental retardedness

Mainly two factors are responsible for mental retardation. These are categorized under two headings i) organic and ii) Environmental. These factors are otherwise known as cultural and familial. Organic factors include genetic factors and the factors caused by various infection and trauma. Again social and psychological factors come under the environmental causes organic factors account solely for moderate and severe retardation cases while the environmental factors account for mild and moderate retardation. Different studies and research works reveal how genetic, physical, social and psychological factors are associated with mental retardation studies of Linford Rees (1970) and David Stafford Clark (1964) reported that at least 5% of the babies born turn out to be retarded at the time of birth. Again, Gibson (1963) reported that about 3% of the children aged between 6 and 16 years mentally retarded.

a. **Genetic factors:** Retardation is determined at the moment of conception in genetic conditions. In this, there are two types namely those caused by pairing of two defective recessive genes and those caused by chromosomal aberrations.

b. **Metabolic Disorder:** Statistics of mental retarded reveal that about 1 in 20,000 births suffer from PKU (Phenylketonuria). Phenylketonuric is a rare metabolic disorder. Here, the enzyme responsible for the metabolism of the biochemical phenylalanine is not present at birth.

c. **Mental infection:** Reports revealed that about 5% of pregnant women have some vital infections which invite dangerous effects

during the first three months (Hellaman and Pritchard 1971). Mothers who contact rebecca or German Measles during the first three months of pregnancy may produce children who show symptoms of disorders and retardation.

d. Mental Retardation associated with intoxications: The cause of mental retardation can be associated with intoxications due to carbon monoxide, lead, arsenic, landmine and other substances. Permanent brain damage and mental retardation are found due to postnatal accidental poisoning of infants and children.

e. Mental Retardation Associated with Trauma: Physical damage due to parental injuries or during birth may cause mental retardation. Exposition to large amounts of irradiation of pregnant women causes retardation also. Here, the fetus may be adversely affected. The type of advantage depends upon the developmental stage of the fetus. Reports of medical examination reveal that when the uterus is irradiated during the first three examinations reveal that when the uterus is irradiated during the first three months of pregnancy the incidence of mental retardation is reported to be significantly high. Besides, the above factors respiratory difficulties after birth conclusions and inability to make normal sucking movements are some of the causes of mental retardations.

f. Retardation Associated with environmental and psychological causes: A combination of genetic and environmental factors is responsible for familial type of mental retardation. Early, emotional deprivation and disturbed parent child relationship are some of the potent factors associated with mental retardations of this type. Emotionally disturbed children are considered to be oversensitive to psychological stress and vitamin deficiency is likely to cause over susceptibility to infection. Several small scale surveys report that the familiar type of retarded children is found in low socio economic families. In all these cases, the parent's intellectual and emotional levels are low.

7.10.3 Practices in a special school

The following are some of the practices in a special school

a. Compensatory Education: Generally compensatory education aims at preventing development defects that interfere with educational progress in the disadvantaged preschool child. In western countries like USA, many institution of this type are found. Project head start in this type of institution is started in Milwaukee, USA. This project was proved successful in USA.

Special Education: We know that a retardate learns at a slow pace. So, structured curriculum materials and techniques are necessary for

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educating retarded children. Recently, individual centered programmers have been tried out at the institute of dialectology in Moscow, USSR.

Day care centre: When the children are of too young or too retarded to be included in other community programme, their needs can be met by day care centre.

Sheltered Workshop: As its name indicates a sheltered workshop provided an opportunity for mentally retarded persons to develop their work skills to a point where they can get a job. In our country, the department of social welfare provides grants to the states to improve services for vocational rehabilitation of the mentally retarded.

Parental counselling: In our society, the parents of mentally retarded children face special problems. They bother about their children's physical and educational problems. Home training services with community sponsored educational training programmes must be provide to the mentally retarded children who live at home.

Education of the mentally retarded: It is true that the mentally retarded child fails to make progress at school. But, it is difficult to know who fail to do so. Researchers put all mentally retarded children in four groups

- i. slow learner
- ii. educable mentally retarded
- iii. trainable mentally retarded and
- iv. totally depended mentally retarded.

Provision for educable mentally retarded: We have evidential proof that educable mentally retarded children tend to fail in an ordinary school. The teacher must give priority in helping the mentally retarded child to become self-sufficient and an accepted adult member of the community in which he lives. The special methods which are generally adopted in teaching the educable mentally retarded are as follows:

Individualization: This term does not mean that the children receive individual instructions with small classes, but it implies that each child is allowed to proceed at his own pace of learning according to his own unique growth pattern.

Learning by doing: Here, the basic principle of special education is that the children should learn by doing. Top priority is given to activity methods which lay emphasis on learning through experience.

Need for learning readiness: The concept of maturation and willingness to learn should be given die to importance while introducing academic work to the mentally disabled.

Graded curriculum: It is true that these children learn more slowly than average children. Here, the teachers face difficulties for graduation of students and for preparing the study materials for slow learners

Repetition: Mentally disabled children have a poor memory. For them, teaching method must provide for a considerable amount of repetition, if learned material is to be retained. Research has shown that the memory span of these children increases if the learning materials have meaningful association.

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7.10.4 Trainable mentally retarded children and their education

Trainable mentally retarded children have I.Q in the range 25-55. These children are mainly taught to take care of themselves and to do simple occupational job. The primary objectives of TMR education are to teach these much more retarded children how to do their daily work without the help of anybody. As these children learn very quickly, a more definite timetable is necessary with short periods of activity.

- a. **Self-Care:** The curriculum should include a programme at simple habit training. This enables the children to develop skills of self-help in respect of their daily practical needs
- b. **Social Training:** Priority should be given to group activities such as games, simple dramatic work and storytelling etc.
- c. **Sensory Training:** Special emphasis must be laid on instructions by which the children will be able to make the fullest use to their senses
- d. **Language development:** They must be provided with some aids through which they can have better speech development and proper understanding of verbal concepts
- e. **Craft Work and Music:** For developing the feeling of self confidence in TMR children, research reports say that music is sometimes found as a means of releasing energy and provides a form of expression which the mentally retarded children enjoy. Some psychologists have opined recently for normalization of education for retarded children

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

2. What does the mental retarded refer to?

.....

3. What are the various practices conducted in Special Schools?

.....

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7.11 THE PHYSICALLY HANDICAPPED

The physically handicapped persons (like crippled) are just normal except their particular physical defect. Hence, such individuals should be provided with all those educational activities which are meant for normal children keeping in mind their physical disabilities. They should be provided proper vocational training. The vocational adjustment will develop in them self respect and they will be able to carry on their own life. Education should also look to social adjustment of the physically handicapped. They should be helped to develop desirable attitudes towards their own infirmity and towards his relations with other people.

The Blind and near blind: If the child is totally blind, he should be sent to the special school for the blind where he would learn through the Braille system. Those who are partially sighted should be secreted to sight conservation classes where large print text books and similar other devices are used to teach them. In the schools, adequate facility for light and boldly printed books should be provided.

The Deaf and hard of hearing: One who loses his hearing after he has acquired speech is known as hard of hearing. They can be helped with hearing devices. However, deaf and dumb should be sent to special schools meant for them where they will be taught by sign language and lip reading.

Children with severe sensory and motor defects like cerebral palsy, epilepsy, rheumatic heart diseases, severe sensory handicaps require the services of special personal aided by sophisticated equipment in special setting.

7.11.1 Need for the education of the physically disabled children

The education of disabled children has to be organized not merely on humanitarian grounds but also on grounds of utility. Proper education generally enables a disabled child to overcome largely his handicap and makes him a useful citizen. Social justice also demands. It has to be remembered that the constitutional directive on compulsory education includes disabled children as well. Very little has been done in this field so far on account of several difficulties. There is much in the field that we could learn from the educationally and techniques based on advances in science and medicine.

The primary task of education for a disabled child is to prepare him for adjustment to socio-culture environment designed to meet the needs of the normal. It is essential therefore that the education of disabled children should be an inseparable part of the general educational system. The differences lie in the methods employed to

teach the child and the means the child uses to acquire information. These differences in methodology do not influence the goals of education. This form of education is therefore referred to as Special. The following are the special needs education of the disabled.

1. **Academic Performance:** i) Physically disabled children generally work below their capacity in several areas ii) Some of the physically disabled children find it difficult to deal with abstract concepts.

2. **Emotional Reactions or Social Relationship:** i) Quite a large number of physically disabled children suffer from feeling of inferiority ii) They also suffer from feelings of failures iii) Normal children are at times not only indifferent to the disabled but also make fun of them. Thus the disabled children are withdrawn iv) Aggressive feelings and tension get accumulated in the disabled as they have fewer opportunities for expressing their feelings v) Sometimes attitude of parents, teachers and students attitude may make a physically disabled child feel unwanted or rejected vi) Disabled children are more prone to accident and injury. Thus, they are not in a position to participate in several co-curricular activities. This also creates feelings of disgust in them.

Problems of the physically disabled: This disabled child is unable to participate in desirable normal activities of the daily life. He, therefore needs satisfying substitute interests. The physically disabled child also faces emotional problems as he feels that others have a low opinion about him and develops feelings of hatred self pity.

The physically disabled child is not necessarily mentally deficient. It is therefore very necessary that the mental powers of the disabled are exploited fully and suitable opportunities be provided to generate hope in life and compensate for his physical disability. The major problem of the physically disabled is to identify at the earliest the impairments and make arrangement for adequate adjustment. The handicap that is obvious at birth is easily identified. Other impairments take time to be identified.

7.11.2 Curriculum provision - Methods of teaching and assessment

The following points may be considered while providing educational facilities for the disabled children

1. **Normal Curriculum:** The majority of the physically disabled children are just normal except for their physical disabled. Such children should be provided all those educational activities which are meant for the normal children keeping in mind of course, their physical disability

2. **Special classes:** If necessary special classes may be organized for severely disabled children

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3. Special equipment and methods of teaching: Special children need special equipment and medium for their education. Children with visual impairment also need special teaching methods like the following

- i) For the teaching of mathematics stress laid on mental work
- ii) Embossed diagrams are used in geometry
- iii) Relief maps and globes may be used for the study of geography.

4. Special subjects:

- a. Modeling may be substituted for drawing and painting Blind children derive pleasure from with clay and plastics
- b. Dramatic art may be cultivated
- c. Music may be given adequate encouragement

5. Physical Education: Corrective posture work, Gymnastic, running, wrestling and sports etc. should form part of the physical education programme

6. Vocational education and Handicrafts: A variety of handicrafts may be taught to the physically disabled.

7. Therapeutic Assistance: Special programmes in the form of speech therapy, physiotherapy and play therapy should be undertaken to help physically disabled children make the correct and maximum use of whatever abilities and capacities they possess.

8. Education for Living in Society with Disabled: Disabled children have to live in a world of normal people. They therefore should be provided all types of education training and guidance which enables them to face their disability realistically and make suitable adjustments accordingly and live without bitterness and meet unpleasant situations boldly.

Education Services for the Exceptional Children

Panda (2000) mentioned the following types of education services to be provided to the exceptional children depending upon the nature and intensity of the handicap.

- Regular classroom with weekly “Itinerant teacher”
- Regular classroom with daily resources room and supplemental programming
- Resource room with several hours of daily regular classroom instruction and non-instructional activities.
- Regular room with limited hours of weekly, non-instructional activities with regular classmates.
- Self - contained special classroom
- Special day school
- Homebound or hospitalization

- Residential

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

4. Who is called a physically disabled child?
.....

5. What is the primary task of education for a disabled child?
.....

6. Complete the following:

The problem of the physically disabled child is

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7.12 EDUCATION OF CHILDREN WITH ORTHOPEDIC AND LOCOMOTOR IMPAIRMENT / DISABILITY

7.12.1 Identification

Such children can be easily identified as their impairment is usually observable

1. Deformity may be observable in fingers hands, legs, neck or waist etc.
2. Showing difficulty in sitting standing and walking
3. Showing difficulty in picking up and holding objects and putting them on the ground
4. Frequently complaining of pain in the joints
5. Experiencing difficulty in holding the pen to write
6. Walking with Jerks
7. Experiencing difficulty in the movement of limbs
8. Amputated limbs

7.12.2 Role of teachers

1. Teachers should accept such children as he accepts the normal children
2. The teacher should avoid sarcasm for the disability of the children
3. Other children should be advised to appreciate the disability and show due regard to such children. They should be made to understand the disability
4. Seating arrangement in the class may be adjusted to the specific needs of such children

5. Reasonable opportunities for participation in recreational activities sports and games should be provided to these children
6. Remedial teaching may also be arranged for them

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7.12.3 Educational provisions

Remarkable progress has been made during recent years for the education of the orthopedic disabled children. In the metropolitan cities of India, many schools have incorporated many unusual features including medical and therapeutic equipments to meet with the educational and physical needs of these children. However, the school may take the following steps to provide better facilities to these children

- a. Vocational training should be given to these children as far as possible. School equipments must be adjusted to his /her deformity e.g. table chair etc. may be specially designed. The classrooms, auditorium dinner room etc. must be larger than those for regular pupils and they must be within the reach of the orthopedically disabled children. The schools must have health and physiotherapy programmes regularly
- b. The role of parents and teachers is very important also. A teacher must help the child to accept his handicap to prevent the psychological crippling. Genuine efforts must be made to assist the children to the maximum extent possible to accept their handicap be self reliant and adjust to their limitations. Again family backgrounds of every crippled child must be collected by the teacher. Teachers should see that these children are provided with recreation facilities. Very often, the recreational needs of these children are ignored in the school because of their disability. For grading the children, the disability of children must be taken into account. Oral test must be introduced for the children who face difficulties in writing the answer if possible they may be given extra time for this purpose. The teachers and experts along with their parents may take action to provide relevant aid for mobility of the limbs and functioning of the extremities. District Rehabilitation Centers provide such facilities. Hospitals and primary health centers may be contacted for this purpose.

Check your Progress

- Notes:** a) Write your answer in the space given below:
 b) Compare your answer with the one given at the end of the unit.

7. Mention the role of teachers towards the locomotors Disabilities.

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7.13 LET US SUM UP

A physically disabled child is one who is affected with a physical impairment that in any way limits or inhibit his participation in normal activities. Physically disabled children generally work their capacity in several areas. Some of the physically disabled children find it difficult to deal with abstract concepts. Blind children need special equipment and medium for their education. They also need special teaching methods as follows integration having the existence of following elements. Sharing the same classroom resources and opportunities by the disabled as well as the regular students integration approach is a particular orientation towards providing education to the majority of the disabled children. Mental retardation refers to a chronic conditions present from birth or early childhood which is characterized by both impaired and intellectual functioning as measured by standardized tests and impaired adaptation to the daily demands of the individuals social environment.

7.14 UNIT END EXERCISES

1. Select handicap students of 12 to 16 years of age. Observe his/her activities and behaviours for a week. Discuss with them on various issues in order to collect his/her attitude towards the inadequacy he/she faces and how he/she is coping with that. Write a report in about 1000 words.
2. Interview parents and teachers of disabled students of a secondary school and write report in about 100 words. Report can describe the various problems faced by them in helping the student in his/her proper development

7.15 ANSWERS TO CHECK YOUR PROGRESS

1.

Stage	Age
i. Sensorimotor	Birth-2years
ii. Pre operational	2-7 years
iii. Concrete Operation	7-12 years

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- iv. Formal operational 12 years to adulthood
- 2. Sub average general intellectual functioning which originated during the development period and is associated with impairment in adoptive behavior.
- 3. Special Education, Day Care Centre, Parental Counselling
- 4. A physically disabled child is one who is affected with a physical impairment that in any way limits or inhibits his participation in normal activities.
- 5. The primary task of education for a disabled child is to prepare him for adjustment to a socio-cultural environment designed to meet the needs of the normal.
- 6. Unable to participate in desirable normal activities of the daily life
- 7. Accept the children, understand the disabilities, arranging provision, providing opportunities and remedial theory.

7.16. SUGGESTED READINGS

- Aggarwal J.C. (2003) *Basic Ideas in Educational psychology* Second Revised edition New Delhi:Shipra Publications
- Manivannan .M (2007) *Understanding Educational Psychology* Erode Vellar Colelge of Education for Women
- Podhu K.S. K.S. Premila T.Sampathkumar & Vinodkumar (2009) *Educational Psychology* TNOU B.Ed study material Chennai
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UNIT-VIII MOTIVATION – I

Motivation - I

NOTES

- 8.1 Introduction
- 8.2 Motivation and learning
- 8.3 Definition of Motivation
- 8.4 Characteristics of Motivation
- 8.5 Kinds of motives
 - 8.5.1 Primary and secondary motives
 - 8.5.2 Intrinsic and extrinsic motives
- 8.6 Theories of motivation
 - 8.6.1 Instinct theory of McDougall
 - 8.6.2 Morgan's Physiological Theory (Hypodermic Model)
 - 8.6.3 Hull's Drive- reduction theory
 - 8.6.4 Murray's need theory
- 8.7 Maslow's theory of Hierarchical needs
- 8.8 McClelland's theory of Achievement motivation
- 8.9 Role of success and failure in motivation
- 8.10 Let us Sum Up
- 8.11 Unit End Exercises
- 8.12 Answers to check your progress
- 8.13 Suggested Readings

8.1 INTRODUCTION

In this unit, we are going to know the various kinds of motives and the function of motives. We are also going to discuss the various theories of motivation. This unit also gives us information about the role of failure and success in the classroom context.

8.2 MOTIVATION AND LEARNING

Motivation is the process of arousing, maintaining and controlling interest in a goal directed pattern of behavior. Motivation is basic to all behavior including learning. It is concerned with the 'why' of behaviour. The success in life and learning depends on our motivation. It stimulates us and directs our behavior.

Good motivation in any activity ensures that we develop an interest in the activity. Feel an urge to do it, pay attention to it and the resulting performance is quick and efficient. On the other hand, if there is poor motivation, we feel the activity is forced on us against our desire. We may somehow do it or learn it in a haphazard way. But, our attention to the task will be very low. Mistakes will occur in plenty and performance will also be poor. The most important reason for the gap

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between pupil’s potential and the current level of achievement lies in the area of motivation. According to Crow and crow, ‘Motivation is considered with the arousal of the interest in learning and to the extent is basic to learning and understanding of the nature of motivation. Motivation is basic to all behavior including learning. It is concerned with the ‘why’ of behaviour. The success in life and learning depends on our motivation. It stimulates us and directs our behavior.

8.3. DEFINITION OF MOTIVATION

Motives generally refer to biological, social and learned factors that initiate, sustain and stop goal directed behavior of organisms. Motives be physiological or psychological and act from within the organism. The term ‘Motive’ in its root Latin means ‘to move’ or ‘to impel’. Thus, organism acting with a motive exhibits a specific behaviour and strives to reach the goal, appropriate to the motive. Tolman speaks of motives as tendencies to strive for goals. Herb defined motives as events which arouse an organism to action. A motive creates a state of disequilibrium or tension within the organism and thus initiates and sustains a particular type of activity which would lead to restoration of equilibrium by the attainment of the goal central to the motive. So, ‘disequilibrium’ and ‘tension’ appear to be basic to motivation.

Check your Progress

Notes: a) Write your answer in the space given below:
b) Compare your answer with the one given at the end of the unit.

1. Define Motivation.
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8.4 CHARACTERISTICS OF MOTIVATION

By analyzing the definition of motivation given by different psychologists, we can inter the following characteristics

- a. Motivation is a psychological process (internal)
- b. This internal process is initiated by some need or want
- c. It directs our efforts towards the goal that satisfies the need; i.e. it helps as to select the appropriate behavior so as to reach the goal
- d. It brings energy mobilisation in us
- e. It helps to sustain the attention in ones efforts or task
- f. Restless to achieve the goal stops after the goal is reached.

8.5 KINDS OF MOTIVES

8.5.1 PRIMARY AND SECONDARY MOTIVES

Motives are generally classified as “Primary” and “Secondary” motives. Primary motives are unlearned and they essentially a function of maturation. Primary motives, also referred as “Biogenic Motives” (or Physiological motives) are active almost throughout the life, though the methods of satisfying them are modified with age and experience. These motives are universal and internal. Primary motives consists of (i) the physiological motives which stem from some internal need or a physiological state within the body and (ii) The general motives i.e. those that are not based on any specific physiological need but are also unlearned.

On the other hand, secondary motives are also referred as “Sociogenic Motives” are acquired by the process of learning and they are essentially social in character (e.g. Gregariousness, acquisition, imitation, aggression, adventure etc.). Primary motives {e.g. Hunger, sex, escape from pain etc.} are intense and powerful as compared to secondary motives. Usually, physiological motives are not directly related to classroom learning.

8.5.2. Intrinsic and Extrinsic Motives

In another classification of motives, they are divided into “Intrinsic and Extrinsic” motives but, psychologically all motivation is intrinsic. By extrinsic motivation, we refer to certain incentives or reinforcements that are external. The extrinsic incentives may consist of money or a toy or sweet. When a child is assigned a task and told that he would get Rs.10/- on completing it within a specified time, the child puts forth his best efforts to finish the task in time. This is a case of extrinsic motivation.

On the other hand intrinsic motivation is inherent in the activity itself. In extrinsic motivation, the task is undertaken because it is rewarding. The task leads to goal. But in intrinsic motivation, it is not a means to an end. It is an end in itself. The task is not undertaken for something else but performing itself is satisfying. Children find intrinsic motivation in play. Adults are intrinsically motivated to hear music, go to temples and offer prayer etc. If we play for a trophy or prize money, then it is external motivation. But if we play for the sake of the satisfaction, we derive from it. Then, it is a case of intrinsic motivation.

Relative Efficiency of Extrinsic and Intrinsic Motivation in Education

Reward and punishment, success or failure, use of audio-visual aids, cooperation and competition are all cases of extrinsic motivation. But, when we emphasize rewards and punishment (or

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success and failure) too much, it may lead to a negative attitude towards the school by the student. This is the limitation of extrinsic motivation. But, when students develop a positive attitude, then it develops an involvement of ego towards the task. They become intrinsically attached to the task. This is permanent and this is a case of intrinsic motivation.

8.6. THEORIES OF MOTIVATION

The process of motivation has been explained by different psychologists. The following are the important theories of motivation.

8.6.1. Instinct theory of McDougall

Charles Darwin, in his “Theory of Evolution” advocated that no fundamental difference exists between man and higher animals in terms of their mental faculties; only refinements have taken place. Following this, McDougall proposed his doctrine of instincts. He held that instincts are inborn and they are the spring of human behavior. He developed a list of 14 original instincts such as parental, gregariousness, mating, self-assertion, submission, acquisition, anger etc. He defined instinct as complex inherited tendencies common to all members of a species compelling each individual (i) to perceive and pay attention to certain objects and situations (ii) to experience positive or negative emotional excitement on perceiving them and (iii) there upon to act in a way which is in the long run likely to preserve the individual.

McDougall proposed that each instinct is accompanied by specific emotional disposition as fear with escape, anger with pugnacity etc. These emotional dispositions get organized by experiences in the environment to form sentiments. Most of human behavior is determined by sentiments. According to him, all behavior is purposive.

Today, very few people only accept this theory as it has the following major limitations:

1. Instead of explaining, why a particular behavior takes place, it simply describes behavior by attributing it with some labels (names of instincts).
2. Experimental evidences (obtained by Kuo, Dunlop and social anthropologists) point out instincts is modifiable through learning and adult behavior is largely influenced by learning and experiences. e.g. KUO’S experiment showed that a kitten and rat brought up together fondled each other, which is against the instinct theory.

NOTES**8.6.2. Morgan's Physiological Theory (Hypodermic Model)**

According to Morgan, there is a Central Motive State (C.M.S.) in the brain which is based for all activities and behavior. An organism can be stimulated externally either through chemical or physical agents which is transmitted to the C.M.S. through nerves as electrical impulses. For example, if a horse is whipped or when a cart man uses the nail edged stick on the bullocks, the animals get stimulated and start running fast. Morgan thought of C.M.S. in terms of certain experimental evidences he has gathered. He described 4 basic characteristic features for C.M.S. They are

1. **Persistent:** That once aroused, the C.M.S. does not require support from stimuli outside the organism or within
2. **General Activity:** A motivated organism has a heightened bodily activity
3. **Selectivity:** A C.M.S. results in selectivity of reaction to stimuli. The reaction does not depend on any external environment stimuli
4. **Emission of certain behavior pattern:** The C.M.S. primes or prompts or the organism for appropriate consummator behavior. In order to substantiate his theory of C.M.S, he conducted a number of experiments which could be grouped under three types.

i) Neuron- Physiological studies: He found that adrenal economised and atomized rats took more salt because the taste buds on the tongue have been sensitized to salt as a result of sodium insufficiency. The negative evidence gathered in his experiment was interpreted as due to C.M.S. responsible for the alteration in feeding behavior.

- a) **Studies on humeral factors (blood factors):** Found that change in blood factors may arouse motive state
- b) **Studies on direct - electrode stimulation of brain centre:** Olds and Miller implanted fine electrodes directly into the brains of rats. The exposed terminals outside the rat's skull can be connected to a source of low voltage which is activated when the animal presses a bar. Rats will press such bars thousands of times per hour to receive shocks to their "pleasure centers". Experiments on rats have proved that animals can be made to eat, drink or even run mazes as results of stimulation of appropriate brain centers.

This physiological theory of motivation is not much of use for classroom motivation.

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8.6.3 Hull's Drive-reduction theory

When an organism is deprived of something, it finds itself in a state of disequilibrium and a condition of tension is created. This makes the organism energized and it becomes active, trying efforts to reduce or eliminate the tension. The emerging state that is produced by tension is called '**Drive**'. The emerging state of behavior is the drive and learning occurs only when behavior is reinforced by the reduction of some drive. Behavior according to Hull becomes goal oriented by virtue of the selective reinforcement of certain responses, resulting from the attainment of the goal. Behavior that does not lead to the goal on the contrary, does not remove tension and is therefore avoided.

For example, when the glucose level in blood goes below a particular level, we are in need of it i.e. food. This need for food sets the 'hunger motive' in us, due to which stomach muscles start contracting and expending and consequently, we feel a kind of pinching in the stomach. This tension generates drive in individuals to make efforts in getting food. After getting food, need vanishes, drive gets reduced and the motive disappears. Our food-seeking efforts come to an end.

Hull used the following two mathematical equations to explain his elegant theory.

$$SE_R = SH_R \times D \times V \times K - I_R - SO_R$$

$$SH_R = 1 - 10^{-an}$$

Where SE_R is reaction potential for a particular response

SH_R is the habit strength (strength of S-R bond)

D is the level of 'Drive'

K is the magnitude of reward

V is the stimulus intensity

SH_R is the inhibition (resistance) developed to a response due to repetition of the same, a number of times.

SO_R is the oscillatory reaction strength, 'a' is an empirical constant which is .03 for human beings; this value is greater for animals.

'n' is the number of reinforced trials required to form a habit. Only when the value of SE_R crosses a particular minimum value (called Threshold potential) response will occur. Among the values of SH_R , D, K, V if anyone is zero, SE_R will become zero and no response is possible. Hence, we cannot firmly say that a response will appear, if a stimulus is presented. Response will emerge only when SE_R crosses the threshold. Before Hull propounded his theory, it was believed that

reward and praise alone can reinforce behavior. But, Hull argued that 'escape from pain', 'need reduction' etc. also serves as reinforcers.

8.6.4. Murray's need theory

Closely related to the concept of drive is the concept of need. Henry Murray developed a need theory. His theory has been influenced by dynamic approach of psycho-analysts and field theories. 'Need' according to Murray is "a hypothetical construct which stands for a force (the physico-chemical nature of which is unknown) in the brain, which organizes perception, apperception, intelligence and action of the individual in such a way as to transform in a certain direction, from the existing unsatisfying situation. Unsatisfied needs would arouse the person to work, that would be sustained has been attained. Each need is accompanied by a particular feeling or emotion and tends to use certain modes of behavior, which brings an end situation that satisfies the organism.

Murray does not speak of reduction of tension by the organism in order to engage in activities. He proposed that organism not only behave to reduce tension but also to develop tensions so that they can be later reduced. He asserts that, it is not a tensionless state which is satisfying but the process of reducing tension.

He classified all needs into two broad categories:

- a) **Videogenic Needs:** These are called primary needs which are essential for survival. They include water, food, oxygen, sex, secretion, defecation, urination, warmth etc.
- b) **Psychogenic Needs:** These needs are secondary which emerge out from primary needs. Murray has given a long list of psychogenic needs. Achievement abasement, affiliation, aggression, autonomy, construction, superiority retention, order dominance rejection, exposition, play, nurturance, blame-avoidance etc.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

2. What are the theories of Motivation?

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8.7. MASLOW'S THEORY OF HIERARCHICAL NEEDS

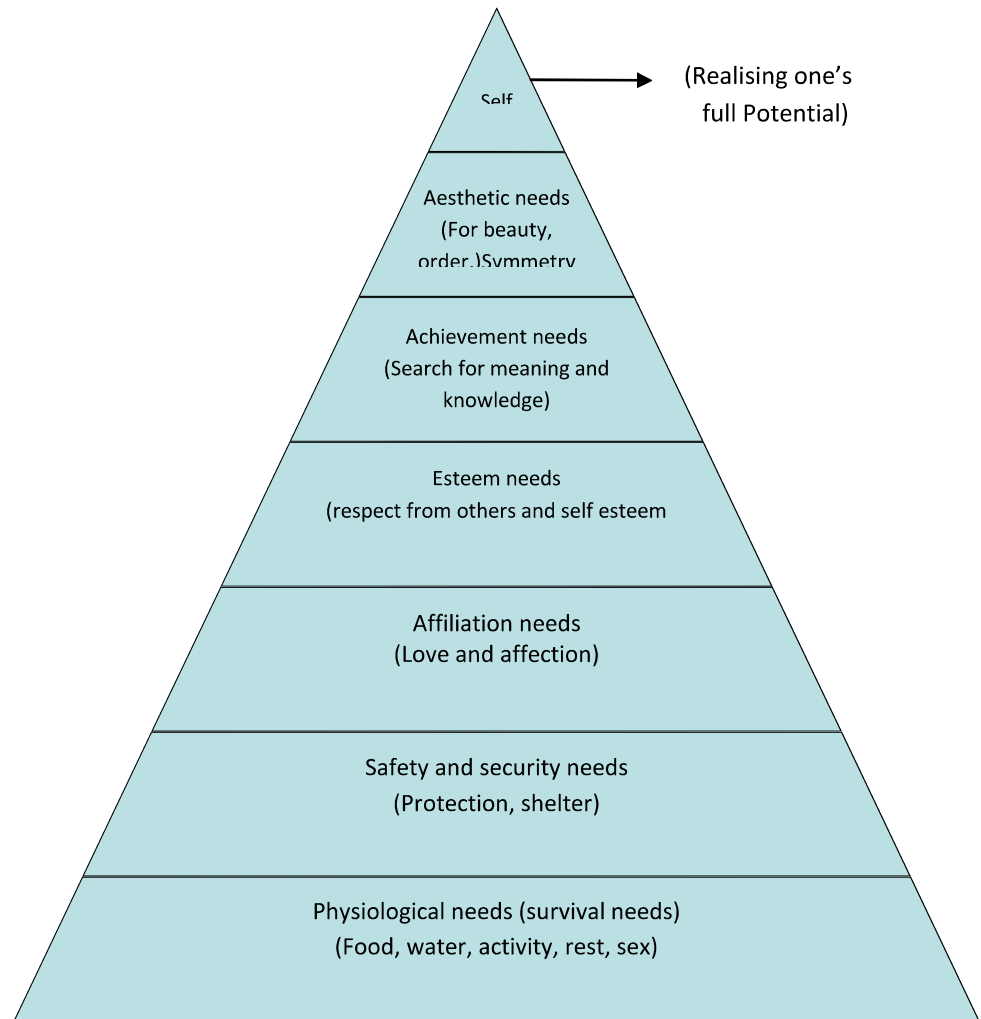
Abraham Maslow proposed a comprehensive theory of need gratification and growth motivation, including fundamental physiological needs, intermediate needs and what are called meta needs which a person is able to attend to only when his lower order needs are

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satisfied. Such meta needs are of creativity and self-actualization. According to Maslow:

- a) Human needs are many and multiple; all are not of equal importance i.e. needs can be arranged hierarchically
- b) The organism will aspire for a higher order needs only when the lower order needs get fulfilled

Thus his hierarchy of human needs can be represented pyramidically as follows:



Physiological needs:

These are the lower in the motivational hierarchy which includes need for food, water, oxygen, sleep, sex, sensory satisfaction and the like. These are vital for survival and hence should be fulfilled

before the next higher order motives become prominent. Perhaps, the main reason why disadvantage and poor children refuse to be motivated in the classroom to learn is that basic bodily needs remain unsatisfied.

Safety and security needs:

They include shelter, clothing and personal safety, security of the future, routine, regularity etc. Children do need discipline within their levels of understanding in order to perceive an orderly and organized world.

Affiliation needs:

It refers to the individual's hunger for affection. Pupil, who is not loveable because of his behavior, needs to be loved most. Identify implies belongingness and often underachievement of certain pupils results from lack of love and belonging.

Esteem needs:

In all of us, there is a desire for strength, mastery, competency etc. leading to a feeling of independence and freedom. We want to be high in the eyes of others. According to Maslow, satisfaction of this, self-esteem need generates feeling of worth, confidence and adequacy. Lack of satisfaction of this need can result in discouragement, feelings of inferiority and inadequacy.

Achievement needs:

They may be classified as need for knowledge and the need for understanding. Need for knowledge is satisfied when there is access to information, knowing how to do things, meaning of things, events, symbols etc. Needs for understanding implies knowledge of relationships, process the integration of knowledge into broad structure etc. Thus, achievement needs are related to intellectual domination and cognitive competencies.

Aesthetic needs:

This is concerned with appreciation of order and beauty. One whose lower order needs are fully satisfied or known that he need not bother about them, derives pleasure in beauty, nature etc. Tagore, Wordsworth etc. are the best examples for this.

Self-Actualization needs:

Self-actualization means to fulfill one's individual nature in all its aspects. One who is talented in one specific area feels uneasy, if that talent is not nurtured and utilized. He wants to attain perfection in that area. The highest level of functioning occurs when a person is self-actualized. People can be motivated towards self-actualization only when the lower order needs are satisfied.

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Educational implications of Maslow's theory

- a) The idea that needs of pupils are to be satisfied to enable them to function at a higher level of motivation has to be borne in mind when dealing with economically and culturally disadvantaged children
- b) Looking after ventilation, lighting, furniture, blackboard, provision of midday meals for the needy, classroom arrangement for physical and psychological safety and showing interest in every pupil so that he feels that he belongs to the class are vital
- c) An individual tends to raise his goals after success and lower them after failure. So, teachers should maintain realistic level of aspiration by providing graded assignments ensuring to include certain amount of success for every pupil
- d) The teacher should enhance the attraction and minimize the dangers of growth needs
- e) Indiscipline in classrooms and campus unrest could be traced to the fact that our curriculum is by and large not related to the demands of the society and aspirations of the people. The uncertain future makes the students behave hysterically at times. Therefore, the curriculum should be drastically changed and periodically revised so that it serves the vocational needs of pupils.

Characteristics of Self-actualisers

Maslow in his book 'Towards a Psychology of Being' has listed the characteristics of a consistently self-actualized person

- a) He has a sense of detachment
- b) He accepts himself and others
- c) He is demonization in outlook
- d) His behavior is problem –centered
- e) He shows a high degree of spontaneity
- f) At times he shows mysticism
- g) He identifies with mankind
- h) He develops a deep inter personal relationship with others
- i) He discriminates between ends and means
- j) He appreciates 'basic goods of life' with continued freshness and pleasure
- k) He is creative
- l) He has a sense of humor
- m) He is a non-conformist
- n) He shows sufficient perception of reality and acceptance of it.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

3. List out the needs in Maslow's theory of Hierarchical needs.

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8.8. MCCLELLAND'S THEORY OF ACHIEVEMENT MOTIVATION

The theory of achievement motivation was developed by McClelland and his associates in 1951 at the University of Harvard. The crucial problem of economic disparity among the nations of the world and psychological causes underlying this problem were attacked by McClelland. He rejects the conventional explanation that economic growth can be explained in terms economic variables. According to his view, psychological and sociological factors are major variables affecting economic growth. In his book "The Achieving Society", he advanced his new concept of economic growth of the nation. He argued in his book that the rise of capitalism cannot be explained and understood on the basis of economic factors alone. He believes that changes in the fundamental beliefs and attitudes of men gave impetus to economic growth in certain countries.

According to him, human beings differ from one another in the strength of achievement motive. It is this difference in strength of motivation to achieve that is important in understanding the difference in the economic growth of nations. Achievement motive is a type of social motivation and appears to be a widely generalized level of aspiration, aiming at excellence in all undertaken activity. It involves an exalted self-esteem and self-concept. McClelland denoted achievement motivation by the symbolic expression N-Ach (need for achievement). Atkison has also made a significant contribution to the development of the concept of achievement motivation.

Concept of Achievement motivation and its characteristics

The essence of achievement motivation is that it is not just a desire to achieve only but implies a striving to achieve a standard of excellence in actions. It is an intense desire to perform with excellence for its own sake. High achievement motive should be coupled with a success oriented mentality, if accomplishments are to be real. People with high N. Ach exhibit the following characteristics

- do well in competitive tasks
- generally prefer "Skill exercise" to "game of chance"
- they are fast and hard learners

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- they want to live up to a high self-imposed standard of performance
- they show preference for tasks of middle level probability of success (i.e. moderate risk-taking)
- they see problems and obstacles as challenges to be met and are determined to tackle them
- show persistence in work at an achievement related task
- derive more pleasure from success than those who are weak in achievement motive (or who are dominated by the fear of failure)
- There is strong desire to excel and beat other or to perform the best (in the absence of competition from others, they compete with their own past best performance and try to beat it)
- They are relatively resistant to outside social pressures
- They are energetic and generally exhibit a high profile of performance
- Sometimes appear to be tense and are likely to suffer from psychosomatic illness

Atkinson's Model

Atkinson's has developed a mathematical model for N. Ach, that relates a person's expected value of succeeding or failing at a task to the person's level of achievement motivation, in terms of its two components (i) T_s (Tendency of an individual to act with a hope for success) (ii) T_{AF} (Tendency of the individual, acting only to avoid failures). The formula suggested for the level of resultant motivational force is

$$N\text{-Ach} = T_s - T_{AF}$$

T_s and T_{AF} are calculated with reference to approach to success or failure, subject to probability of success (P_s) or failure for the given task and the incentive value (I_s) of the task for the subject i.e. the tendency to approach success T_s is computed from the equation $T_s = M_s \times P_s \times I_s$ and further $I_s = 1 - P_s$. M_s is relatively general and stable characteristic (the motive to achieve) of a person which is present in any behavior situation. But, the value of the variables P_s and I_s depend upon the individual's past experiences in specific situation that are similar to the one he now confronts.

Measuring Achievement Motive

McClelland used pictures of the T.A.T (Thematic Apperception Test) for measuring achievement motivation. High pictures (i.e. pictures depicting someone putting forth a lot of effort) are not used to measure N-Ach. Only medium pictures in which there are just slight suggestions that the individual in the pictures is aiming at some excellence in activity are used. Given a T.A.T picture (let us say, a boy sitting at a desk), the subject is given 4 minutes for writing a brief story answering the following question: What is happening? Who is or

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are the person or persons? What event that has happened in the past has led up to the situation depicted in the picture? What is being through? What is wanted? By Whom? What you think will happen or what will be done? etc. Each subject is shown 4 or 5 pictures and their stories analyzed and weighted for achievement related content and words. Instead of T.A.T. pictures, multiple choice questions are also used for this purpose with good results.

Inducing Achievement Motivation

Number of factors like home, school and culture of the society affect the development of achievement motivation.

- ❖ Home plays an important role in the early life of children in the development of attitudes and motives. When parents are educated and ambitious, children also imitate and possess a high degree of achievement motivation. Strong and supportive parents contribute to the growth of strong success oriented achievement motive in their children
- ❖ Mother's encouragement of independent activity at an adequate age is the most potent source of the development of N-Ach, according to Weiner Botom
- ❖ Deprivation of child-parent relationship affects emotional development and leads to cognitive deficiencies
- ❖ The social philosophy and culture of society will have a distinct influence on achievement motive. A society with a greater social mobility and migration, promotes achievement motive. In an orthodox society where everything is left to fate, the achievement motive will be low
- ❖ The school, its climate and teachers influence the development of achievement motive among the students. The motto of the school, the reputation it has made in the local community, the distinction it has obtained in public examinations, the values and ideals the school cherishes, all these will have considerable influence on the achievement motivation of students
- ❖ Providing feedback at regular intervals also will promote achievement motivation, because feedback will provide a clear insight into the meaning of goals
- ❖ A person's self-concept is also an important condition in learning and achievement level. The school should provide ample scope for the pupils to develop their self-concept and through that achievement motivation, by providing a variety of co-curricular activities in which pupils and teachers participate with real involvement.

1. **Significance of self-study:** The setting should dramatize the significance of self-study and lift it out of the routine of

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everyday life. This will increase the probability of more changes in motives

2. **Achievement as a sign of membership in a new reference group:** There is likelihood of occurrence of changes in motive if the achievement is a sign of membership in a new reference group.

Anxiety and its influence on performance

Anxiety is the state of being anxious, uneasy with fear and desire regarding something doubtful. The anxiety is experienced in many areas and individuals differ in their level of anxiety (level of general anxiety itself is considered as an aspect of personality). Low level of anxiety is considered to be a correlate of high achievement. Low level of anxiety produces a slight tension in the individual when he is about to undertake any task, and make him serious about the task and ceases after a satisfactory level of performance is achieved. Thus achievement-oriented people exhibit low level of anxiety. But, high anxiety level has a debilitating effect on one's performance. High anxiety triggers high level of tension under which even the best player fumbles. He becomes too much emotional and his cognitive faculty starts working at the low level. On the contrary, people with own achievement motivation do not show any anxiety at all when they are about to set out on a task, they are highly indifferent. Thus, anxiety is to be there but it should operate at the lowest level so as to maximize one's performance.

8.9. ROLE OF SUCCESS AND FAILURE IN MOTIVATION

Success is an important positive factor in the motivation of students. Success leads to the development of positive self-concept in the pupils and hence to further success and further increased motivation. So, teachers should give graded assignments such that everyone will have some success initially and continue their efforts. In classroom teachers can set the stage for success through provision of readiness training for the learning activity, setting clear cut short term goals which every pupil can achieve pointing to evidences of progress through immediate feedback helping each pupil to develop a realistic level of aspiration and not expecting all pupils to progress at the same rate. Teachers should not misguide pupils by stating that failure is the stepping stone for success.

8.10. LET US SUM UP

Motivation is basic to all behavior including learning. It is concerned with the 'why' of behaviour. The success in life and learning depends on our motivation. It stimulates us and directs our behaviour. Good motivation in any activity ensures that we develop an interest in the activity. Feel an urge to do it. Pay attention to it and the

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resulting performance is quick and efficient. On the other hand, if there is poor motivation. We feel the activity is forced on us against our desire. We may somehow do it or learn it in a haphazard way but our attention to the task will be minimum. Mistakes will occur in plenty and performance will also be poor. The most important reason for the gap between pupil's potential and the current level of achievement lies in the area of motivation.

8.11. UNIT END EXERCISES

1. Define the terms 'motive' and 'motivation'
2. Distinguish between 'motives' and 'incentives'
3. How does human motivation differ from motives in animal?
4. Write short notes on:
 - i. Motivation cycle
 - ii. Characteristics of motives
 - iii. Motivation and learning
 - iv. Classification of motives
5. Briefly explain Hulls Drive Reduction theory, bringing out its educational implications
6. Describe Maslow's theory of Hierarchical of needs, bringing out its educational implications
7. Distinguish deficiency and growth needs
8. List the important characteristics of a self-actualized person
9. What is achievement motivation? How is it measure? How teachers may help to elevate this motive in pupils?
10. State the characteristics of a person with high achievement motive
11. How the home and the school may and in the fulfillment of the needs of security and love and affection?
12. Distinguish between intrinsic and extrinsic motivation and point out the merits and limitations of each type.
13. Write short notes on success and failure
14. Explain McDougal's Instinct theory of motivation
15. Explain Murray's theory of needs
16. Explain Atkinson's theory of achievement motivation
17. What is anxiety? How does it affect one's performance?
18. Explain Morgan's physiological theory of motivation
19. Write a brief note of McClelland's theory of motivation

8.12. ANSWERS TO CHECK YOUR PROGRESS

1. Motives generally refer to biological, social and learned factors that initiate, sustain and stop goal directed behavior of organisms.
2.
 - a. McDougall's instinct theory
 - b. Morgan's physiological theory
 - c. Hull's drive reduction theory

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- d. Murray's needs theory
 - e. Maslow's theory of hierarchical needs
3. Physiological needs, safety and security needs, affiliation needs, esteem needs, achievement needs, aesthetic needs and self-actualization needs

8.13. SUGGESTED READINGS

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UNIT-IX MOTIVATION – II

Motivation - II

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- 9.1 Introduction
- 9.2 Motivational strategies in the classroom
- 9.3 Role of rewards and punishments in motivation
 - 9.3.1 Advantages of Rewards
 - 9.3.2 Limitations of Rewards
 - 9.3.3 Advantages of Punishments
 - 9.3.4 Disadvantages of Punishments
- 9.4 Role of praise and blame
- 9.5 Role of cooperation and competition
- 9.6 Level of aspiration
- 9.7 Let us Sum Up
- 9.8 Unit End Exercises
- 9.9 Answers to check your progress
- 9.10 Suggested Readings

9.1 INTRODUCTION

In this unit, we are going to know the various kinds of motivational strategies in the classroom and the role of rewards and punishments in motivation. We are also going to discuss the role of praise and blame, cooperation and competition and level of aspiration in the classroom context.

9.2. MOTIVATIONAL STRATEGIES IN THE CLASS ROOM

How to motivate children in the classroom for learning is a crucial problem which concerns all teachers at all stages of teaching. Following are certain common techniques used by teachers to motivate the students in the classroom:

Rewards in the form of prizes, distinctions, grades, decorations etc. generate interest and enthusiasms in pupils and appeal to ego involvement and ego maximization.

- a) Use of proper incentives as motivating agents, appropriate to the age group of students e.g. In primary classes, rewards and prizes may operate effectively: in high school classes, praise and blames will be more suitable than rewards
- b) Students should be helped to feel the utility of what they learn by relating them to practical life situations
- c) Provide feedback to students about their performance, then and there: announce test results in the class possibly the next day

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itself. This makes the learner motivated to learn and face the next test eagerly. Similarly, teachers not of head, smile, verbal appreciation etc. will serve as feedback in the actual classroom teaching-learning situation, when students present their responses.

- d) **Goal setting:** Motivational behavior is always goal-oriented. When the goal is clear and attainable, the students strive hard to reach the goal.
- e) **Ensuring success to all, at least to some extent:** Graded assignments should be given such that everyone will have some success initially and continue their efforts but the talented may claim more success or full success
- f) **Competition and co-operation:** Teachers should stress cooperation as a motive in study and sports. Where competitions are used, it should be set among the groups with frequent changing of group members. Within each group, individual members should be goaded for self-competition
- g) **Professional competency and sensitivity to the needs of pupils** help the teacher in his tasks and kindle student's interest in their learning. The imaginative use of audio-visual instructional aids is of great value in making the classroom teaching interesting
- h) **Avoid excessive motivation as it is self-delegating**
- i) **Develop positive attitude in pupils towards the school situation and learning itself and proper teacher pupil relationship is basic to such an attitude.**

Besides the strategies discussed above, some modern dynamic methods of instructions like team teaching, group discussion, brain storming, quiz programmes etc. will keep the tempo of the class. Any teacher can become a motivating teacher, if he adheres to the following

- a) Well-structured teaching
- b) Increased participation of the learners
- c) Warmth and enthusiasm of the teacher in appreciation of students' efforts
- d) Setting clear cut goals, within the reach of the pupils
- e) Good rapport with the students inside and outside the class
- f) Like stage actor, the teacher should keep the tempo in the class by resorting to proper modulation of voice, gestures etc. using varied techniques like demonstration, illustration (visual and verbal) etc.
- g) Continuous internal assessment provides for continued motivation, eliminating needless tension in the last minute.

9.3. ROLE OF REWARDS AND PUNISHMENT IN MOTIVATION

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Rewards and punishment are the two potent and powerful incentives which influence the future conduct or learning of an organism. Roll of honor, prizes, badges and the like are various forms of rewards. Rewards help to 'stamp in' the desired responses. Punishment is supposed to 'stamp out' the S.R connection as suggested by Thorndike (Law of effect). However, punishment which is based on fear (fear of pain and fear of disgrace) will not only on such of those students who consider that getting reprimanded is shameful. Punishment will be of no consequence on those who consider that to withstand the punishment is heroic. Progressive educational opinion is generally against punishments particularly corporal punishments which degrade the pupil. But, simpler types of punishment like reproof appear to have some value. Such punishments act as deterrents and serve as a form of discipline. But, correction and restitution should be first tried before punishment is resorted to. Among these two viz. reward and punishment which one will prove more effective, mainly depends upon the personality of the receiver as well as that of the giver.

9.3.1. Advantages of Rewards

- i. Rewards serve as positive reinforcer. As they are associated with success, they generate joy and satisfaction in the minds of the learners
- ii. Rewards lead to social recognition, which in turn promotes opportunities to express the initiative, creativity etc. of pupils
- iii. Rewards appeal to ego maximization and develop high morale
- iv. Rewards enhance the efficiency of the talented.

9.3.2. Limitations of Rewards

- i. Rewards will not motivate all but some who are almost equal in their efficiency
- ii. As rewards are extrinsic, they may not promote intrinsic interest in learning
- iii. Rewards tempt the learner to get them by any means including cheating
- iv. Rewards create unhealthy competition among the students.

9.3.3. Advantages of Punishments

- i. Punishment act as deterrent of wrong behavior
- ii. Simple punishment serves as a form of discipline in the class
- iii. Punishment immediately corrects the wrong doer and warns others not to repeat the same mistake (Ripple effect of punishment)

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- iv. If punishment is proportionate to the mistake, and also accompanies with proper explanation as why it is given, then it will have the value of reforming the wrong doer
- v. Punishments will be effective only when they are administered impartially: then only, they will appear to the students as natural consequences of undesirable behavior.

9.3.4. Disadvantages of Punishment

- i. Punishments are based on fear and therefore they are less effective
- ii. They create unpleasant feelings and associated with failures
- iii. The results of punishment are not always permanent
- iv. Punishment that appears severe to one may not appear that much severe to another, there are no reliable measures of punishment
- v. They lose their effectiveness, if the pupil is either not afraid of or willing to accept them
- vi. They create ill feelings among the teachers and students
- vii. Sometimes those who are punished may appear to be heroes to others e.g. those who were jailed under the MISA during the period of emergency i.e. in 1976 started putting MISA as a prefix to their name as a mark of their valour
- viii. Some punishments shatter the self-confidence of emotional persons.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

1. What are the advantages of giving rewards in the class?.

.....

2. What are the disadvantages of punishments?

.....

9.4. ROLE OF PRAISE AND BLAME

When a child is praised at his successes, he is overjoyed. As a result, he works bitter than before following prints must be kept in view while using praise as techniques of motivation.

- a) If an organism is praised at every big or small success randomly, he will be addicted to listen the words of praise. As on result, no new behavior is created due to praise
- b) Weaker children should be praised even at their small bits of success, while talented children should be praised only when they have really done something very unique

- c) Praise technique should be applied according to changing ratio schedule, i.e. sometimes, it should be used and sometimes not and the subject must not know at what time this is to be given

As far as blame is concerned, students are directly blamed for their failures and they are made ashamed. But, excess use of blame as a technique of motivation, may frustrate the child. Following points must be kept in mind before blaming the students on their failures.

- a) Positive efforts of child must be praised first before blaming him on his failure
- b) Students should not be solely made responsible for their failure. Other related factors and conditions must also be included in the list of factors causing failures in life
- c) The language of the blame should not be insetting for students. The self respect of every individual must be recognized.

9.5. ROLE OF COOPERATION AND COMPETITION

Both cooperation and competition are present in group learning situations as in the classroom. Neither of them is innate. They are both results of social influences and pressures from the social environment. Competition promotes greater individual achievement e.g. 100 meters race, Tennis-Singles etc. motivate the efficient competitors to put in their best. However, competition seems to generate a number of harmful effects. They are:

- i. In any competition, there are few winners and more losers and hence, most participants may just withdraw in self-defense
- ii. Fierce competition leads to strains in which none can give one's best
- iii. Intense competition breeds to such anti-social attitudes like winning at any cost, obsession with surpassing other pupils, goading over other failure etc.

On the other hand, competitions do provide opportunities for:

- i. Evaluating one's abilities on a realistic basis and sups him to overcome personal limitations
- ii. Establishing social contacts leading to friendships and affiliations
- iii. Increasing one's productivity.

But the harmful affects out weight the benefits of competitions.

Cooperation is the basis of democracy. It promotes mental peace and high social adjustment, football, cricket, tennis doubles etc. are team games which demand cooperation from every team member. Here, group performance is more important than individual brilliance.

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The best thing is we should arrange more of activities in which both competition and cooperation are involved

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9.6. LEVEL OF ASPIRATION

Frank defines level of aspiration as “the level of future performance in a familiar task which an individual, knowing his level of past performance in the task, explicitly undertakes to reach”. F. Hoppe defined it as “the degree of accomplishment consciously striven after by an individual”. Generally, normal people set their level of aspiration little above their present level of performance, raise it after success and lower a little after experiencing failure. Abnormal people and people dominated with excessive fear of failure set their future goals either unrealistically too high or low.

Personality factors such as N. Ach, self confidence, maturity, self-esteem etc. seem to influence the choice of an individual’s aspired goal. Generally, the two popular measures used in aspiration studies are:

- a) Goal Discrepancy (G.D) = Present Aspiration - Previous Attainment
- b) Attainment Discrepancy (AD) = Present Attainment – Previous Aspiration

For normal persons G.D. will be slightly positive and A.D. will be slightly negative.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

3. What are the two popular measures used in aspiration studies?

.....

9.7. LET US SUM UP

Motivation is basic to all behavior including learning. It is concerned with the ‘why’ of behaviour. Mistakes will occur in plenty and performance will also be poor. The most important reason for the gap between pupil’s potential and the current level of achievement lies in the area of motivation. The role of rewards and punishments, praise and blame, cooperation and competition will enhance the positive behavior of students in the classroom. Level of aspiration will also helpful for the students in the classroom to improve the level of achievement and understanding.

9.8. UNIT END EXERCISES

- 1. Write short notes on:
 - In learning situation the role of
 - i. Rewards and punishment

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- ii. Success and failure
- iii. Competition and cooperation
2. Outline a practical program me of motivational strategies which can be adopted by the teacher to maximize learning among his adolescent pupils
3. Define the concept of 'Level of Aspiration'

9.9. ANSWERS TO CHECK YOUR PROGRESS

1. Advantages

- (i) Positive reinforces
- (ii) Generate joy and satisfaction
- (iii) Enhances efficiency
- (iv) Develop high morale
- (v) Promote opportunities.

2. Disadvantages

- i. Punishments are based on fear and therefore they are less effective
- ii. They create unpleasant feelings and associated with failures
- iii. The results of punishment are not always permanent
- iv. They create ill feelings among the teachers and students

3.

- a) Goal Discrepancy (G.D) = Present Aspiration - Previous Attainment
- b) Attainment Discrepancy (AD) = Present Attainment – Previous Aspiration

9.10. SUGGESTED READINGS

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UNIT X INTELLIGENCE

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Structure

- 10.1 Introduction
- 10.2 Intelligence
 - 10.2.1 Nature of Intelligence
- 10.3 Definition of Intelligence
- 10.4 Types of Intelligence
- 10.5 Difference between Intelligence and Intellect
- 10.6 Theories of Intelligence
 - 10.6.1 Unitary Theory or Monarchic Theory
 - 10.6.2 Spearman's two-factor Theory
 - 10.6.3 Thorndike's Multifactor Theory
 - 10.6.4 Thurstone Group-factor Theory
 - 10.6.5 Guilford's Structure of Intellect
 - 10.6.6 Burt-Vernon's Hierarchical Theory
- 10.7 Emotional Intelligence
 - 10.7.1 Characteristics of Emotional Intelligence
 - 10.7.2 Components of Emotional Intelligence
 - 10.7.3 Applying the Definition of Emotional Intelligence to a Baby
- 10.8 Individual Differences in the Distribution of Intelligence
 - 10.8.1 Distribution of I.Q's
 - 10.8.2 Growth of the Intelligence
 - 10.8.3 Constancy of I.Q.
 - 10.8.4 Intelligence and Scholastic Achievement
- 10.9 Measures of Intelligence
 - 10.9.1 Difficulty in Measuring Intelligence
 - 10.9.2 Historical Development of the Intelligence Tests
- 10.10 Some of the Standardised Intelligence Tests
 - 10.10.1 Stanford - Binet test of Intelligence
- 10.11 Types of Intelligence Tests
 - 10.11.1 Individual and Group Tests
 - 10.11.2 Verbal and Performance Tests
- 10.12 Uses of Intelligence Tests
- 10.13 Limitations of Intelligence Tests
- 10.14 Culture –Fair Tests
- 10.15 Let us Sum Up
- 10.16 Unit End Exercises
- 10.17 Answers to check your progress
- 10.18 Suggested Readings

10.1 INTRODUCTION

In this unit, we are going to define intelligence and discuss different theories of intelligence and assessment of intelligence using intelligence tests. We are also going to discuss the individual differences in intelligence and we are going to know the emotional intelligence.

10.2 INTELLIGENCE

The human individual has several points of uniqueness and superiority over the animals, the most important of which is “Intelligence”. Successes in schools and colleges and in one’s own profession, social adjustment, possession of general information etc. are part of the meaning commonly associated with the concept “Intelligence”. Though psychologists have been measuring intelligence of a person with appreciable degree of reliability, but, they have not been able to agree to the nature of intelligence as such. This is primarily due to the reason that, intelligence does not yield for precise measurement as we are able to measure many of the human characteristics like height, weight, visual acuity, auditory acuity etc. Nature of intelligence is to be inferred from the way an intelligent person behaves, the way he thinks, reasons and acts. Intelligence is to be assessed by judging one’s ability to learn, capacity to adapt to new environments and efficiency to solve problems.

10.2.1 Nature of Intelligence

Psychologists have suggested various points of view regarding the nature of intelligence. All the definitions can be classified under the following three groups:

- **Ability for adjustment or adaption:** According to this point of view, intelligence is the general mental adaptability for new problems and new situations of life. Thus, more intelligent person is one who can more easily and more extensively vary his behavior as changing conditions demand.
- **Ability to learn:** This view point emphasizes the ability to learn i.e. one’s intelligence is a matter of the extent to which he is educable. The more intelligent person, the more readily and extensively he is able to learn and enlarge his field of activities and experiences.
- **Ability to carry on abstract thinking:** Here, emphasis is laid on the effective use of concepts and symbols in dealing with situations, especially presenting a problem to be solved through the use of verbal and numerical symbols.

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The three categories of definitions of intelligence stated above are not exclusive on each other, but are inclusive and interdependent on each other. No doubt, on the surface, these categories appear quite different; but on critical examination, it could be found that learning ability is the basic requisite condition for the other two aspects of intelligence.

10.3 DEFINITION OF INTELLIGENCE

- Studdard speaks of intelligence as the “ability to start and sustain, in spite of emotional interferences, activities that are difficult, novel and useful in an economical manner”.
- A very comprehensive and widely accepted definition of intelligence has been given by Wechsler, which states “Intelligence is the aggregate or global capacity of an individual to act purposefully, to think rationally and to deal effectively with environment”. This definition encompasses all the three major viewpoints which regard intelligence as:
 - Adjustment or adaption ability
 - Ability to learn
 - Ability to carry on abstract thinking
- Alfred Binet considers intelligence as involving such abilities as “understanding, originality, persistence and self-criticism”.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

1. Define Intelligence.

.....

10.4 TYPES OF INTELLIGENCE

Some psychologists, notably Thorndike believed that several kinds of intelligence should be distinguished from each other. According to him, intelligence is of three kinds:

- **Social Intelligence:** It refers to the knack of getting along with people. Socially intelligent person makes friends easily and understands human relations
- **Mechanical Intelligence:** It is the ability to deal effectively with machines or mechanical contrivances

- **Abstract Intelligence:** It is the ability to deal with symbols (both verbal and numerical), diagrams, formulae etc.

Prof. Howard Gardener of Harvard University of U.S.A. in his book “Frames of Mind: The Theory of Multiple Intelligence” has posted a provisional list of intelligences which include linguistic and logical skills (which I.Q. tests measure), Musical skills, Kinesthetic skills (exhibited by surgeons, dancers etc.), Spatial skills (displayed by sculptors etc.), Interpersonal skills (important for politicians, salesmen etc.), Intrapersonal skills (exhibited by planners and strategists).

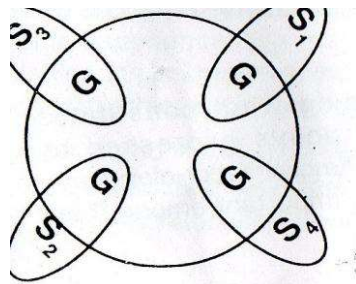
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10.5 DIFFERENCE BETWEEN “INTELLIGENCE” AND “INTELLECT”

Intelligence and intellect are not one and the same thing. Intelligence is wider in meaning than intellect. Intellect means cognitive powers or activities like perceiving, observing, remembering, imagining and thinking; but intelligence on the other hand means not only intellectual activities, but also the capacity for solving practical problems of life as well. Woodworth has defined “intelligence as intellect put to use”. Terman has defined intelligence as the ability to adjust to environment. Thorndike has defined intelligence as the power of making good responses from the point of view of truth and fact. In simple words, intelligence means intellect as is applied in practice situations.

10.6 THEORIES OF INTELLIGENCE

There are many views regarding what constitutes “intelligence”. The different viewpoints expressed by psychologists regarding the structure and functioning of intelligence go by the name theories of intelligence. Important among them are presented below:



10.6.1 Unitary Theory or Monarchic Theory

This theory holds that, intelligence consists of all pervasive capacity. Binet, Terman and some other classical psychologists supported this view. According to this theory, if one has a fond of intelligence, he can utilize it to any area of his life. The intelligence of a person gets stamped in all what he thinks and acts. But, in our practical

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life, we see contrary to this. A genial mathematical professor may be absent minded or socially ill-adjusted. Further, analysis of scores in an intelligence test battery shows that different tests in the battery are not highly correlated. Hence, it is suggested that, the unifactor approach is too simple and a complex model is needed to explain intelligence satisfactorily.

10.6.2 Spearman's Two-Factor Theory

Spearman proposed his two-factor theory of intelligence in 1904. The first factor was a general capacity which was basically a reasoning factor. According to this theory, every different mental abilities involves a general factor (G), which it shares with all other mental activities and a specific factor (S), which it shares with none. 'G' factor is largely innate and accounts for success in all activities. It is constant in the sense that for any success in all activities. It is constant in the sense that for any individual it remains the same for all the correlated activities. It differs from individual to individual. But, success in any specialized field very much depends on the concerned specific factor which is essentially learnt. Thus, no person is absolutely uniform in his mental performance. So, persons who are good in nature sciences are poor in social sciences. Some who excel in mathematics are poor in language. Thus, performance in any situation is predicted by the amount of share of 'G' and 'S' in different intellect activities. This can be represented as follows:

G: General Factor (approximates to 'common sense')

S: Specific Factor

Implications of Spearman's Theory on Test Construction

An intelligence test, conforming to this theory would be one whose materials are several parts saturated with the general factor, so that measurement would cause the testee's level and quality of 'G' to emerge, while the effects of specific factor 'S' would be canceled out. Thus, the net result of the test would be a measure of 'G'. Usually such tests a word meaning, sentence completion, arithmetic, reasoning by analogy and perceived relationships in geometric form are included as components of a test to measure general intelligence.

10.6.3 Thorndike's Multi-factor Theory

Thorndike was an associationist and he opposed the theory of general intelligence (Unifactor theory). He proposed that there is specific stimuli and specific response. Intelligence to him is nothing more than a convenient name for almost infinite number of actual or potential specific connections between these stimuli and responses. Differences in intelligence among people are due to the number of connections in the neurological system. According to the theory,

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intelligence is said to be constituted of a multitude of separate factors or elements, each being a minute element or ability (and hence this theory is known as atomistic theory of intelligence). A mental act according to this theory involves a number of these minute elements operating together. If any two tasks are correlated, the degree of correlation is due to the common elements involved in the two tasks.

Thorndike distinguished four attributes of intelligence. They are:

- **Level:** This refers to the difficulty of a task that can be solved. If we think of all test items arranged in a sequential order of increasing difficulty, then the height that we can ascend on this ladder of difficulty determine our level or attitude of intelligence
- **Range:** This refers to the number of tasks at any given degree of difficulty that we can solve. Theoretically, an individual possessing a given level of intelligence should be able to solve the whole range of tasks at the level. 'Range' is determined not only by 'level' but also by the breadth of experience and by opportunity to learn. In intelligence tests, range is represented by items of equal difficulty.
- **Area:** It refers to the total number of situations at each level to which the individual is able to respond. Area is the summation of all the range at each level of intelligence processed by an individual
- **Speed:** This is the rapidity with which an individual can respond to items. Speed and altitude are positively related. Speed is much closely bound up with altitude than are the other attributes. We should not, therefore emphasize speed too much in our intelligence tests.

Every intelligence test consist these four attributes. When we test a person, we given him certain number of tasks (area) and these tasks vary in difficulty (level) and there is certain number of items at each level of difficulty (range) and they are responded in a given time (speed). Emphasis on these four attributes varies from test to test.

10.6.4 Thurstone Group-factor Theory

Group factor theory has been advocated by Thurstone and his associates. According to the group factor theory, intelligent activity is not expression of innumerable highly specific factors as Thorndike claimed. Nor is it the expression primarily of a general factor as spearman held. Instead, the analysis and interpretations of Thurstone and others, led them to the conclusion that certain mental operations have in common a 'primary' factor, which gives them psychological and functional unity and which differentiates them from other mental

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operations. These mental operations, then, constitute a group. A second group of mental operations, then, constitute a group. A second group of mental operations has its own unifying 'primary factor'; a third group has a third, and so on. Each of these primary factors is said to be relatively independent of others. From further analysis, Thurstone and his colleagues concluded that seven **Primary Mental Abilities (PMA)** emerged clearly enough for identification and used in test design. They are:

- **Space Visualisation:** The ability to visualise geometric pattern in space
- **Perceptual speed:** Quick and accurate noticing of details
- **Numerical ability:** Quickness and accuracy in simple arithmetic operations
- **Verbal comprehension:** Knowledge of meaning and relationship of words
- **Word fluency:** Ability to think and use many isolated words at a rapid rate
- **Rote memory:** Immediate recall of materials learned
- **Reasoning:** Ability to see relationship in situations described in symbols.

Contributions of Thurstone's Theory of Intelligence

Important contributions of Thurstone's theory of intelligence are:

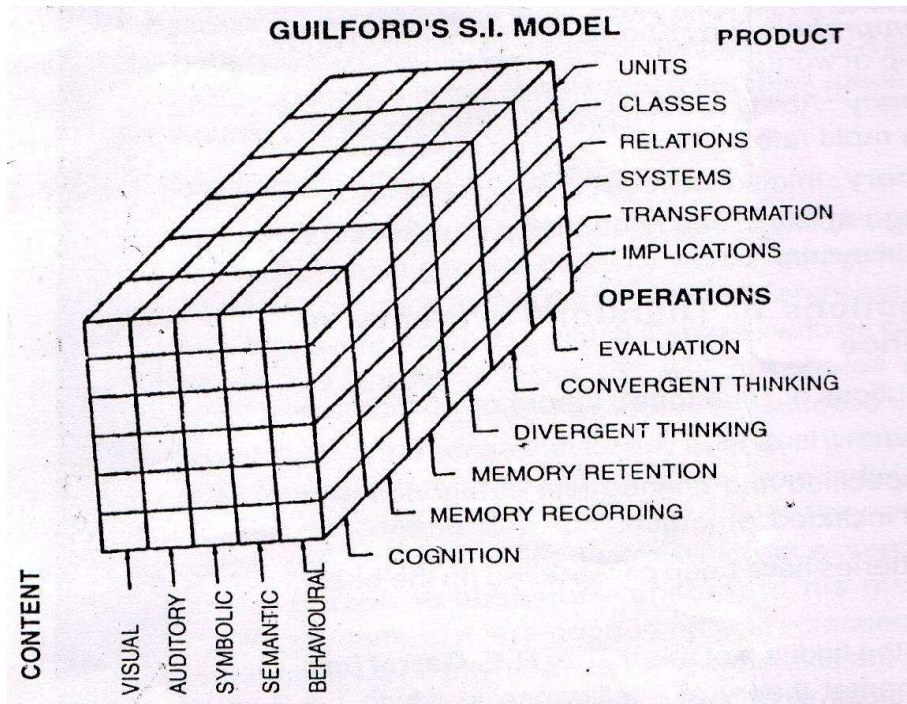
- More clearly specified and defined test categories and type of test items to be included, emerged
- Several test batteries have been constructed on the basis of group factor theory
- On the basis of the findings of this theory, H.E. Garrett has postulated a developmental theory of intelligence in which he argues that with increasing age, abilities differentiate out of general abstract intelligence into relatively independent factors.

10.6.5 Guilford's Structure of Intellect

Structure of Intellect model is the result of factor analysis conducted by Guilford and his associates in the psychology laboratory at the University of South California in 1966. Guilford suggests that, mind is composed of at least three major dimensions process of operation, material or content, and product.

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- **Six operations :** (i) Cognition (ii) Memory recording (iii) Memory retention (iv) Divergent thinking (v) Convergent thinking (vi) Evaluation.
- **Five contents:** (i) Visual content (ii) Auditory content (iii) Symbolic content (iv) Semantic content and (v) Behavioral content.
- **Six products :** (i) Units (ii) Classes (iii) Relations (iv) Systems (v) Transformations (vi) Implications.



Explanation of the different components of Intelligence

Six Operations:

- **Cognition:** This involves immediate discovery, rediscovery, awareness, comprehension and understanding
- **Memory Recording:** It is the most important fundamental operation in learning process. It means retention of what is recognized for a short duration (Short term memory)
- **Memory Retention :** It refers to the retention of what is recognized for a long period of time (long term memory)
- **Convergent Thinking:** Generation of information from the given data where the emphasis is on conventionally accepted best outcomes

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- **Divergent Thinking:** It refers to thinking in different directions, searching and seeking some variety and novelty. Divergent thinking is closely associated with creativity
- **Evaluation:** In this, research conclusions and decisions as the goodness, correctness, adequacy and desirability of information.

Five Contents

- **Visual content:** It is a concrete material which has been perceived through ideas
- **Auditory Content:** It is a matter or information perceived through ears
- **Symbolic Content:** It is composed of letters, digits or other conventional signs usually organized in general patterns
- **Semantic Content:** It is in the form of clear cut verbal meanings or ideas for which no examples are necessary i.e. self-explanatory
- **Behavioral Content:** Social intelligence which enables one to understand human communications.

Six Products

- **Units:** This is similar to Gestalt psychology of figure and ground; relatively segregated items
- **Classes:** Conceptions underlying sets of information grouped by virtue of their common properties
- **Relations:** Connections between items of information based on variables. Relational connections are more meaningful and definable
- **Systems:** This is an aggregate of items of information with a structure
- **Transformation:** Changes like redefinition, modification in existing information or its function
- **Implications:** This is concerned with the explorations of information in the form of expectancies, predictions and consequences.

Thus, according to Guilford, there can be only 180 different mental abilities, as a result of 6 processes operating on any one of the 5 contents to produce any one of the 6 products ($6 \times 5 \times 6 = 180$).

Guilford would not agree to the idea of some fixed amount of intelligence. Instead, he claims that, development of intellectual skill as in any other skill depends on practice unlike others. Guilford is

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concerned with the social behavior of the individual in addition to academic success. Therefore, he devised some tests of social sensibility. He takes into account inter-personal skills. He refers to the dynamic cluster of skills which can always be improved.

Educational Implications of ‘Structure of Intellect’ Model

Teacher may find this model useful in identifying and defining specific learning outcomes. Those elements relating to convergent and divergent thinking have stimulated considerable interest and investigation. High divergent thinking people are high in creativity and produce new forms of responses. High I.Q. people try to focus on socially acceptable responses.

10.6.6 Burt-Vernon’s Hierarchical Theory

Cyril Burt and Vernon compare human intelligence to growing tree. When it is a small plant, its thick trunk appears to be the primary part. As the plant grows into tree many branches set off from different points of the trunk which in turn generate their own off shoots and thus tree continues its expanse. Similarly during childhood (up to 10 or 12 years), intelligence operates as a single factor; in the early adolescence (12 to 14 years), this single basic factor (G), branches off into two major factors (i) Verbal Education (VEd) and (ii) Spatial Mechanical (KM) and start maturing. During adolescence (14 to 18 years), group factors get generated from these two major factors and they in turn produce more specific factors.

For example, the major factor ‘Verbal Education’ may produce minor group factors like verbal comprehension, word fluency etc. The group factor ‘Verbal comprehension’ may produce specific abilities like analogy, citing synonyms, antonyms etc.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

2. Write ‘T’ against the statement which is true and ‘F’ against the statement which is false

i) Two factor theory has been advocated by Spearman (T/F)

ii) Group factor theory has been advocated by Thorndike (T/F)

iii) Guilford’s structure of intellect has three dimension (T/F).

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10.7 EMOTIONAL INTELLIGENCE (E.I)

- **Jack Mayor** and **Peter Salovey** have been the leading researchers in emotional intelligence since 1990. They defined

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E.I. as ‘the subset of social intelligence that involves the ability to monitor one’s own and others feelings and emotions, to discriminate among them and to use this information to guide one’s thinking and actions’.

- **S.Hein** (2005) defined emotional intelligence as “the innate potential to feel, use, communicate, recognize, remember, learn from, manage and understand emotions”.
- **Lea Brovedani**, defined E.I. as ‘being able to recognize, name and appropriately deal with emotions that we feel and experience. We may all feel anger; emotional intelligence knows what to do with the emotion of anger to achieve the best possible outcome’.

Summing up, it could be stated that E.I. is the ability to sense and use emotions to more effectively manage ourselves and influence positive outcomes in our relationship with others.

10.7.1 Characteristics of Emotional Intelligence

- It is an innate potential
- It depends on the ability to remember emotions
- It includes the ability to remember feelings
- Each baby is born with a certain, unique potential for emotional sensitivity, emotional memory, emotional processing and emotional learning ability. The way we are raised dramatically affects what happens, to our potential in each of these areas. For example, a baby might be born with very high potential for music, but if that child’s potential is never recognized, nurtured and encouraged to develop, then it will never become a talented musician later in life. Also, a child being raised in emotionally abusive home can be expected to use its emotional potential in unhealthy ways later in life.

10.7.2 Components of Emotional Intelligence

The capabilities that constitute emotional intelligence as advocated by Jack Mayer and Peter Salovey are as follows:

1. Emotional Appraisal and Expression of Emotion

It includes

- **The capacity for self –awareness:** Being aware of one’s own feelings and emotions as they are occurring
- The ability to perceive and identify emotions in other people, designs, art work etc. through language, tone of voice, appearance and behavior

- **The capacity for emotional literacy:** Being able to label specific feelings in one's own self and others; being able to discuss emotions and communicate clearly and directly.

2. Emotional Facilitation of Thinking

It consists of

- a) The ability to incorporate feelings into analysis, reasoning, problem-solving and decision making
- b) The potential of one's own feeling to guide to, what is important to think.

3. Understanding and Analyzing Emotions Employing Emotional Knowledge

This potential capacity consists of

- i) The ability to solve emotional problems
- ii) The ability to identify and understand the inter-relationships between emotions, thoughts and behavior. For example, to see the cause and effect relationships such as how thoughts can affect emotions or how emotions can affect thoughts and how one's emotions can lead to the behavior in himself and others
- iii) The ability to understand the value of emotions to the survival of the species

4. Regulation of Emotion to Promote Emotional and Intellect Growth

It includes

- i) The ability to take the responsibility for one's own emotions and happiness
- ii) The ability to turn negative emotions into positive learning and growing opportunities
- iii) The ability to help others identify and benefit from their emotions.

10.7.3 Applying the Definition of Emotional Intelligence to a Baby

As a practice example of emotional intelligence, and to see how even one baby's innate level of emotional intelligence can be different than another's let us look at a baby's feeling of fear.

Fear, of course, is a natural feeling. Its purpose, as designed by nature, is to help the baby survive. A baby has a natural fear of abandonment because the baby knows its life depends on others. When it is left alone, it feels afraid. A baby is also afraid of being separated from its parents; so, if a stranger tries to take the baby away from them, it is natural for the baby to feel afraid. But, not all babies respond to fear in exactly the same way. Let us consider a baby's fear as we look at each of the components of emotional intelligence.

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- a) Feeling afraid is the first step in the baby trying to meet its survival needs. If it does not feel afraid, it cannot take the steps needed to ensure its own safety and survival
- b) A frightened baby uses its fear to take needed action
- c) This action is typically crying or screaming, when very afraid. A more emotionally intelligent baby do better job of communicating its fear, and thus will have a higher chance of survival
- d) A baby with higher emotional intelligent baby will quickly learn to recognize when the mother or father is angry
- e) The highly emotional intelligent baby will remember the details of how the mother and father look when they are angry, how their voices sound and what movements they make
- f) The highly emotional intelligent baby will quickly learn when it does something which angers the parents
- g) A baby with high E.I. will more quickly learn to manage its own emotions so as not to anger the parents; in the example, it will learn not to cry, even though crying is natural, if crying angers the parent.

10.8 INDIVIDUAL DIFFERENCES IN THE DISTRIBUTION OF INTELLIGENCE

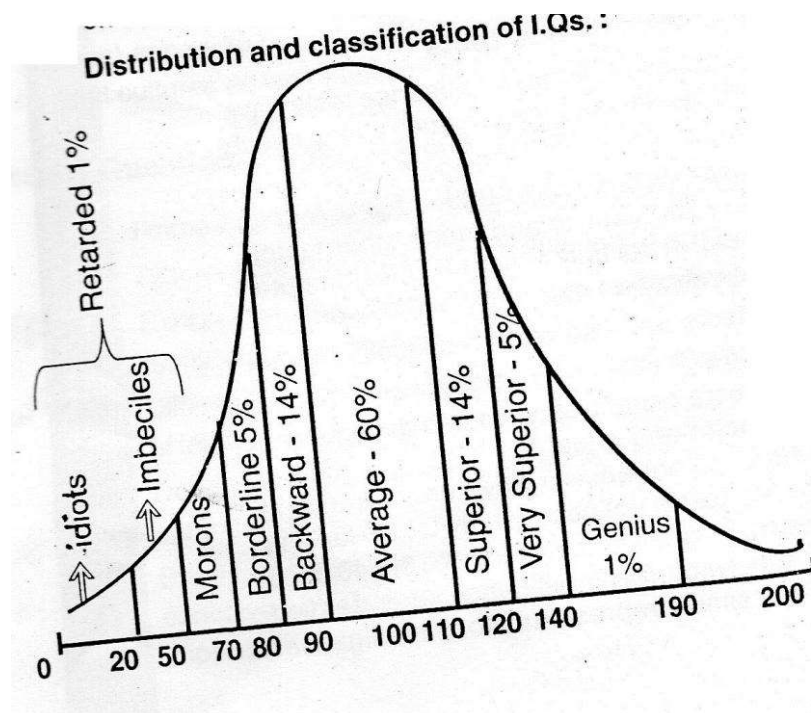
10.8.1 Distribution of I.Q's

Psychologists says that intelligence (measured I.Q.) is distributed normally in a large random selection of human population. That is, the distribution of intelligence, in the population is observed to be in the following proportions.

I.Q. Range	Classification	Percentage in population
Above 140	Genius	1
120-139	Gifted/very superior	5
110-119	Superior	14
90-109	Average of Normal	60
80-89	Backward children Or slow learners	14
70-79	Borderline	5
50-69	Morons	
25-49	Imbeciles Mentally	
0-24	Idiots retarded	
		100

The distribution of intelligence, if diagrammatically represented, will be a typical 'bell-shaped' curve, with majority having average I.Q. (between 90 and 110) and a fewer percentage of individuals on either side of the average.

Distribution Classification of IQ's



(According to Stanford-Binet tests, very superior is 1%, superior-11%, high average-18%, average-46%, low average-15%, borderline-6%,and retarded-3%). Mental retardation is mostly hereditary. Idiots and imbeciles may not reach the stage of entering formal schools. Morons, given special education can learn basic life adjustment skills and can to some extent avoid being social parasites by learning certain tasks of self and community value).

10.8.2 Growth of Intelligence

“Intelligence does not remain stagnant or inert, it changes and develops”. Intelligence goes on developing rapidly in childhood and comes to a standstill at 16. Again, the intelligence of very bright children develops more rapidly and through a longer period than that of an average intelligent one. Intelligence ceases to develop after maturity is attained and is on the wane with old age. There is difference of opinion as to the definite age level, when intelligence is fully developed. According to Binet, it is 15. According to Terman Merrill, it is 16. Intelligence develops both in depth and width. In the light of the actual intelligence testing, it can be said that as both depth and width of intelligence are subject to change, the latter is more, as compared to the former. For example, the height or depth of intelligence as determined

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by mental capacity or the vertical intelligence when he is 40 is equal to that when he was 16 though his horizontal intelligence resulting from knowledge and skill arising out of interplay of intelligence and environmental situations continues to become wider and wider. It should be realized that what is measured through intelligence tests is vertical intelligence only.

10.8.3 Constancy of I.Q

Mental age gives us a measure of the level of intelligence development while I.Q. is an index of intelligence in comparison to others of the same age. Thus, I.Q. is an index of relative brightness. It is a method of measuring intelligence relatively. There is generally an increase in mental age when the child grows old but the ratio between M.A. and C.A. is found to remain constant. Thus, a person’s I.Q. is independent of the scores which he happens to make at a particular age. If the I.Q. is 100 at a particular age, it continues to be so because as the chronological age advances, the mental age also increases. This is what is meant by saying that I.Q. is constant.

But, recent investigations seem to cast certain doubts on the view that I.Q. remains constant. Howzick tested the I.Qs. of 150 children continuously, year after year from the ages of 2 to 18 and found that during these 16 years there was variation of ± 10 to 30 points in their I.Qs. This phenomenon of ‘fluctuation in I.Q’ is supported by other investigators like Bayley and Richards. Such fluctuations in measured intelligence may be due to a variety of reasons such as changes in testing climate, deterioration or improvement of physical health during successive testing, imperfect reliability of mental tests, familiarity of the individual with test items in successive testing etc. so, we can only say that measured I.Q. is fairly constant, provided a reliable test has been used and that too after the age of 7 or 8.

10.8.4 Intelligence and Scholastic Achievement

$$\text{Achievement Quotient} = \frac{\text{Achievement Age}}{\text{Chronological Age}} \times 100$$

It is a matter of common knowledge that a child with above average I.Q. does very well in class studies and it will be equally high. But, it is also possible that some pupils with high I.Q.s are even below average in academic achievement. This is because, academic achievement implies knowledge of school subjects which is different from intelligence. Further, for success in academic studies, along with intelligence, interest in studies, a high level of aspiration, continuous efforts as well as conducive home and school environment are needed. Bright children who lack these may be academic failures. At the same time, it is clear that one’s intelligence sets the upper limit of one’s

school achievement and a pupil with average or below average I.Q. can go only up to certain level of achievement, even if he puts forth maximum effort. So, along with intelligence tests, academic aptitude tests are necessary to predict a pupil's success in later school career.

10.9 MEASURES OF INTELLIGENCE

10.9.1 Difficulty in Measuring Intelligence

Measurement of intelligence is not possible in the same way as we measure the length of a table or the temperature of boiling water, since intelligence is not a concrete thing. It is only an idea and abstraction and therefore its direct measurement is not possible. Intelligence tests do not measure intellectual capacity in action or behavior. It is believed that every human action has some intelligence behind it. The level of intelligence of an individual has is measured by (i) the difficulty of the task he can perform (ii) the range of tasks he can perform and (iii) the speed with which he does.

To quote Samdiford, “the harder the task a person can perform, the greater is his intelligence. Secondly, more of tasks that an individual can do, the more intelligence he has, and thirdly, the quicker the response of an individual to the given task, the greater his intelligence is”.

10.9.2 Historical Development of Intelligence Tests

The establishment of the first psychological laboratory in 1879 by Wilhem Wundt gave an impetus to the devising of tests to measure certain aspects of intelligent activity. Francis Galton, the famous English mathematician and psychologist, could perhaps be credited with having devised a test battery for the first time for assessing intelligence. This included measurement of head size, reaction time, visual acuity, memory of visual forms, breathing capacity and strength of hand grip. Galton thought superior intelligence was accompanied by superior physical vigor. However, the tests were not useful. Similarly, J.M. Cattell published a book in 1890 at U.S.A. on testing mental abilities in which he had codified principles of such testing and had listed certain perceptual tests, reaction time tests, speed of movement tests etc. for measuring one's intelligence. Ebbinghaus devised in 1897 certain completion type (filling up the blanks in a story outline with suitable words) for measuring certain intellectual functions. But, the real credit for constructing practically viable tests for measuring intelligence in specific quantitative terms goes to the French Psychologist, Alfred Binet, who with collaboration of Theodore Simon produced in 1905, the “Binet-Simon Scale of Intelligence”.

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10.10 SOME OF THE STANDARDISED INTELLIGENCE TESTS

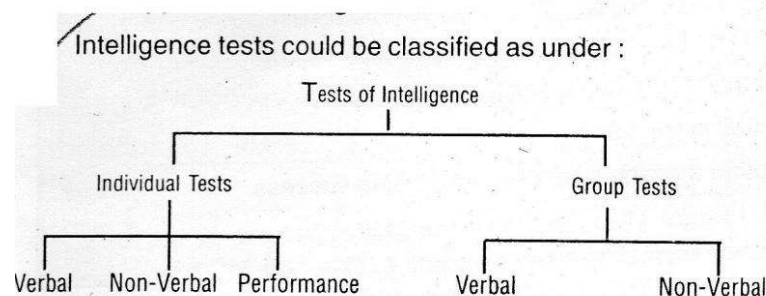
10.10.1 Stanford - Binet Test of Intelligence

Alfred Binet, a French Psychologist, is known as the father of intelligence testing. To devise test items for estimating intelligence, Binet started with certain assumptions regarding certain functional aspects of intelligence.

1. Intelligence does not refer to one or two narrow abilities but a complex variety of abilities and so testing intelligence should involve a variety of tests assessing higher order mental functions. Tests of perceptual and muscular skills are useless.
2. Intelligence is best displayed by general information and knowledge and is independent of school learning. So, Binet chose items which a normal child of a particular age could answer from its out-of-school experience.
3. The more intelligence, individual shows greater initiative and persistence, is more careful in observing details and chalking out a consistent plan of activity and he is able to take and maintain a definite direction in thinking when faced with a problematic situation.
4. Intelligence increases in amount as age increases, so, Binet introduced simpler items for younger children and more difficult and complex items for older children.

The 1905 scale of intelligence of Binet and Simon contained 30 items and a child's intelligence was roughly computed by taking into account the number of items out of the 30, answered correctly by it. Such items as removing the paper wrapper before putting a candy into mouth, the difference between paper and cardboard, sentence completion etc. were included. The scale of intelligence was revised and reissued by Binet in 1908. In this revision, the tests were arranged for different age levels, enabling the computation of mental age (M.A).

10.11 TYPES OF INTELLIGENCE TESTS



10.11.1 Individual and Group Tests

Individuals' tests of intelligence can be used to test only one subject at a time. If many are to be tested, each has to be done separately and individually resulting in enormous expenditure of time and energy. Such individual test may also penalize the bright, but, shy and nervous children who do not display their best when directly facing the tester. To get over these obvious limitations of individual testing, group tests of intelligence were developed.

The first group test developed were Army Alpha Test (for those who knew the English language) and Army Beta Test (for those who are not versed in English and consisting of digits and diagrams). These group tests are paper and pencil tests and there is a time limit for completing the test. It was believed that one who could comprehend correctly and complete quickly the tasks set by the test items had great intelligence than one who could not so well. Army beta group test does not involve language. Subjects are required to respond to each item just by putting a mark next to the appropriate picture or diagram. Following the army group tests of intelligence, many standardized group tests of intelligence like Stanford - Binet tests of Terman, Otis group tests of intelligence, Kuhlman-Anderson group tests etc. have been developed. Group tests of intelligence contains a variety of items of which the following are sample types- vocabulary items, word analogies items, sentence completion items, tests of mathematical reasoning, number series, classification, following directions, picture arrangement tests, memory for designs, absurdities test, common sense tests, digit-symbol substitution tests, paper and pencil mazes etc. Some of these are symbolic and pictorial items and others are verbal and abstract items. For the younger age groups test items and as age increases words and abstractions become more stressed.

Advantages of group tests of intelligence

1. As many can be tested at the same time, they are economical.
2. They permit shy and socially withdrawn subjects to display their best in test situations.
3. Administration of group tests is also comparatively easy. Stencil scoring as well as mechanical devices help in quick and accurate scoring of large number of test papers in a very short time.

Limitations of group tests of intelligence

1. They are not of much use in attempting an in depth study of a single person's intelligence
2. Paper and pencil group tests often resemble class or school examinations and children who have developed negative

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attitude towards examinations may transfer such attitudes to mental tests

3. Group tests have a time limit and hence bring pressure of time and tension on the testees
4. Children who have reading difficulties may have problems in comprehending what is expected of them in such tests and their scores may be lower than what they should really be.

Group tests of intelligence are useful when the intelligence of many persons has to be roughly measured for some practical purpose in a short period of time available.

10.11.2 Verbal and Performance Tests

The early tests of intelligence were verbal or linguistic in nature. So, to take such tests, knowledge of language of the test is necessary. The verbal tests of intelligence have certain disadvantages. Some may give wrong responses not because they lack sufficient intelligence but, because of misunderstanding of the language items in such tests. Similarly those whose mental abilities are not higher, but, who have language proficiency may score high in verbal tests. Also linguistic tests of intelligence cannot be applied to test the abilities of those who do not know the language, very young children, tribal or aboriginals' and those with sensory handicaps. To get over these limitations performance tests are non-verbal; but all non-verbal tests need not be performance tests. Non-verbal tests such as matrices, mazes etc. do not use words, but, use symbols and diagrams and other perceptual designs; whereas performance tests of intelligence make use of concern objects with which the subject has to do something. Performance tests of intelligence assess the behavior a raising out of intelligence and involve doing certain standardised tasks using ordinary materials like cubes, beads etc. with which one is familiar. Tests devised by Pinter and Patterson, Collins and Draver and Bhatia (for Indian children) are some popular performance tests of intelligence. Bhatia's tests of intelligence includes: (i) Koh's Block Design test (ii) Alexander's pass along test (iii) Pattern-Drawing test (iv) Immediate Memory test for digits and (v) Picture construction test. In estimating the mental level of performance, the time taken to complete the assigned task as well as the errors committed in the course of performance is taken into account and the M.A. arrived at from the table of norms provided with the test battery.

Limitations of performance Tests

1. Administering and interpreting performance tests of intelligence requires specially trained personnel

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2. There appears to be little positive correlation between one's score in verbal and in performance tests of intelligence and so performance tests are not as reliable as verbal tests nor should they be used as substitutes for verbal tests. They should be used only when verbal or perceptual non-linguistic tests cannot be used
3. They cannot predict scholastic achievement
4. Performance test materials are costly
5. Many factors other than intelligence seem to help success in performance tests
6. Performance tests cannot be used as group tests
7. Many materials used in performance tests of intelligence appear similar to the sophisticated toys with which children from higher socio-economic groups may be familiar and such children due to familiarity with materials may score high though they may not really have such high mental ability.

10.12 USES OF INTELLIGENCE TESTS

1. Intelligence tests help in providing educational and vocational guidance
2. They give the most valuable objective information regarding level and quality of mental abilities of children
3. They help in classifying students into homogeneous group of ability or performance
4. They help in diagnosing the causes for backwardness
5. They help in predicting future progress
6. They are useful in selecting individuals for different jobs
7. They are used in research in Psychology and Education.
8. They are used in clinic and mental hospitals in order to record the effectiveness of the treatment.

10.13 LIMITATIONS OF INTELLIGENCE TESTS

1. It is really difficult to say that intelligence tests have cent percent validity and they measure only native mental capacity
2. Socio-culture differences, lack of interest or coaching, test unreliability and many other factors make us careful in not fully accepting the computed I.Q. as a true indication of pupil's mental worth
3. Intelligence tests are also culture-specific and not completely culture-fair

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4. Intelligence tests cannot use scales which have a known zero point and equal intervals. Therefore, a person who does not answer any item correctly in an intelligence test is not necessarily totally lacking in intelligence. Similarly, a derived score of 140 does not represent twice the intelligence of a derived score of 70; it simply represents more intelligence
5. Measured I.Qs. is affected by testing climate, familiarity of the individual with test items, emotional interference etc.

10.14 CULTURE-FAIR TESTS

It should be remembered that most of the intelligence tests are culture specific and items often favour socio-economic groups which the test conductor is linked. This bias may not be conscious but is there. Matters taken for granted in one culture cannot be taken for granted in another culture; this applies equally to deprived sub-cultures within more advanced cultures in the same society. Further, mental tests emphasize speed and in non-competitive cultures, speed is not valued as much as slowness. It is for this reason that what are known as “culture free” or “culture fair” tests of intelligence are attempted to be constructed now. Certain tests devised by Cattell which consists of items of classification, completion of series, matrices and spatial perception and the progressive matrices of Ravan (it consists of figures and designs; the subject apprehends relationship between figures and selects appropriate part for completion of each pattern of system of relations) appear to be culture-free and applicable to children of different cultures as well as socio-economic levels.

10.15 LET US SUM UP

Intelligence is a sort of mental energy, in the form of mental or cognitive abilities, available with an individual which enables him to handle his environment in terms of adaption to face novel situation as effectively as possible. The major theories of intelligence are unitary theory, Spearman’s two factor theory, Thorndike’s multifactor theory, Thurston’s Group factor theory and Guilford’s structure of intellect. Intelligence can be assessed using intelligence tests. Intelligence tests may be classified broadly as individual tests and group tests.

10.16 UNIT END EXERCISES

1. Frame a suitable operational definition of intelligence
2. Differentiate ‘intelligence’ from ‘intellect’
3. Explain the two factor theory of intelligence and mention its significance

4. Differentiate between unifactor and multifactor theories of intelligence, giving an example for each
5. Describe Thurston's group factor theory and its contribution
6. Briefly describe the model of intellectual structure conceived by Guilford and bring out its educational implications.

Intelligence

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10.17 ANSWERS TO CHECK YOUR PROGRESS

1. Intelligence is the aggregate or global capacity of an individual to act purposefully, to think rationally and to deal effectively with environment.

2. i)-T, ii)-F, iii)-T

10.18 SUGGESTED READINGS

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UNIT-XI CREATIVITY

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Structure

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- 11.2 Creativity
 - 11.2.1 Definitions of Creativity
- 11.3 Meaning of Creativity
- 11.4 Nature and characteristics of creativity
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11.1 INTRODUCTION

In this unit, we are going to study the creativity of the individuals. The relationship between creativity and intelligence, the ways to foster creativity among students and the measures of creativity are dealt in this unit.

11.2 CREATIVITY

Creativity is a very precious and unique quality in an individual that enables him to solve complicated problems in different walks of life. Newton propounded his theory of gravitation and laws of motion at a very young age. The genius Galileo and Einstein was recognized at their young age. Therefore, the gift of creativity needs to be nurtured right from childhood and should be continued throughout adulthood.

11.2.1. Definition of Creativity

The term ‘creativity’ has been defined in many ways. Some of these definitions are as follows:

- **Bartlett:** Creativity is an adventurous thinking or a getting away from the main trace, breaking out of the mould, being open to experience and permitting one thing to lead to another
- **Drevidahl:** Creativity is the capacity of a person to produce or ideas which are essentially new or novel and previously unknown to the producer
- **David Ausubel:** Creativity is a generalized constellation of intellectual abilities, personality variables and problem- solving traits
- **Guilford:** Creativity is the capacity to produce ideas that are both new and useful through divergent thinking
- **Spearman:** Creativity is the power of the human mind to create new; contents by transforming relations and thereby generating new correlates
- **Steinl:** Creativity is a process which results in novel work that is accepted as tenable to useful or satisfying to a group of people at some point in time
- **Wallach and Kogan:** Creativity lies in producing more associations and in producing more that are unique.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

1. Define Creativity.

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11.3. MEANING OF CREATIVITY

Creativity is the capacity of the individual to discover or produce new ideas. It may also include restructuring or rearranging the old idea. The only precaution for renaming an expression as creative is that it should not be a mere repetition or reproduction of what has already been experienced or learned.

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Ausubel defines creativity as a rare capacity for developing insights, sensitivities and appreciations in a circumscribed content area of intellectual or artistic activities.

Torrance speaks of creativity as a mental process of seeing or creating most unforeseen and novel relationships between two or more things or ideas. In fact, according to Torrance, two stages are involved in this process (i) to shake and throw things together, and to discriminate from a variety of different possibilities and (ii) to synthesize and bring together elements in a new and original ways.

Bruner states all forms of creativity grow out of a combinational activity, a placing of thing in new perspective.

Dredahl defines creativity as the capacity of a person to produce compositions, products or ideas which are essentially new or novel and previously unknown to the producer.

In the words of C.R. Rogers, “Creative process is the emergence in action of a novel relation or product, growing out of the uniqueness of the individual on the one hand, and the materials, events, people or circumstances of his life on the other”.

11.4 NATURE AND CHARACTERISTICS OF CREATIVITY

Creativity as a unique and novel personal experience, and on the basis of the experiences and findings of the various scholars, may be said to possess the following characteristics:

- Creativity is the resultant of some interaction
- Creativity is the ability to synthesis ideas, theories or objects
- Creativity is the ability to create new ideas, theories or objects
- Creativity is the ability to develop something original
- Creativity had several dimensions and
- Creativity is a process as well as a product.
- The end product of creative thinking should be something tangible such as a poem, a piece of music, a scientific theory or a new mechanical or electrical contrivance.
- Everyone possesses creative powers to some degree.
- Although creative abilities are natural endowments, yet they are capable of being nourished or nurtured by training or education.

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- Any creative expression is a source of joy and satisfaction to the creator. There is perfect individuality in one's creative expression.
- The creator is the person who is able to meek ego involved statements like 'it is my idea'. 'I have solved the problem' etc. In creative expression, there is complete ego involvement.
- Creativity involves divergent thinking, having freedom for multiplicity of responses, choices and lines of action. By traveling on the routine, beaten track one cannot create but only reproduce or repeat.
- The field of creative expression is very wide. It covers all the aspects of human accomplishments like scientific inventions and discoveries, composing of poems, writing of stories and dramas and good performance in the field of dance, music, painting, sculpture, political and social leadership, business, teaching and other professions.
- The important components of creativity as identified by J.P. Guilford and Torrance are i) ideational fluency ii) originality iii) flexibility iv) divergent thinking v) persistence vi) self- confidence vii) sensitiveness viii) ability to see relationships and make associations.

11.4.1 Dimensions of Creativity

According to Guilford and Torrance, Creativity has the following dimensions (or components)

- **Spontaneous flexibility** - ability or disposition to produce a great variety of ideas, freedom from inertial
- **Fluency** - this aspect is quantitative in nature which is related with fertility of ideas
- **Sensitivity to problems** - seeing defects, needs, deficiencies, seeing the odd or the unusual
- **Originality** - calls for remote associations or relationships: remote either in time or in logical sense
- **Elaboration** - ability to work out the details of a plan, idea or outline

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- **Redefinition** - ability to define or perceive in a way different from the usual established or intended way or uses

11.5 RELATIONSHIP AND DIFFERENCES BETWEEN INTELLIGENCE AND CREATIVITY

- It has been established that convergent thinking is the basis of intelligence, whereas divergent thinking forms the basis of creativity. Divergent thinking is stimulus free and often goes beyond the data i.e. divergent thinking searches for many possible responses for a given stimulus. Convergent thinking on the other hand stimulus bound and is limited to the data given. Tradition and rules of logic deal with convergence in thought, with conclusion following the premises. But, originality is identified with divergent thinking. In convergent thinking, an individual has the tendency to find out the one most appropriate idea or socially approved response whereas divergent thinking allows as many responses as possible
- It has been observed that highly creative persons are usually found to possess intelligence to a high degree but it is not essential for an intelligent person to be creative. One may possess high intelligence without having creative abilities. On the other hand, an adequate level of intelligence is a necessary condition for being creative. A mentally retarded cannot be expected to be creative
- In intelligence testing, the speed and accuracy of the cognitive behavior is emphasized while in creative tests novelty, flexibility, originality, fluency and elaboration are given more weight age

Thus, it could be concluded that intelligence and creativity are related (having low positive correlation) but not synonymous.

11.6. DIVERGENT THINKING

Divergent thinking or lateral thinking is the essence of cognitive development. In the previous section, you have read about the concept of cognitive development. Take this example: what is the opposite of the word bright? Dark is an acceptable answer. Now consider another situation, what is the opposite of a cupboard? or what ideas come to your mind when you think of sunset? The answers to these questions are not straight jacketed. They may be unlimited, with varying degrees of acceptability. This is the essence of divergent or lateral thinking which means to think in unusual, novel and unique ways.

NOTES**11.6.1. Concept of Divergent Thinking**

In divergent thinking, we think in different directions, sometimes searching what, and sometimes seeking variety. Lateral thinking is another expression used for divergent thinking; it means an original line of enquiry. Creativity or divergent thinking can be identified with openness in expressing feelings, receptivity to ideas, concern for other, and desire to grow as a person and actualize one's potentials. Hence, creativity is the playful exploration of thoughts by a person who is open, curious and imaginative.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

2. What is divergent thinking?

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11.7 DIMENSIONS OF CREATIVITY

Creativity is related to divergent thinking. Therefore, creativity is a multi-dimensional concept. We discuss here the main dimensions of the creative behavior of a student. This will help you understand creativity better by developing an insight into the nature of creativity and divergent thinking. A child with the following characteristic dimensions gives more evidence of divergent or creative thinking than others:

1. Fluency: Ability to manage successfully when a number of ideas are sought. It is the total number of relevant responses given by an individual to a given stimulus.

Example: In how many ways can you use a brick, a toothbrush etc.? In how many ways can you earn money?

Scoring: Count the number of ideas produced in each case: their total is your fluency score.

2. Flexibility : The ability to shift your frame of reference and think of varying alternatives. It is the capacity of an individual to use different approaches in responding to a stimulus.

Example: List five different factors you would bear in mind when you opt for a career.

Scoring: Each new multiple criterion gets a score. The more the alternative criteria, the more the flexibility score.

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3. Originality: The production of novel, unusual ideas which are also uses relevant and apt. It is the capacity of an individual to give original responses to a stimulus.

Example: Form a figure using these lines or use the words rough, smooth, fault, and vault and make a poem.

Scoring: The idea which is novel, unique and relevant gets a score.

4. Elaboration: The ability to generate various alternatives (details) that implement or spell out an idea

Example: Sarah put her foot on the 10 foot long snake.

Scoring: Varied details that; have facilitated or elaborated get a score.

Check your Progress

Notes: a) Write your answer in the space given below:
b) Compare your answer with the one given at the end of the unit.

3. List four dimensions of creativity.
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11.8. THE PROCESS OF CREATIVITY

11.8.1. The stages in the creative process

Grahan Wallas and Patrick (independently) have indicated four stages of creativity. They are preparation, incubation, illumination and verification (and revision if needed)

1. Preparation: In the preparation stage, the problem is defined and explained. It means orientation with the problem and involves purposeful study, discussion with others and acquisition of facts. Relevant facts and materials considered essential are gathered. The plan of action is formulated; Creative work is largely work of diligence and industry. Perspiration, rather than inspiration is proper preparation. No painter, poet, scientist or novelist has reached great eminence overnight and almost every creative thinker reports that he worked laboriously during his early days.

2. Incubation: This stage is characterized by overt behavior. During this stage one can make rest or sleep or do even some other problem. Just as nothing is added to the egg but only it is kept warm. So, during the period of incubation no new knowledge or experience is added to the existing stock. During this stage, there is no external disturbance. It is common experience that we sometimes forget an important name. If recalling is postponed, later on it comes to our mind. Hurry and compulsion are fatal to creativity. In incubation, the mind is relaxed. If incubation is hastened it will result in abortion.

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3. Illumination: Incubation leads to illumination. During this stage, there is the sudden appearance of the solution to the problem. In the case of the chimpanzees in Kohler's experiment, there was the sudden dawn of insight, resulting in the connection of the sticks with the fruit. So, illumination implies insight. Illumination may occur any time, even during dreams.

4. Verification: That comes the final stage, that of verification. During this stage, we determine whether the solution is the correct one or not. Sometimes, the solution needs some modification. This is the evaluation of the solution of the problem. Then, in the light of the result of verification or testing, revision is made till the solution is workable. These stages should not be considered as rigid and fixed. One may get the illumination without passing through incubation. In certain cases, the cycle has to be repeated till they get at the solution. Creativity as a natural endowment needs stimulation and nourishment.

11.9. IDENTIFICATION OF A CREATIVE CHILD

To some extent, every child has the capacity of creative behavior but some have specific creativity in some areas such as science, artistic contribution, etc. It is however, a difficult task in identify a creative child. For this, you have to identify the characteristics of creativity or divergent thinking. The following are the major characteristics you may like to look for in your students:

- Original thought, expression, action and behavior
- Ask uncomfortable questions at times
- Persists/argues for his or her point of view
- Proposes alternatives to solutions
- Displays a high degree of risk-taking behavior
- Self-concept is high, tends to be more anxious and possesses a greater degree of need for achievement
- More tolerant of ambiguity, and
- Curiosity/independent judgment and exhibits more autonomy.

11.10. IMPLICATIONS FOR CLASSROOM TEACHERS

The teacher can provide certain conditions which will increase the fluency, flexibility, originality and exploration of the students thinking behavior. The following are the important conditions which can foster students' creativity.

- Pose open-ended, divergent questions with the focus on alternative responses and novelty, and not on right or wrong

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- Excessive discipline, reliance on text books, emphasis on rote learning or criticizing students for wrong answers reduce their creative potential
- Encourage children to experiment, innovate, discover, hypothesis or imagine possible solutions to any pressing issue
- Develop a spirit of inquiry, tolerate uncertainty: help to speculate, cultivate a deliberate pace of thinking etc.
- Adopt a multi-disciplinary approach to teaching
- Create a supportive environment
- Appreciate students' creative efforts
- Assign/suggest activities of an inter-disciplinary nature
- Use teaching aids that stimulate imagination
- Resist from premature evaluation.

11.11. TESTS OF CREATIVITY

Today, there are many specific tests are available for assessing creativity, the notable ones being Paul Torrance's Minnesota Tests of creative. Thinking, Remote Associative Test, Walltach and Kogan's Creativity instruments, Guilford's Test of creativity and Baquer Mehdis Test of Creative Thinking. They employ generally verbal and non-verbal items. Verbal items are like the following:

- Unusual uses of ordinary things like a tin can or a card board box
- Possible consequences of an impossible event e.g. if sunlight is a liquid
- Producing ideas for improving a toy to increase the fun for children

Non-verbal items include

- Picture construction test
- Incomplete figures to be completed
- Using cut-outs repeatedly to produce new figures.

11.12. NON-TESTING TECHNIQUES

The following external characteristics are spotted in creative individuals:

- Keen observation
- Indulge in activities with total devotion
- Keen desire to listen others
- Using analogies much in their speech

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- Energetic and enthusiastic, spending a lot of time in reading, writing, drawing etc.
- Not readily accepting what others say
- Examine the presented idea from different angles
- Verbal fluency
- Richness in flow of ideas and speed in associating apparently disconnected ideas and things
- Flexible and adoptive in free atmosphere but appear to be restive under rigid conditions
- Exhibiting feelings and emotions openly and express ideas however bizarre these may be in a free manner
- Low distractibility
- Always puzzled about something and absorbed in thinking
- They never cast aside any solution merely because at first appearance it looks unconventional and foolish
- Not satisfied with a single solution to a problem and seek other possible solutions.

11.13. CHARACTERISTICS OF A CREATIVE PERSON

Torrance, Cattell, Mackinnon and Foster have compiled a list of characteristics of a creative person. Some of them are:

- Originality of ideas and expression
- Adaptability and a sense of adventure
- Good memory and general knowledge
- A high degree of awareness, enthusiasm and concentration
- An investigative and curious nature
- Lack of tolerance for boredom, ambiguity and discomfort
- Foresight
- The ability to take independent decisions
- An ambitious nature and interest in vague, even silly idea
- An open mind with preference for complexity, asymmetry and incompleteness
- A high degree of sensitivity towards problems
- Fluency of expression
- Flexibility in thought, perception and action
- Ability to transfer learning or training from one situation to another
- A creative imaginations

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- Diversity and divergence of thought even in convergent and stereotype situations
- Ability to elaborate, to work out the details of an idea or a plans
- Absence of the fear of and even attraction to the unknown, the mysterious and the unexplained
- Enthusiasm for novelty of design and even of solution of problems
- Pride in creation
- Peace with his owns self so that he has more time for creative pursuits
- High aesthetic value and a good aesthesis judgment
- Self-respect, self-discipline and a keen sense of justice
- Ebullient and easy nature with a relaxed attitude
- Awareness obligation and responsibilities
- Ability to accept tentativeness and to tolerate and integrate the opposites
- Patterns of thought different from those of the low creativity, particularly during creative activity
- Respect for the opinions of others and acceptance of disagreement and opinions different from one’s own
- Spontaneity and ease of expression and
- The capacity to fantasies’ and day dream

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

4. Identify the characteristics of students who you think have a creative mind..

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11.14. FOSTERING CREATIVITY

Creativity needs stimulation and nourishment. Most creative talent, unless it is given proper training, education and opportunities for expression, is wasted. Moreover, creativity is universal. Every one of us possesses some creative abilities and it is not only the geniuses who are needed to create, manifest and produce.

It becomes essential for teachers as well as parents to realize the need of creating an environment conducive to full growth and development of the creative abilities of children. The following are the practices of promoting creativity among children.

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1. **Giving freedom to respond:** Most often teachers and parents expect routine, fixed responses from children. This kills the creative spark by breeding conformity and passivity. We should allow adequate freedom to our children in responding to a situation. They should be encouraged to think out as many ideas as they can from the solution of a problem. We must also let them have their own way when they need a particular kind of novel expression strongly enough.
2. **Providing opportunity for ego involvement:** Feeling like ‘this is my creation’, ‘I have solved it’, gives much satisfaction to children. We should, therefore, provide opportunities to children to derive satisfaction from identifying themselves as the cause of a product.
3. **Encouraging originality and flexibility:** Originality on the part of children in any form should be encouraged. Passive submission to the facts, unquestioning memory, and memorization by rote discourage creative expression. If children seek to change their methods of learning a task or solving a problem, they should be encouraged to do so. Adequate training can also be given by making them answer problems like: how would you cross a river if there is no bridge over it?
4. **Removing of hesitation and fear:** In countries like India, there seems to be a great hesitation mixed with a sense of inferiority and fear in taking the initiative for creative expression. We, generally come across comments like “I know what I mean, but I cannot write (or speak) before others”. “The causes of such differences and fear should be discovered and removed as far as possible”. The teachers and parents should encourage and persuade such children to express themselves.
5. **Providing appropriate opportunities and atmosphere for creative expression:** A healthy atmosphere, favorable for creative thinking and expression is essential for the stimulation and nourishment of creativity among children. The child should never be snubbed for his curiosity and creativity. There is need of a sympathetic atmosphere in school and at home. Co-curricular activities in school can be used for creative expression. Religious festivals, social get-together, exhibitions etc. can also provide the opportunity for creative expression. Even regular class-work can be arranged in such a way as to stimulate and develop creative thinking among children.

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- 6. Developing healthy habits among children:** Industriousness, persistence, self-reliance and self-confidence are some of the qualities that are helpful in creative output. Therefore, children should be helped to imbibe these qualities and also they should be encouraged to stand up against criticism of their creative expression. They should be made to feel that whatever they create is unique and expresses what they desire to express.
- 7. Using the creative resources of the community:** Children should be made to visit the centre of art, scientific and industrial creative work. This may stimulate and inspire them for creative work. Creative artists, scientists and creative persons from different fields may also be invited to the school to interact with the children to enhance the scope of knowledge of our children and kindle the spark of creativity in them.
- 8. Avoiding blocks to creative thinking:** Factors like conservatism, faulty methods of teaching, unsympathetic treatment, fixed and rigid habits of work, anxiety and frustration, excessively high standards of achievements for low levels of work, over-emphasis on school marks, authoritarian attitude of teachers and parents etc. are known to be detrimental to the growth of creativity among children. As far as possible, parents and teachers should try to avoid such factors in upbringing and educating the children.
- 9. Organizing the curriculum:** Learning experiences in the form of curricula should be so designed to foster creativity among children. For this purpose, the school curriculum should be organized primarily on the basis of concepts rather than facts. It should also cater to the individual needs of each student. It should also follow the general philosophy. It should be quite flexible and make provision for studying and working without the threat of evaluation. In short, the curriculum should reflect what is expected from the creative children in terms of fluency, flexibility, originality, divergent thinking, inventiveness and elaboration.
- 10. Reforming the evaluation system:** Our education system is totally examination oriented and appropriate reform must be made in our evaluation system if creativity is to be nurtured. The emphasis on memorization by rote, fixed and rigid single responses and convergent thinking etc. which kills creativity of the children, should be abandoned and a proper

evaluation system adopted for encouraging complete and balanced experiences in developing their creative behavior.

11. Using special techniques for fostering creativity:

Researchers in the field of creativity have suggested special techniques and methods for fostering creativity among children. A few of these are:

a) Use of teaching models: Some of the teaching models developed by educationists may prove quite beneficial in developing creativity among children. For example, Bruner's concept attainment model, such man's inquiry training model are very helpful in developing creativity among children in addition to imparting training in the acquisition of scientific inquiry skills.

b) Use of gaming technique: Gaming techniques, in a playful spirit, help the children in the development of creative traits. These techniques provide valuable learning experiences in a relaxed, spontaneous and evaluative situation. Both, verbal and non-verbal stimulus materials are used in such techniques. For instance, in verbal transaction of ideas children may be asked to name all the round things they can think to tell, all the different ways a knife may be used, or all the ways in which a cat and a dog are alike. In non-verbal transactions the children may be asked to build a cube construct or complete a picture, draw and build patterns, interpret the patterns of drawings and sketches, and build or construct something or anything out of the raw material given to them.

12. Teaching by example: There is truth in the saying that example is better than precept. Children are very imitative. The teachers and parent must themselves develop the habit of creative thinking. They should learn to believe in change, novelty and originality, and they experience to creative process. Their behavior and style of teaching must reflect their love on creativity, only then, they can inspire the children to be creative.

11.14.1. Fostering creativity among children

Creativity is an attribute that leads to solving problem in new ways: therefore, the educational objectives, the methodology of learning and stimulating environment and the evaluative techniques, all have to be reconstructed so that the creative abilities of students may be developed. The following are the blocks to creative thinking, which have to be removed:

- a. High standards of achievement for low levels of work such as routine skills of unimportant material
- b. Inflexibility of assignments and methods of work
- c. Over-emphasis on school marks and

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d. The authoritarian teacher.

Gallagher makes the following suggestions for the development of creativity of pupils

1. Organize the curriculum primarily on the basis of concepts rather than facts
2. Allow more individual assignments under competent supervision
3. Bring the students in contact with the best talent and knowledge available from the teaching staff
4. Follow the general philosophy that truth is something to be sought for rather than revealed
5. Provide in-service teacher education for more competence in both subject mastery and method of teaching.

Torrance suggests five steps for fostering creativity among pupils

- i. Be respectful of unusual questions
- ii. Be respectful to imaginative unusual ideas
- iii. Show your pupil that their ideas have value
- iv. Occasionally pupils do something for practice without the threat of evaluation.
- v. Evaluate with causes and consequences. Instead of saying, "This is good" and "that is bad", point out the consequences that this and that lead to and evaluate the goodness or badness of various results.

Use of special technique called "Brain Storming" for facilitating the production of novel ideas was suggested by Osborn in 1963. Brain storming which consists of having group members suggest ideas as rapidly as possible, prohibiting criticism, encouraging speaking out and evaluating at a later session, hold possibilities that have not yet been thoroughly tested.

Demos and Gowan held that instructor's role in furthering the student's creativity is a protective and nurturing one appears to consist of the following steps or phases.

- 1. Inspiration:** Inspire the student to learn to disagree or emulate
- 2. Stimulation:** Provide for exciting and new experiences in the curriculum

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3. Psychological safety and freedom: Provide a warm, safe and permissive atmosphere in which the creative students feel accepted.

4. Guided discovery: Provide direction to a level and area where it is most effective for learning by independent discovery on the part of the students.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

5. How will you foster creativity among your students?

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11.15. KNOWLEDGE ESSENTIAL TO A TEACHER ON CREATIVITY

The following guidelines are offered for the teachers for the promotion of creativity in children.

1. Inspire the students to learn to disagree constructively
2. Inspire the students to emulate creative persons
3. Provide for exciting experiences to the students
4. Provide a safe, permissive and warm environment
5. Develop students' ideas through constructive criticism and through referral to competent authorities
6. Provide necessary guidance and counseling for developing motivation and overcoming emotional fears
7. Allow the students to ask unusual questions
8. Show consideration to imaginative and unusual ideas of the structures
9. Show pupils that their ideas have values
10. Evoke originality in thinking
11. Provide materials which develop imagination of the students
12. Provide opportunities to students for self-initiated learning
13. Ask challenging and prorogated questions
14. Prize rather than punish individually
15. Love them and let them know it
16. Provide activities like drama dance, music etc.
17. Encourage debates, discussions, quizzes etc.
18. Follow brain storming strategies
19. Follow gaming techniques.

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11.16. LET US SUM UP

Creativity in terms of divergent and lateral thinking has been discussed. Varied creative dimensions such as fluency, flexibility, originality, elaboration etc. have been discussed with examples. Some characteristics which are manifest in a creative child such as curiosity, persistence, original thinking, etc., are indicators of creative potential. The reasons why a child gets blocked in creative processes are also presented.

11.17. UNIT END EXERCISES

Devise exercisers to develop the following creativity dimensions in your class children. Establish a scoring criteria fluency, originality, flexibility, originality which reflect the characteristics of these periods.

11.18. ANSWERS TO CHECK YOUR PROGRESS

1. Creativity is the capacity to produce ideas that are both new and useful through divergent thinking.
2. Divergent thinking can be identified with openness in expressing feelings, receptivity to ideas, concern for others, desire to grow as person and actualize one's potential.
3. a) Fluency, b) Flexibility, c) Originality and d) Elaboration
4.
 - ❖ Original thought, expression, action and behavior
 - ❖ Asks uncomfortable questions at times
 - ❖ Persists/argues for his or her point of view
 - ❖ Proposes alternatives to solutions
 - ❖ Displays a high degree of risk-taking behavior
 - ❖ Self-concept is high, tends to be more anxious and possesses a greater degree of the need for achievement
 - ❖ More tolerant of ambiguity and
 - ❖ Curiosity/independent, judgment and exhibits more autonomy.
5. Promoting creativity among children
 - Freedom to respond.
 - Opportunity for ego involvement
 - Encouraging originality and flexibility
 - Providing appropriate opportunities
 - Developing healthy habits among children
 - Proper organization of the curriculum and teaching by example.

11.19. SUGGESTED READINGS

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UNIT XII PERSONALITY

- 12.1 Introduction
- 12.2 Meaning of personality
- 12.3 Definition of Personality
- 12.4 Characteristics of Personality
- 12.5 Determinants / Factors of Personality
 - 12.5.1 Factors Influencing Personality
- 12.6 Theories of Personality
 - 12.6.1 Jung's Theory of Personality
 - 12.6.2 Spranger's type Theory of Personality
 - 12.6.3 Allport's trait Theory of Personality
 - 12.6.4 Cattell's Trait Theory of Personality
 - 12.6.5 Eysenck's Hierarchical Theory of Personality
 - 12.6.6 Freud's Psycho-Analytical Theory of Personality
- 12.7 Personality Disorders
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 - 12.7.2 Preventing Personality Disorders of Children
- 12.8 Let us Sum Up
- 12.9 Unit End Exercises
- 12.10 Answers to check your progress
- 12.11 Suggested Readings

12.1 INTRODUCTION

In this unit, we are going to study the definition, characteristics and influencing factors of personality and major theories to personality. We are also going to understand the concepts like personality traits, split personality, extroverts and introverts and integrated personality. After that, we are going to discuss about personality disorders.

12.2 MEANING OF PERSONALITY

The term personality is derived from the Latin word 'persona' which means the mask worn by the Roman actors. In this sense, personality means the individuals as seen by others. The term personality is used in so many different ways that a detailed discussion is neither possible nor desirable in the present context. However, some of the important definitions are given which may throw light on the meaning of the term "personality".

12.3 DEFINITION OF PERSONALITY

- According to Allport, "Personality is the dynamic organization

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within the individual of those psycho-physical systems that determine his unique adjustment to the environment”.

- In the word of Cattle, “Personality is that which permits a prediction of what a person will do in a given situation”.
- Eysenck views personality “as a stable and enduring combination of a person’s various physical and mental aspects”.
- According to Guilford, “an individual’s personality then, is his unique pattern of traits-a trait is any distinguishable, relatively enduring way in which one individual differs from another”.
- Hartman defined “personality is integrated organization of all the pervasive characteristics of an individual’s as it manifests itself in local distinctions from others”.
- According to Jones, in simple terms, personality consists of the following:
 - The way you look
 - The way you dress
 - The way you talk
 - The way you walk
 - The way you act
 - The skill with which you do things
 - Your health.
- Lewin considers personality “as a dynamic totality of systems”.
- McDougall defines personality as “a synthetic unity of all mental features and their interplay”.
- According to Murray, Personality is a temporal configuration.
- Watson regards personality as “the sum of activities that can be discovered by actual observation over a long enough period of time to give reliable information”.

Therefore, personality is the individual’s physique, psychological aspects such as intellect, emotion and behavior, and social aspects, which determine his unique adjustment to the environment.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

1. Define Personality.

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12.4 CHARACTERISTICS OF PERSONALITY

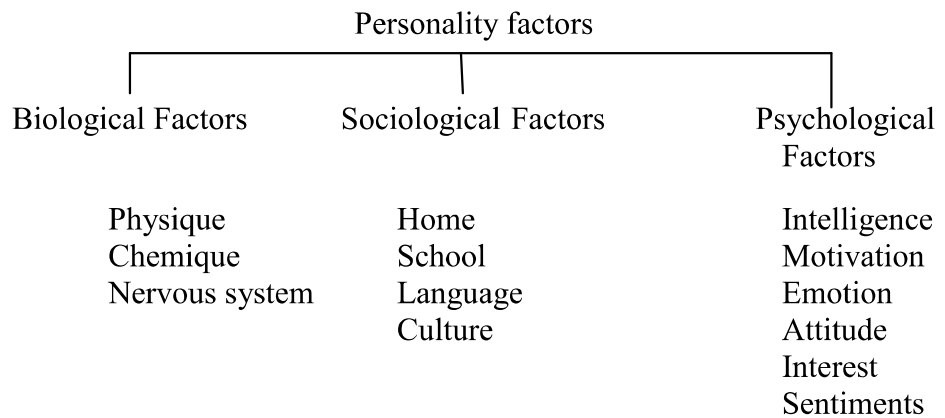
The following are some of the important characteristics of personality:

- Personality is a self-consciousness
- Personality is dynamic
- Personality is a product of heredity
- Personality is adjustable
- Personality is a unique and specific
- Personality is organized
- Personality functions as a whole
- Personality is the social stimulus of the individual
- Personality is the combination of both inner and outer qualities of an individual
- Personality is the combination of id, ego and superego
- Personalities include cognitive, conative and affective behavioral patterns.

12.5 DETERMINANTS/FACTORS OF PERSONALITY

12.5.1 Factors influencing Personality

Man, the social animal has a body and mind. His personality is influenced by biological, psychological and social factors. These three major factors and their subcomponents are given below.



Among these factors, some are due to heredity and others arise due to environmental influences. Among the heredity factors, most important are biological factors and some of the psychological factors like intelligence. The individual's biological constitution is a predisposing factor. It determines the general direction in which his personality is likely to develop.

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Check your Progress

- Notes:** a) Write your answer in the space given below:
b) Compare your answer with the one given at the end of the unit.

2. What are the factors influencing personality?
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12.6 THEORIES OF PERSONALITY

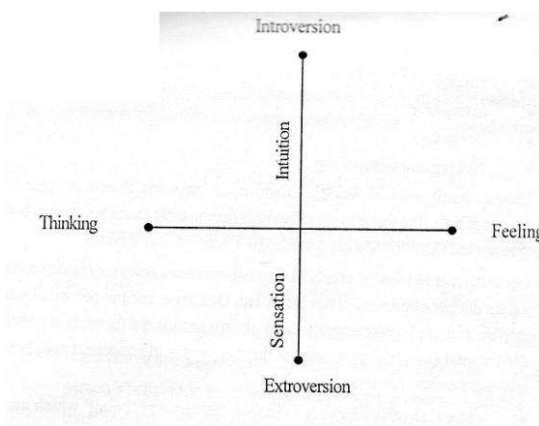
Psychologists have developed several theories of personality to study the meaning and comprehensive nature of personality. The following theories of personality are discussed in these sections.

- Type approach : Jung
Spranger
- Trait approach : Allport
Cattell
- Type-cum-Trait approach : Eysenck
- Psycho analytic approach : Freud

12.6.1 Jung’s Type Theory of Personality

Jung considered personality in terms of introversion and extroversion concepts which have become part of our everyday speech. Jung tended to think in terms of opposites or polarities.

According to Jung, mental activities take four dominant forms: Sensation, thinking, intuition and feeling. Thinking and feeling are polar opposite and both tendencies are always present in the individual at the same time. If his or her dominant mental activity is thinking, the individual’s unconscious tends towards feeling. Similarly, sensation and intuition are opposite. Both are operative in the individual at the same time.



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General Characteristics of Extroverts

- Fluent in speech
- Free from worries
- Likes to work with others
- Friendly
- Not easily embarrassed
- Interested in athletics
- Governed by objective data
- Flexible and adaptable
- Neglectful of ailments and personal belongings
- Aggressive
- Unscrupulous
- Popular with people

General Characteristics of Introverts

- Better at writing than at speech
- Inclined to worry
- Likes to work alone
- Rather reserved
- Easily embarrassed
- Fond of books and magazines
- More influenced by subjective feeling
- Lacking in flexibility
- Careful
- Submissive
- Scrupulous
- Not popular with people

There are hardly a few downright extroverts or introverts. People in general are a mixture of both. The majority of individual demonstrate characteristics of both the introvert and extrovert and are accordingly classified as ambiverts.

Obviously, where so many conflicting and diverse tendencies are operative, there is a great danger of one-sided development. One aspect of the personality of the individual tends to become dominant and totally overshadows the other. Jung believed that the total personality consists of three elements of conscious ego, personal unconscious and collective unconscious.

- **The Conscious Ego:** It is in fact, the sense of ‘being’ which includes conscious aspects of thinking, feeling and remembering.

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- **The Personal Unconscious:** It includes repressed and suppressed experiences of the individual which are accessible to the conscious. It also includes the experiences of the individual which he has in his social environment.
- **The Collective Unconscious:** It is primitive in nature. It is the reservoir from which all other systems emerge.

12.6.2 Spranger’s Type Theory of Personality

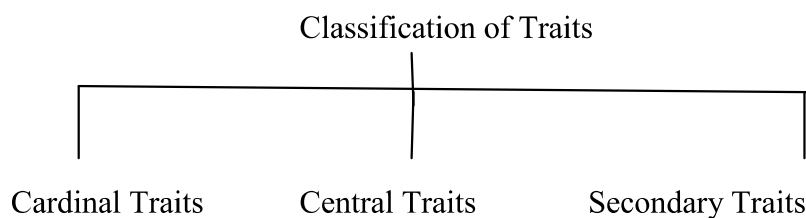
Edward Spranger, a German Philosopher divided human beings on the basis of values or interest in the following six categories:

- **Theoretical:** Persons who are theoretical in nature, neglect social and political participation
- **Economic:** Those persons who are interested in money-hoarding
- **Aesthetic:** Those persons who love beauty and are busy in sensuous gratification
- **Social:** Persons who are interested in social activities
- **Political:** Dominating and desirous of power
- **Religious:** Persons who devote themselves to religious activities and mysticism.

Allport, Vernon and Lindzey have constructed an inventory to study the above six values.

12.6.3 Allport’s Trait Theory of Personality

George W. Allport propounded the trait theory of personality. He analysed about 18,000 terms and identified 4591 traits for describing human behavior of a personality. Accordingly, he described personality as a ‘dynamic organism within the individual of those physical systems that determine the unique adjustment to his environment’.



- **Cardinal Traits:** A cardinal trait is the dominant trait. Those traits are so dominant in one’s personality that they influence almost every aspect of a person’s behavior. For example, if a person has cheerfulness as a cardinal trait, he will bring a sense

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of cheerfulness into all situations. A perusal of history makes one conclude that Mahatma Gandhi was a lover of Ahimsa (non-violence). This trait was visible in nearly every aspect of his life. Gandhi had a firm belief in truth and this trait was expressed in all his programmes. Emperor Ashoka was very pious and his pious trait was reflected in the pursuit of the welfare of his subjects and developing virtues of piety in them.

- **Central Traits:** Central traits ordinarily describe a person, for instance traits like honesty, kindness, submission etc.
- **Secondary Traits:** Secondary traits appear in only a relatively small range of situation' they are not considered strong enough to be regarded as integral parts of one's personality.

12.6.4 Cattell's Trait Theory of Personality

Cattell used a statistical technique known as 'Factor Analysis' to study the structure of personality. It makes a correlation. Starting from nearly 4000 traits, he found out 16 factors as the building blocks of personality i.e. the characteristics in terms of which an individual's personality can be described and measured through his sixteen personality factors inventory consisting of multiple-choice items. Out of those factors, 12 are independent factors and the remaining 4 are partially independent factors. Those 16 factors are known as source factors since they are unitary and independent affecting much of the overt personality to a very great extent.

According to Cattell, "Personality is that which permits a prediction of what a person will do in a given situation". He classified traits into the following four categories.

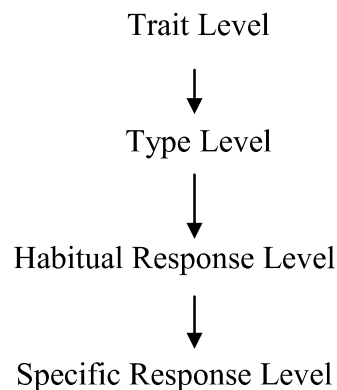
- **Common traits:** Certain traits are found widely distributed in general population or among all groups. Those traits are called common traits. Common traits are aggression, cooperation and honesty.
- **Unique traits:** Unique traits are possessed by particular individuals as temperamental traits, emotional reactions etc.
- **Surface traits:** Surface traits are those traits which can be easily recognized by overt manifestation of behavior. Among the surface traits, mention may be made of the traits of curiosity, dependability, honesty, integrity and tactfulness.
- **Source traits:** Source traits are the underlying structures or sources that determine the behavior of a person.

12.6.5 Eysenck's Hierarchical Theory of Personality

Eysenck postulated his Personality theory which is an attempt to synthesis the type and trait approaches. He defined type as a group of

correlated traits. According to Eysenck, each personality type is net result of behavior organization at four hierarchical levels such as

- Specific response level
- Habitual response level
- Trait level
- Type level
- **Specific response level:** The particular responses to any single act constitute the lowest level in the hierarchy.
- **Habitual response level:** Similar responses of an individual to similar situation constitute the habitual response level of behavior organization.
- **Trait level:** At this stage the habitual acts which have similarities are organized to form groups called traits.
- **Type level:** At the highest level of behavior organization, personality types are formed. A group of correlated traits give birth to a definite



12.6.6 Freud's Psycho-Analytical Theory of Personality

This theory has three major parts. They are:

- Theory of personality dynamics
- Theory of personality structure
- Theory of Psychosexual development

These theories are explained as follows:

Theory of Personality Dynamics

According to Freud, the human mind has three divisions, namely, conscious mind, semiconscious mind and unconscious mind.

- **Conscious mind:** This layer of mind contains thoughts and perceptions of which we are aware at a given moment.
- **Semiconscious mind:** This layer of mind stands between conscious and unconscious part of the mind and refers to those

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experiences of which the individual is not fully aware but can be recalled easily. It contains memories and stored knowledge.

- **Unconscious mind:** This is the deeper layer of mind. It contains repressed wishes, fears, selfish needs, unacceptable sexual desires, immoral urges and shameful experiences. These cannot be recalled by an individual. All these three divisions of mind decide the personality development of an individual.

Theory of Personality Structure

Freud states that, the personality is built around the three interrelating system namely id, ego and superego.

- **Id:** The id consists of all primitive, innate urges like bodily needs, sexual desires and aggressive impulses. It is hidden in the deep layer of his unconscious mind. It is guided by the pleasure seeking principle. It has no values, knows no laws, follows no rules, does not recognize right or wrong and considers only the satisfaction of its needs.
- **Ego:** Ego is a second system functions to check the unlawful activities of Id. It follows the principle of reality. The ego is partly conscious but not entirely so. It mediates between Id and Superego.
- **Superego:** Superego is the third system of personality. It is the ethical or moral aim of the personality. It develops out of ego's experiences with social reality. It is idealistic and does not care for realities. Perfection rather than pleasure is its goal. It judges what is good or bad to the social norms.

Theory of Psycho Sexual Development

Freud identified five stages of personality which depend on fixation of sexual energy at a particular stage development. They are:

- **Oral stage (birth to 2 years):** At this stage, the infant gets pleasure from sucking the lips
- **Anal stage (2 to 3 years):** At this stage, the child derives much pleasure through anal expulsion or anal manipulation
- **Phallic stage (3 to 5 years):** At this stage, child derives gratification by touching the genital region
- **Latency stage (6 to 13 years):** At this stage, avoidance of sexuality on account of the pressure of society and
- **Genital stage (during adolescence):** At this stage, homosexual and heterosexual interest develops.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

3. List out the personality traits advocated by Allport and Cattell.

.....

4. Differentiate Extrovert and Introvert.

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12.7 PERSONALITY DISORDERS

A healthy and normal personality implies balance between one's abilities and desires. If desires exceed one's abilities, frustration arise. Frustration and mental conflicts lead to maladjustment in behavior and personality disorders like neuroses, psychosomatic disorders and in extreme cases, personality disintegration like psychoses and split personality. Frustration and conflicts may also trigger problem behavior in children and in extreme cases juvenile delinquency. Here, we are going to study about split personality.

12.7.1 Split-Personality

Psychologists classify personality disorders into neuroses, psychoses, organic disorder and behavior disorders. One kind of personality disorders of interest to all is what is known 'disassociation of personality', resulting in split or multiple personality. Personality is integrated around the concept of self. But, in actual practice, it is not so highly unified. The concept of dissociation is used to refer to the fact that sometimes split off aspects of personality functioning as in dreams. In split personality, 2 or 3 more personalities loosely integrated exist in the individual so that the individual sometimes behaves in accordance with one behavior pattern and at other times in accordance with another. The unity of the self is not automatic, it is an achievement and if one fails in this, split personality occurs.

12.7.2 Preventing Personality Disorders of Children

Parents and teachers should see that personality disorders do not occur in children. The following activities in schools will prevent personality disorders.

- In schools, the educational goals set for pupils must be appropriate to their level of abilities and realistic. Setting up the services of 'Guidance and Counseling' in every educational institution will go a long way in this regard.

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- The schools have a duty to develop wholesome attitudes, values and habits in pupils and consolidate these into effective life patterns which form the basis of wholesome adjustment.
- The school has to provide opportunities to every pupil to learn satisfying ways of working and playing and the necessary knowledge and skill require for a mentally healthy life.
- An abiding faith in God keeps tolerating frustrations. Daily school prayer and moral education classes will develop to tolerance power.
- Teachers and parents by their affection based on reality-oriented attitudes can prevent personality disorders occurring in children.

Check your Progress
Notes: a) Write your answer in the space given below:
 b) Compare your answer with the one given at the end of the unit.

5. Describe integrated personality.
.....

12.8 LET US SUM UP

Personality is the individual’s physique, psychological aspects such as intellect, emotion and behavior, and social aspects, which determine his unique adjustment to the environment.

Personality is self consciousness, dynamic, adjustable, unique specific and organized. Factors influencing personality are biological factors, sociological factors and psychological factors.

Major approaches of personality are: Type approach and Trait approach. Personality traits are physical traits, mental traits, emotional traits, volition and character, sociality, forcefulness or persistence, sex and ductless glands.

Split personality is nothing but multiple personality. All the human beings are divided into two distinct types- extrovert and introvert.

12.9 UNIT END EXERCISES

- Discuss any two theories of personality.
- Discuss the personality disorders.

12.10 ANSWERS TO CHECK YOUR PROGRESS

1. Personality is the individual’s, physique, psychological aspects such as intellect, emotion and behavior, and social aspects, which determine

his unique adjustment to the environment. According to Cattell, “Personality is that which permits a prediction of what a person will do in a given situation”.

2. Factors influencing personality are biological factors, sociological factors and psychological factors.

3. Allport’s personality traits are: Cardinal Traits, Central traits and Secondary traits. Cattell’s personality traits are common traits, unique traits, surface traits and source traits.

4.

Extrovert	Introvert
• Fluent in speech	Better at writing than at speech
• Free from Worries	Inclined to worry
• Likes to work with others	Likes to work alone
• Friendly	Rather reserved
• Not easily embarrassed	Easily embarrassed

5. Self-actualized personality, emotional and socially mature individual, well-adjusted personality; integrated personality is all almost synonymous. Such a person has realistic assessment of himself, his strength and weakness, has a stable self- concept involving a higher level of self-esteem and fewer feelings of inadequacy and fewer evidences of compensatory behavior and accepts himself, leading to himself being accepted by others.

12.11 SUGGESTED READINGS

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UNIT XIII ASSESSMENT OF PERSONALITY

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Structure

- 13.1 Introduction
- 13.2 Assessment of Personality
 - 13.2.1 Interview
 - 13.2.2 Observation
 - 13.2.3 Case Study
 - 13.2.4 Rating Scale
 - 13.2.5 Questionnaire
 - 13.2.6 Personality Inventory
 - 13.2.7 Sociometry
- 13.3 Projective Techniques
 - 13.3.1 Rorschach Ink-Blot Test
 - 13.3.2 Thematic Apperception Test
 - 13.3.3 Word Association Test
 - 13.3.4 Sentence Completion Tests
- 13.4 Integrated Personality
 - 13.4.1 Characteristics of Integrated Personality
 - 13.4.2 Importance of Integrated Personality
- 13.5 Let us Sum Up
- 13.6 Unit End Exercises
- 13.7 Answers to check your progress
- 13.8 Suggested Readings

13.1 INTRODUCTION

In this unit, we are going to study the assessment process of personality and projective techniques to assess personality. We are also going to understand the concept of integrated personality.

13.2 ASSESSMENT OF PERSONALITY

The methods for assessment of personality are broadly classified as

1. Objective Method
2. Subjective Methods
3. Projective Methods

- **Objective Method:** Include physiological measures as well as behavior observed in the laboratory in everyday situations and rating by acquaintances.

- **Subjective Method:** Include any form of self-report like autobiography, self-rating, interview, personality inventories, questionnaire, aptitude tests, interest inventories and attitude scales.
- **Projective Method:** Include Rorschach Ink Blot Test, Thematic Apperception Test, Word Association Test, Depth Analysis, Expressive Behaviour etc.

However, two techniques of personality assessment i.e. personality inventory and projective techniques are more frequently used than others. In the selection of military personnel, situations tests are used. Personality inventory is a popular method of personality assessment. It requires self-description of thoughts, feelings and actions.

Some of the important methods of assessing personality are described in this section. They are:

- Interview
- Observation
- Case study
- Rating scale
- Questionnaire
- Personality inventory
- Sociometry
- Projective Techniques

13.2.1 Interview

An interview may be defined as a face to face verbal exchange in which one person i.e. the interviewer attempts to elicit information on a variety of topics from the interview. Interview is used for a variety of purpose and as such there are various types of interviews.

- The assessment or evaluative interview for determining the fitness of a person for admission, for a job or for scholarship etc.
- The personality assessment interview of a student for finding out the status of development of his personality
- The diagnostic interview for getting some information about the home, environmental and school situations of the student or the client
- The introductory interview for preparing for further interview
- The informative interview for giving some information to the students on the subjects or careers etc.
- The research interview for collecting data about a problem

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- The administrative or disciplinary interview for finding out the causes of indiscipline and taking further action and
- The counseling interview for helping the counselee or the student in gaining insight into the problem and assisting him solving the same.

Preparation for the Interview

- A quiet and orderly place should be provided for interview purposes
- The teacher or the psychologist should prepare for the interview by gathering all the data concerning the student
- The teacher or the psychologist should prepare clear objective for the interview
- The teacher or the psychologist should keep an open mind regarding the student and
- Each interview should be considered as a step in the process of guiding the student.

Techniques of Interviewing

Rapport should be established. Rapport is a technical term used to denote the feelings of friendliness, security and mutual confidence between the teacher and the child. Davis and Robinson suggest the following techniques to increase rapport:

- Sympathy
- Assurance
- Approval
- Humour
- Personal Reference
- Non-personal reference
- Question form
- Threat

13.2.2 Observation

Observe is one of the most ancient and widely used instrument of assessing personality. Observation has been defined as, 'measurement without instruments'. In education, observation is the most commonly employed of all measurement techniques. Even today, it is our common experience to notice that farmers feel the breeze, watch the sky, sun, moon and stars, all to determine what the weather is likely to be and what season is approaching.

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Principles to be followed in making observation

- Observe the whole situation
- Select one student to observe at a time
- Students should be observed in their regular activities, such as in class room, on the play ground or in going from class to class and
- Observation should be made over a period of days.

Requisites of Good Observation

As a research tool, good observation is based on

- Proper planning
- Proper execution
- Proper recording
- Proper interpretation

Proper Planning of Observation

- Specific activities or units of behavior to be observed must be clearly defined
- An appropriate group of subjects be selected for observation
- The length of each observation period, number of periods and interval between periods should be decided
- The form of regarding should be decided
- The instruments to be used should be decided. Physical position of the observer should be demarcated and
- Proper tools for recording observation should be kept handy.

Proper Execution of Observation

- Proper arrangement of special conditions for the subjects
- Assuming proper physical position for observing. Focusing attention on the units of behavior on the specific activities under observation
- Observing directly the length and number of periods and intervals decided upon
- Proper handling of the recording instrument being used and
- Utilizing suitably the training received in terms of expertness.

Proper Recording of Observation

Generally, two methods are employed for recording observation. The methods to use depend upon the nature of the activities or behavior of the group to be observed. The skill of the observer also plays an important role in deciding upon selection of the

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method. The first method is to record the observation simultaneously. It is useful in the sense that a time gap may distort facts. However, at times, this may not be feasible when the action or activity performed is very swift. Moreover, this is likely to distract the subject or subjects. In the second method, facts may be recorded soon after the observation is over. This is helpful as this does not distract the mind of the subjects. But, the investigator may not be able to recall facts accurately after the interval of a few minutes. Devices used in the observation are checklists, rating scale, score cards and blank forms of totally frequencies.

Interpretation of Observation

Results should be interpreted cautiously and judiciously after taking into account various limitations of planning, sampling or procedure.

13.2.3 Case Study

It is one of the methods of measuring personality. Case study aims at studying everything about something over a period of time. P.V. Young says “Case study is a method of exploring and analyzing the life of a social unit, be that a person, a family, an institution, culture group or even entire community”. Good and Hatt defines, “Case study is a way of organizing social data, so as to preserve the unitary character or the social subject being studied. Expressed some what differently, it is an approach which views any social unit as a whole”.

A case study is known as case history of the individual because it is the analysis of the most important aspect of the child. The analysis is in the form of past record, present position and future possibilities. The complete and detailed study of a case may involve the use of observation, interview, and use of various tests like intelligence, aptitude, interest and personality test.

Types of Case Study

There are three types of Case Study. They are:

- Case studies of individuals
- Case studies of institutions and
- Case studies of communities.

Steps in Case Study

Various steps involved in case study method are:

- Determination of the status of the phenomenon under investigation through direct observation or measurement
- Determination of the most probable antecedents of the case

- Formulation of a definite hypothesis or a set of hypotheses through a knowledge of similar cases
- Verification of the hypothesis
- Remedial steps
- Follow up of the case.

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13.2.4 Rating Scale

Ruth Strang writes “Rating is, in essence, directed observation”. Barr and others defines, “Rating is a term applied to expression of opinion or judgment regarding some situation, object or character. Opinions are usually expressed on scale or values. Rating techniques are devices by which such judgments may be qualified”. A rating scale is a method by which we systematize the expression of opinion concerning a trait. The ratings are done by parents, teachers, a board of interviewers and judges and by the self as well. These rating scales give an idea of an individual.

Types of Rating Scale

The following are the major types of rating scales:

- Descriptive rating scale
- Numerical rating scale
- Graphical rating scale

Descriptive rating scale: The rater puts a check () in the blank before the characteristics or trait which is described in word or phrase.

Example:

- Willing to take initiative
- Quite inventive

Numerical rating scale: Here numbers are assigned to each trait.

Example: Leadership quality in the classroom

Excellent	Very Good	Good	Average	Below Average	Poor	Very poor
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It is a seven point scale, the number 7 represents the maximum amount of those traits in the individual; 4 represent the average amount.

Graphical rating scale: This is similar to the descriptive scale and the difference lies only in the way it is written. This is also called ‘Behavioural statement scale’.

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Example: Social attitude

Anti	Self	Has no	Usually	Strongly
Social	Centered	Positive	Social centered	Altruistic
		Attitude		

13.2.5 Questionnaire

Good and Hatt point out, “In general, the word questionnaire refers to device for securing answers to questions by using a form which the respondent fills in himself”. Barr, Davis and Johnson define questionnaire as a “systematic compilation of questions that are subject to a sampling of population from which information is desired”.

Types of Questionnaire: A questionnaire may contain two kinds of items:

- **The closed or structured form**
- **The open-end or unrestricted form**

The closed or structured form: This form requires short and check responses. It may provide for making ‘Yes’ or ‘No’, or just a ‘check’ from a list of suggested responses.

The open end or unrestricted form: As the name of the form indicates, the respondent is at liberty to express his attitudes, interests, preferences and decisions in his words because no clues are provided.

13.2.6 Personality Inventory

A personality inventory is essentially a standard set of questions about some aspects or aspects of the individual’s life history, feeling, preferences or activities presented in a standard way and scored with a standard scoring key. It resembles a questionnaire in several aspects like administration etc. However, a questionnaire is a general device and can be used for collecting all kinds of information. But, a personality inventory is specially designed to collect information about the personality of an individual. The number of available inventories is very large. Here, we shall be concerned primarily with a few of the most widely known inventories.

Minnesota Multiphasic Personality Inventory (MMPI)

It consists of 550 items and is used for persons of 16 years of age and above. Each item is printed on a separate card. The subject has to sort the cards into three groups, True, False and cannot say. The item is classified under 26 heads, such as health, religious attitudes, delusions, phobias etc. Items can be grouped in separate scales to score nine personality traits. The MMPI items range widely in content, covering such areas as: health, psychosomatic symptoms, neurological

disorders and motor disturbances; sexual, religious, political and social attitudes; educational, occupational, family and material questions and much well-known neurotic or psychotic behaviour manifestation. The MMPI is one of the several most widely used inventories. A shortened version consisting of 336 items is also available for emergency use.

California Psychological Inventory (CPI)

It focuses on the assessment of personality characteristics important for social interaction. The CPI test booklet is long, consisting of 480 items and majority of the items (178) were taken from the MMPI. The aim of the test was to measure traits which were most important in social life and which were likely to arise in any culture.

Allport A-S Inventory

This is also known as Ascendance Submission Inventory. This inventory seeks to assess the individual's tendency to dominate his associates or be dominated by them in face-to-face contacts of everyday life. Each item begins with a brief description of a situation which we usually encounter at a meeting, in school, on a bus or in other familiar settings. The subject is asked to indicate one of the two or four alternative ways listed for meeting the situation. Responses indicate the degree of ascendance or submission. Separate forms of the tests are available for men or women.

Bell Adjustment Inventory

In this inventory, 35 items are classified into separate categories and a score is provided for each category. Two forms of this inventory are available, one for high school and college students, the other for adults. However, the students form has been employed more widely. This form has been designed to measure adjustment in four areas: (i) Home (ii) Health (iii) Social and (iv) Emotional. An additional score has been provided in the Adult form to measure occupational adjustment. Answers are recorded by encircling 'Yes' or 'No'.

The Myers- Briggs Type Indicator (MBTI)

The Myers-Briggs Type Indicator was especially developed to describe Carl Jung's personality types. The type of tend to suggest different kinds of people who are interested in different things. The revised MBTI consists of 426 two-choice items and may be scored for four pairs of scales. Extroversion (E) vs Introversion, Sensing(S) vs Intuition, Thinking (T) vs Feeling, and Judgment (J) vs Perception. All possible combinations of these four point scales result in 16 possible personality types. Individual's personality type on this inventory may be summarized in four letters ESTJ. It means an extrovert who enjoys sensing and thinking and who has mainly a judging attitude toward the outer world. Each of the 16 types tends to produce a different set of characteristics interests, values, needs and traits.

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13.2.7 Sociometry

Sociometry was designed by J.L. Moreno and Helen Jennings. Through these tests, we come to know what other members of the group feel the subject whether they like him or not. The member of the group may be asked to name in order to preference one or two individuals with whom they would like to work or play. According to Jennings, "Sociometry may be described as a means of presenting simply and graphically the entire structure of relations existing at a given time among members of a given group. The major lines of communication or the pattern of attraction and rejection in its full scope are made comprehensive at a glance". Sociometric studies have been made of many types of social groups including classroom groups. Being peer-rating rather than rating by superiors, sociometry adds another dimension to the understanding of social relationship.

For example, consider a group consisting of 10 students. They are asked to write his first choice about some significant and pertinent type of social setting. They may be asked questions like this:

- Whom would you like to sit next to you in the classroom?
- With whom do you enjoy most?
- With whom would you like to work in the laboratory?
- With whom would you like to walk home?

In the above example, the individual has to name only one person of his choice. Data may be tabulated as under:

- Let the member of the group be numbered from A to J.
- Write choosers in the vertical column and chosen in the horizontal column.
- Add the number of each choice.

An individual may be asked to make the second choice in order of performance. Tabulated data may be interpreted as under:

- A detailed study of the choices made
- The 'isolates' and the 'stars' may be looked for. An isolate is one whom nobody chooses. Of course, he is not rejected. A 'star' is made a member of the group who receives most of the choices
- A triangle shows three persons selecting each other. This may be an evidence of cliques, or sharp divisions in the group. As per the tabulated data, we may draw the figure to represent it.

13.3 PROJECTIVE TECHNIQUES

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Projective techniques are used to study the conscious motivation of personality. Lindzey (1961) defines, “A projective techniques is an instrument that is considered especially sensitive to covert or unconscious aspect of behavior, it permits or courage a wide variety of subject responses, it is highly multidimensional and it evokes usually rich response data with a minimum of subject awareness concerning the purpose of the test. Drever defines, “A projective technique is the interpretation of situations and events, by reading into them our own experiences and feeding”.

There are many projective tests. Some of them are:

- Rorschach Ink Blot Test.
- Thematic Apperception Test
- Word Association Test and
- Sentence Completion Test

We can understand all these four tests one after another.

13.3.1 Rorschach Ink-Blot Test

Rorschach ink blot projective test is most popular and widely used. It was developed by Hermann Rorschach. Perceptual approach is the basis of test. The perception of an individual is influenced by the emotional and social make up, when he is asked to perceive a figure which is not well defined.

The test material is made up of ten ink-blot patterns. Five of these are in black and white, two are black and red and three are multi colored.

Administration of the Test: The cards are presented to the subject one at a time and in a prescribed sequence. The subject is asked to look at each and tell the examiner, what he has seen on each card, that it might be for him and what it makes him think of. All the responses are taken down verbatim. If the subject is unresponsive or does not speak anything, encouragement is given by using words like most of the people have seen more than one thing. It is always better to get more than one response as long as he desires for.

Interpretation: Since the picture in the card itself is highly ambiguous, the examinee’s perception of it is determined to a very large extent by own mental nature. He is usually unaware of the motivations that prompt his responses. The psychologist interprets the examinee’s responses not so much by the things named by the subject, but what aspects of the picture promoted him. Some perceive the card as a whole, others perceive the minute details. Some emphasize color, others form. All these have meaning, concerning the personality of the

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subject. Thus, the actual responses are studied and stored for different points of view and set of symbols are used for most of the concepts. These scoring categories are named as (1) Location (2) Content (3) Time (4) Determinants and (5) Originality.

Location: Location refers to the part of the blot or whole blot with which the subject associates each response. The symbol W, D, d and S are used for scoring the location responses.

The symbols stand as follows:

W - Indicates that the subject is seeing the card as a whole

D - Indicates large details

d - Indicates small details

S - Indicates the subject response to the white spaces within the main outlines.

Content: This refers to what is seen by the subject and not the manner of its perception. The responses of the subject are categorized as human figures, animals, objects, landscape etc.

Time: It means reaction time or response time. Four types of calculation are done with respect to time i.e. Total response time, average response time, average reaction time and total reaction time. On the basis of these calculations, the personality of the subject is assessed. If the average reaction time is more than 11/2 minutes, the individual is suffering from the severe inhibitions and so on.

Determinant: Determinant refers to whether the response was determined by color, by shading by the form and movement.

The colored cards are emotionally stimulating and to color shows the emotional warmth of the person and he is impulsive in nature.

Originality: For each of 10 cards, certain responses are scored as popular by symbol P, because of their common occurrence, while some other responses are uncommon (original). The percentage of these original and popular responses can be taken as the subject's level of intelligence.

To conclude, we are to depend on all the five categories of interpretation, to know finally all about the person or his personality.

13.3.2 Thematic Apperception Test

This test consisting of perception of certain pictures in a thematic manner revealing imaginative themes is called Thematic Apperception Test. Ferguson describes this commonly used projective technique under the head, "The imagination approach". This test was developed by Murray and Morgan.

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Test Material: This test consists of 30 pictures which portray human beings in a variety of actual life situations and one blank card. These pictures are vague and indefinite. 10 of these cards are for male, 10 for female and 10 for both. In this way, the maximum number of pictures used with any subject is 20. The test is usually administered in two sessions, using 10 pictures in each session.

Administration: The picture is presented on at a time. The subject is told clearly that this is a test of creative imagination and that there is no right or wrong response. During the administration, cheer the subject up. As he writes the story describing that situation or the cause of that situation on the picture, he has to take care of the following aspects, while knitting the story.

- What is going on in the picture?
- What has led to this scene?
- What would likely happen in such a situation?

In making up the stories, the subject unconsciously projects so many characteristics of his personality. Here, each picture is to be shown for about a minute and the person is expected to write a story in 3 to 4 minutes. There is no time to think. Therefore, the stories express his own life natural denies, likes, and dislikes, ambitions, emotions, sentiments etc. its special value lies in its power of exploring the underlying hidden drives, complexes and conflicts of the personality of his subject by carefully interpreting of the given response.

Interpretation: Analysis and interpretation is to be made in one of the several ways depending on the view point of the examiner and the purpose of testing. But, in all instances, the detail of the stories must be interpreted against the facts already known about the personality being studied. The system of scoring and interpretation takes account of the following:

- Hero of the story
- Needs and conflicts of the hero
- Theme of the story
- The content of the story
- The style of the story
- Unusual responses
- The test situations as a whole
- Particular emphasis or omission
- Subject attitude towards authority and sex
- Emotional expression
- Outcome-conclusion of the story – happy and unhappy, comedy etc.

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As a whole, the theme contributes more than single response towards interpretation. Moreover, the global view of one's personality should be based upon the responses of all the 20 pictures shown to the subject and expertness of the examiner.

13.3.3 Word Association Test

It is one of the projective tests studying personality. In this test, there are a number of selected words. From these words, the examiner will present a series of words at a time to a subject and ask him to respond as quickly as possible with the first word that comes to his mind and the one of feelings that occurs in his responses may reveal something about what is in his mind. It is also informed to the subject that there is no right or wrong response. The examiner then records the reply to each word spoken by him, the reaction time and any unusual speech or behavior manifestations accompanying a given response. The content of the response along with the other recorded things reveal for evaluating the personality.

Types of Word Association Test

There are two types of word association test. They are Controlled Word Association Test and Uncontrolled Word Association Test.

Controlled Word Association Test

In this test, the stimuli or the words are controlled or selected by means of providing expected particular reply or response from the subject. The subject is given the word and asked to give the antonym or synonym. There is a restriction in this type of test.

Uncontrolled Word Association Test

In this word, the response from the subject is not controlled. The subject is given a word and is asked to reply any first word that comes to his mind spontaneously. The interpretation of the tests depends on two factors i.e. the response word and the reaction of the stimulus word indicates one's emotional blockings. In the test situation, if the subject gives a quick response, it is assumed that unconscious processes direct the association. Though the test is not so much important as the Rorschach Ink-Blot Test or Thematic Apperception Test, it is very useful in certain situations where the effect of unconscious processes on a specific activity is involved.

13.3.4 Sentence Completion Test

This test consists of a list of incomplete sentences; generally open at the end requires completion by the subject who is asked to go through the list and answers as quickly as possible without giving a second thought to his answers. He can complete these sentences in any way as he likes. On the basis of these responses, the psychologist

records observation which indicate unhealthy or conflicting, healthy or positive attitude etc. stimulus in the form of the following words may be presented to any individual.

- I wish to become
- My teacher
- My principal

The above mentioned incomplete sentences can be completed in many ways or in any way. From these answers, we can assess the personality of the individual. The sentence completion tests are considered as superior to Word Association Test because the subject may respond with more than one word. It is also possible to have greater flexibility and variety of responses and more area of personality.

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Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

1. Briefly explain the assessment of personality.

.....

2. Give short notes on projective techniques.

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13.4 INTEGRATED PERSONALITY

Integrated personality is one in whom various aspects of personality are working in a harmonious and effective manner. The integration of personality is the integration of all psycho-physical traits of personality. According to Guilford, Integrated personality emerges from the synthesis of seven traits – psychology, needs, interests, attitude, temperament, aptitude and morphology.

In wood worth's opinion, an integrated personality is one in which the several traits, interests, and desires are combined in an effective harmonious unity.

13.4.1 CHARACTERISTICS OF INTEGRATED PERSONALITY

In an Integrated personality, mind and emotions, desire and determination, and all mental activities work in an organized way. There are no conflicts in an integrated personality. In such a person, his ambitions and aspirations are in accordance with his mental capacities and his objectives are realistically attuned to the required physical energy. An integrated personality is flexible, strong, and organized as

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well as balanced. Such a person has realistic assessment of himself, his strength, and weakness, has stable concept involving higher level of self-esteem and fewer feelings of inadequacy and fewer evidence of compensatory behavior and accept himself, leading to himself being accepted by others.

Integrated personality implies harmony between five important aspects of personality. They are

- ❖ Harmony between one's abilities and capacities
- ❖ Harmony among one's interests
- ❖ Harmony between one's abilities and interests
- ❖ Harmony between one's self concept and social constraints
- ❖ Harmony between one's life goal and social codes of conduct.

13.4.2 IMPORTANCE OF INTEGRATED PERSONALITY

The fostering of the development of a wholesome, integrated personality in pupil is the aim of educational endeavor. The integration of personality is necessary in order to effect adjustment with the environment. Adjustment will be natural and easy if integration is strong. If the integration is less than essential then the problems of adjustment with environment rise. In the absence of the integration of personality is unbalanced there being no proper blending of psycho-physical traits. Such a person can neither be skilled in his behavior nor does he get success in his life's tasks.

Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

3. Describe integrated personality.

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13.5 LET US SUM UP

Personality is the individual's physique, psychological aspects such as intellect, emotion and behavior, and social aspects, which determine his unique adjustment to the environment. Two techniques of personality assessment i.e. personality inventory and projective techniques are more frequently used than others. In the selection of military personnel, situations tests are used. Personality inventory is a popular method of personality assessment. It requires self-description of thoughts, feelings and actions. A projective technique is the interpretation of situations and events, by reading into them our own experiences and feeding Integrated personality emerges from the synthesis of seven traits – psychology, needs, interests, attitude, temperament, aptitude and morphology.

13.6 UNIT END EXERCISES

- Discuss any two methods of assessing personality.
- Discuss any two projective techniques of assessing personality.
- Discuss any two characteristics of integrated personality.

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13.7 ANSWERS TO CHECK YOUR PROGRESS

1. Methods of assessment of personality are broadly classified as objective methods, subjective methods and projective methods. Some of them are Interview, Observation, Case study, Rating Scale, Questionnaire, personality inventory, Sociometry, Rorschach Ink Blot Test, Thematic Apperception Test, Word Association Test etc.

2. Projective techniques are used to study the unconscious motivation of personality. A projective technique is interpretations of situations and events, by reading into them are Rorschach Ink Blot Test, Thematic Apperception Test, Word Association Test and Sentence Completion Test.

3. Self-actualized personality, emotional and socially mature individual, well -adjusted personality, integrated personality is all almost synonymous. Such a person has realistic assessment of himself, his strength and weakness, has a stable self- concept involving a higher level of self-esteem and fewer feelings of inadequacy and fewer evidences of compensatory behavior and accepts himself, leading to himself being accepted by others.

13.8 SUGGESTED READINGS

- Aggarwal, J.C.(2007). *Essentials Educational Psychology*. Delhi: Vikas Publishing House private Limited.
- Chaube, S.p.(1997). *Educational Psychology*. Agra: Lakshmi Narain Agarwal.
- Eysenck H.J.(1997). *Dimensions of Personality*. London: Kegan Paul 1997.
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UNIT XIV MENTAL HEALTH

NOTES

- 14.1 Introduction
- 14.2 Conflict and Frustration
 - 14.2.1 Types of conflicts
 - 14.2.2 Measures for resolving conflicts
- 14.3 Adjustment
 - 14.3.1 Characteristics of well-adjusted person
- 14.4 Adjustment Mechanism
 - 14.4.1 Common Adjustment Mechanisms
- 14.5 Causes of Maladjustment
- 14.6 Symptoms/Characteristics of a Maladjusted person
- 14.7 Defense Mechanism
- 14.8 Juvenile Delinquency
 - 14.8.1 The Juvenile Justice
 - 14.8.2 Juvenile delinquents created and not born school for reforms
- 14.9 Mental Health
 - 14.9.1 Concept and meaning of Mental Health
 - 14.9.2 Characteristics of Mentally Healthy Person
 - 14.9.3 Mental Health in School
 - 14.9.4 Influence of School in Maladjustment
 - 14.9.5 Mental Health of Teacher
 - 14.9.6 Characteristics of Mentally Healthy Teacher
 - 14.9.7 Adjustment Problems of Teacher
 - 14.9.8 Role of Teacher in Minimizing Maladjustment of Students
 - 14.9.9 How to Improve Teacher's Mental Health
- 14.10 Educational Implications
- 14.11 Let us Sum Up
- 14.12 Unit End Exercises
- 14.13 Answers to check your progress
- 14.14 Suggested Readings

14.1 INTRODUCTION

Mental health is not merely the absence of in form or conflicts. It is a positive state signifying complete physical, mental and social well being. Mental health is defined as a condition and lend of social functioning which is socially acceptable and personally satisfying. A mentally healthy person has adequate self acceptance, holds a realistic

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view of him, enjoys freedom from inner conflicts, anxiety and possesses adequate self-reliance and self-direction.

The role of parents and teachers of home and school contributes to the mental health of children. This unit discusses the mental hygiene, mental health of students, mental health of teacher, defense mechanism, and moral development of learner, adolescents' development tasks and needs.

14.2 CONFLICT AND FRUSTRATION

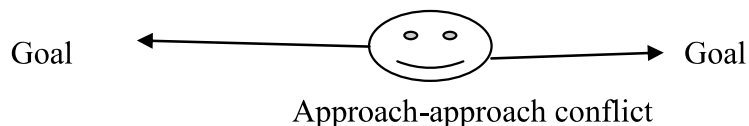
Conflict is defined as the identification of those situations where in a person is motivated to behave in two compatible ways. It is a difficulty in choosing between the alternatives. Infrustation is the attainment of motive is blocked by some barrier. In conflict, the individual is confronted by equally desirable or equally distasteful situation. Conflict describes as an imitation between the individual and environment.

Situation that are frustration are those in which something interferences. The barrier of obstacle may be physical or social or psychological. The frustration is caused by physical barrier. Prohibition of interclass marriages is a social barrier. When the source of frustration arises within the individual is psychological. When a man takes profession in which he feels that he is not equal to the task it results in frustration and psychic loss. This is a psychological barrier.

14.2.1 Types of conflicts

Conflicts are classified into three types. Read the illustration given below to understand the different types of conflicts

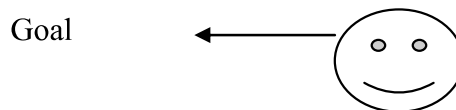
An Approach – Approach conflict: An approach-approach conflict is a situation where the individual is caught between two mutually exclusive goals which are desirable and also are difficult to realize simultaneously. This is exemplified in the following situation. A student prepares for examination is keen to secure high marks, but, at the same time, wishes to attend the wedding of his best friend both due on the same day. Similarly, a girl who is eager to marry her fiancée and also wishes to complete her computer course in the same semester itself. If those illustrations you find that the boy and girl should move towards the other goal in order to achieve one.



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An Approach Avoidance conflict

Let us consider a common example. A girl of twenty five years wishes to marry a boy who is highly qualified and well placed. She hesitates to achieve her goal, because the life style of the boy is totally different from the girl. He smokes and drinks. Similarly, a boy wants to approach his father to obtain grace marks in to subjects. However, he hesitates to approach him as he had assured father that he would secure a rank in his class. This situation creates conflict in the students mind. These examples reveal that, as some point of time, the person wishes to realise the goal and at the same time avoid the goal. Thus, approach avoidance conflict is a situation where in the individuals is motivated to achieve a goal and at the same time develops a tendency to avoid it.



Approach-avoidance conflict

Avoidance - Avoidance conflict: An avoidance-avoidance conflict is a situation wherein an individual is motivated to avoid both the goals. Observe yet another dilemma, Karan is forced by his friends to see new movie which he is reluctant to watch. At the same time, he does not want to displease his friends by saying that, he would not accompany them for the movie. In this situation, he wants to avoid both the goals and finally faces a conflict situation.



Avoidance-avoidance conflict

14.2.2 Measures for resolving conflicts

Every individual faces a conflict in life sometime or the other. But, it is not necessary that, every time it leads him to frustration. Whenever he meets frustration, he develops tolerance towards that situation. Thus, every individual develops a certain degree of frustration tolerance. A person who has low frustration tolerance may live in a maladjusted manner.

If an individual is intelligent, he has an insight into the problem he will find ways and means to solve it. In such situations, he may adopt the direct method or an adaptive mechanism to solve his problem. On the other hand, if he is timid and weak in understanding the problem, he may adopt the indirect method or a defensive mechanism to escape from the conflicting situation. You as a teacher have to develop in the students the skills to resolve conflicts

Some of the adaptative mechanisms of resolving conflicts are as follows:

Accepting reality: Most of us live in superficial world we tend to move far away from reality. We set our targets beyond our capacity to achieve. Instead, if we change our goals and reset them according to reality it may be feasible for us to achieve the goals and thus solve the conflicting situation. For example, a teen age girl aspires to study medicine in the United States but her financial position forces her to reset her goal and takes up the course in one of the best colleges in the city or country.

Analysing problems situation: Whenever we face conflicts in life, we usually think of only one alternative solution. If that alternative is not a viable one to help us, arrive at the solution we stop at that point itself and start worrying about it. An intelligence person will not react in such a passive manner. He may think of as many alternatives as possible for a given problems and analyses the pros and cons of each of the alternatives and may find a better solution.

Prioritizing the goal: At times, you might have observed that individuals meet with conflicting situations where more than two goals are involved. In such situations, one should work out positive and negative aspects of achieving each one of these goals and chooses the best. For example, a student may want to finish an assignment in time, but, there is a very interesting movie on television he does not want to miss. Here, he may face a conflict which may be resolved by prioritising the goal.

Developing value judgement: One should develop the ability to judge values when one is facing a moral or value dilemma. Study the following situation.

Gopu is an honest and sincere boy. He has a friend named Shamu. Both like each other very much. In the final examination, Shamu copies all the answers from Gopu's answer scripts without his knowledge. The teacher finds that both the answer scripts are identical. He questions Gopu and threatens to punish him if he does not admit the truth. Gopu is in a dilemma whether to be honest in admitting the fact or be loyal towards his friend in the interest of friendship.

Diverging one's interest: Open mindedness could solve one's problems easily. Narrowing down our interest to one specific act leads to conflict. For example, Preethi is good at drawing. She is keen to take up Architecture as her specialization because of her interest towards arts. Unfortunately, she fails to obtain a seat in that course. Immediately, she switches over to Mechanical Engineering. She further utilizes her talent by developing interest in free lancing artwork, Calligraphy advertising etc. Thus, changing one's interest also solves the problems to some extent.

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Check your Progress

Notes: a) Write your answer in the space given below:

b) Compare your answer with the one given at the end of the unit.

1. Read carefully and identify the type of conflict involved

A girl of 14 years from class X of your school approaches you with a problem She is anxious to take part in the inter school badminton match but fears she may lose the game because in the previous year she lost against the same team.

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14.3 ADJUSTMENT

You are aware that a person passes through various stages of growth and development, before he reaches adulthood. Invariably at every stage of one's, the person tries hard to fulfill his/her biological, psychological and social needs and gears him/her effectively to meet the existing demands of the society. Biogenic needs such as hunger, thirst, temperature, rest and sleep are conditioned in the organism of an individual right from infancy as appropriate to the culture and geographical conditions in which he lives. To cite an example, people from the North India are conditioned to eat wheat but people from the south prefer rice as their staple food. Generally, there is no difficulty in fulfilling these needs. A need which is satisfied with little effort doesn't affect adjustment. For example, availability of sufficient air and water seldom leads to maladjustment. At times, these needs may be thwarted by natural calamities like floods, droughts, Earthquake, Epidemic disease only then does it becomes difficult for individual to adjust.

The concept of adjustment is originated from the biological term adaptation. Biologists used the term adaptation strictly for the physical demands of the environment, but, psychologists use the term adjustment for varying conditions of social or inter personal relations in the society. Adjustment means the reaction to the demands and pressures of social environment imposed upon the individual. The demand to which the individual has to react may be external or internal. Psychologists have viewed adjustment from two important perspectives - adjustment as an achievement and adjustment as a process. The first point of view emphasizes the quality or efficiency of adjustment and the second lays emphasis on the process by which an individual adjusts to his external environment.

Adjustment as achievement: Adjustment as achievement means how efficiently an individual can perform his duties under different

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circumstances. If we perceive adjustment as achievement, we have to set criteria to judge the quality of adjustment. No universal criteria can be set for all times to come, because, criteria involve value judgments which differ from culture to culture and from generation within same culture. Four criteria have been evolved by psychologists to judge the adequacy of adjustment. They are

- Physical health
- Psychological comfort
- Work efficiency and
- Social acceptance

Adjustment as process: Adjustment as a process is important for teachers. Students' adjustment largely depends on their interaction with the external environment in which they live. They always try to adjust to it. Piaget has studied the adjustive process from different angles. He uses the term **assimilation and accommodation** to represent the alternation of oneself or environment as a means of adjustment. A person who carries his values and standards of conduct without any change and maintains these in spite of major changes in the social climate is called **assimilator**. The person who takes his standard from his social context and changes his beliefs in accordance with the altered values of the society is called **accommodator**. In order to adjust successfully in society a person has to resort to both the devices i.e. assimilation and accommodation.

The problem arises when socio psychological needs are not fulfilled and it often results in maladjusted behavior. However, when these needs are completely satisfied, a temporary state of equilibrium is established in the organism and the activity towards that goal ceases.

Thus, healthy adjustment is a process whereby an individual meets his biological, psychological and social needs successfully and established a balance between his inner needs and external demands of the society through appropriate behavioural responses.

14.3.1 Characteristics of a well-adjusted person

A healthy and well-adjusted person should possess/display some observable behavioural patterns. These behavioral patterns must be according to the social expectations of an individual. These patterns are as follows:

- Maturity in thinking
- Emotional balance
- Warm and understanding towards others
- Free from tension routine events
- Independent in decision making

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Check your Progress

- Notes:** a) Write your answer in the space given below:
 b) Compare your answer with the one given at the end of the unit.

2. List any four characteristics of a well-adjusted person.

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14.4 ADJUSTMENT MECHANISM

Adjustment as a process is of major importance for educationist psychologists, teachers, counselors and parents. Basically, there are two types in adjustive process. These are called Frustration and Conflict. There are three alternatives. One is that, the individual may inhabit or modify his internal need, this is autoplatic. The second alternative is that, he can alter the environment and satisfy his needs, this is apoplectic. The third alternative is that, he can use some mental mechanisms to escape from the conflicting situation and may be able to maintain the balance of his personality. We shall now discuss the adjustment mechanisms and defense mechanisms.

14.4.1 COMMON ADJUSTMENT MECHANISMS

Defence Mechanism is a technique adopted by individuals to cope with tension, stress and anxiety that are mainly around by conflict. When an individual meets with such problem, instead of solving it, he may find an easy way to escape for the problem.

As a teacher, you understood about the nature of frustration and conflict. The frustrated student may change the environment or himself. This is a good adjustment which is socially acceptance. When these two alternatives fail, he may employ a third alternative to overcome his difficulties. They are called **adjustment mechanisms or defense mechanisms**. All people are using adjustment mechanism in daily life. They have protective orientation. The use of mechanism to protect one's self esteem is universal. It is a normal human reaction. We do it consciously with certain limits, they are good. It is only when, there is an excessive reliance on them instead of facing reality that they pose any psychological danger.

Displacement

The person does something as a substitute for something else. An example of displacement is found in the behavior of a teacher who is rebaked by his principal or daughter shows her **displayed anger** beating her dog.

MALADJUSTMENT

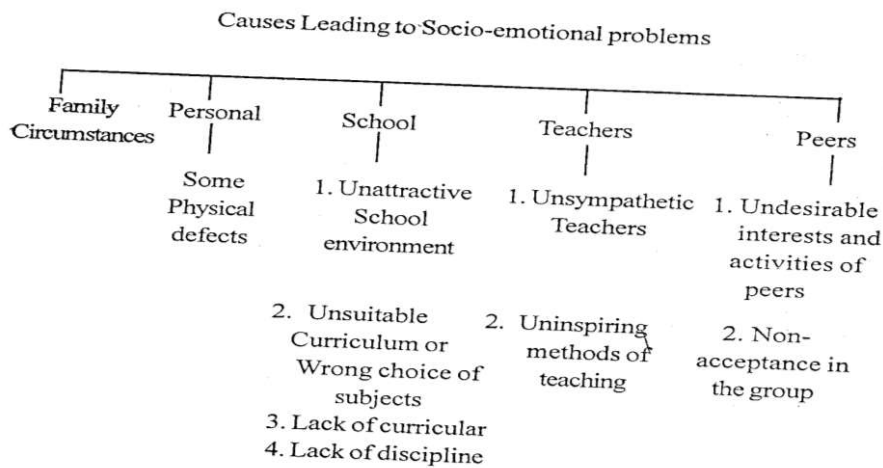
By now we hope you got a clear-cut idea about the characteristics of a well-adjusted person in the society. Now let us understand the meaning of 'maladjustment' It is exemplified in the following situation. Nasreen is a 16 year old girl belonging to a middle class family. She has an average. I.Q. but the family members have very high expectation of her scholastic achievement and expected her to get the first rank in the final examination. Since then, her anxiety level has increased. She takes longer time to complete school work, repeatedly cleaning and washing things, taking baths for long hours, pouring more water on her body and relating it to securing high marks in the examination. If she does not do these activities, she starts sweating excessively and becomes anxious. Nasreen is maladjusted.

In the above example, you find that low I.Q. but high societal expectation led to maladjustment. Hence, Nasreen suffered from both psycho and socio-genic needs of drawing recognition and securing social status respectively.

Thus maladjustment is a process whereby an individual is unable to satisfy his biological, psychological or social needs successfully and establishes an imbalance between his personal needs and expectation of the society resulting in the disturbance of psycho-equilibrium.

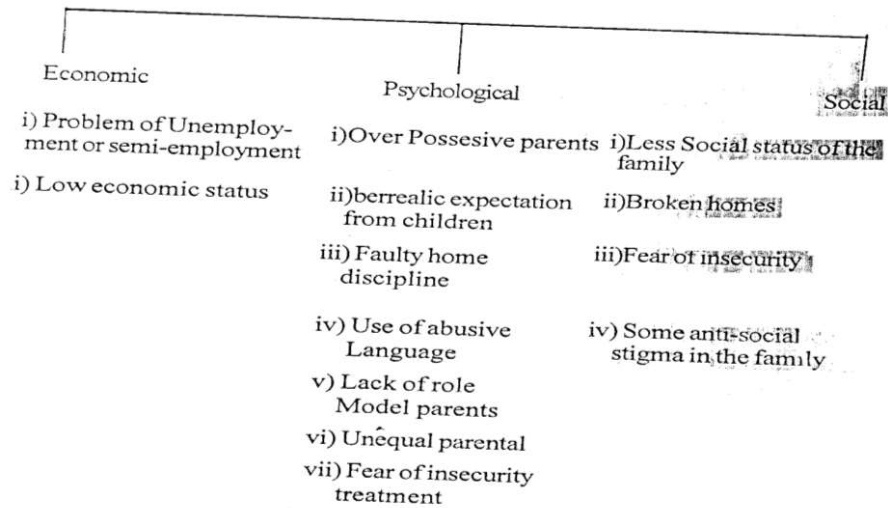
14.5 CAUSES OF MALADJUSTMENT

We can classify the causes of maladjusted behavior of adolescents under five main categories. They are as follows:



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Let us explain each of the above causes in brief:

- Family: It is obvious that the family as an institution has various functions to perform. By discharging their duties, parents indirectly fulfill needs of their children. There are certain significant causes social economic and psychological which contribute immensely to maladjusted behavior in children.

Let us be very clear that this distinction is only for a better understanding of the concept. In fact it is very difficult to separate out-social, economic and psychological causes of maladjustment. There is a high degree of relatedness among these factors.

- **Social causes:** Gibbon says that the social problem of one generation is the psychological problem of the next generation. Children coming from homes that have been broken due to death, divorce, desertion, separation, etc. are often maladjusted in their behaviour . Drunkard parents, strained marital relationship of spouses, quarrels and fights between spouses are also responsible for developing frustration in children. Such children feel insecure and become maladjusted. Another common factor that one can easily observe in the Indian situation is the large size of the family. With the tremendous growth in population, it is extremely difficult for parents to provide even the basic necessities like food, clothing and shelter, to their children. Invariably results in greater degree of frustration and hostility amongst them. A research study indicates that anti-social adolescents come from large families.
- **Economic causes:** The occupational status of parents, problems of unemployment, poverty and low-economic status breed maladjustment amongst children. Under such

circumstances parents are unable to satisfy the needs of their children which eventually lead to frustration, aggression and hostile behavior in growing children.

- **Psychological causes:** It is significant to note that the psychological instability of parents is directly responsible for maladjusted behavior of their off-spring. If parents are over possessive, highly authoritative, unrealistic in their expectations, incompatible abusive and prejudiced, this will have a deleterious effect upon their children. When the psychological needs are not met, children get frustrated and develop problems like nail biting day- dreaming, fear of dark, lack of self-confidence, flickering of eyes, etc, Those parents who threaten, nag, punish and humiliate their children before others are directly responsible for their children's isolated and rejected behavior You might have observed that such children try to seek the attention of other people through other means.

The birth order of children in the family and their relationship with siblings also influence the mental instability of children case studies show that psychoneurotic adolescents are from families where there is large a number of siblings.

- **Personal causes:** It is observed that individuals who are physically, mentally and visually handicapped react abnormally to the situation. Evan children with partial deficiency, such as defective eye sight, poor hearing and impaired speech may find it difficult to adjust under normal situation. When they cannot score well academically compared to their peers, they develop an inferiority complex. Finally, they isolate themselves from others and indulge in day-dreaming.
- **School-related causes:** Children spend roughly seven hours a day in the school. When growing children do not find ways and means to channelize their energy in a purposeful manner in the school. They exhibit in maladjusted behavior. The school authorities, including teachers should organize various curricular and co-curricular activities to suit the needs of the growing children.
- **Teacher-related causes:** An imbalanced personality in the teacher has its impact on the behavior of the children. If the teachers unfair raised or not involved with the students, it certainly affects the mental health of the children in the school.
- **Peer-group related causes:** Another important factor that disturbs the psycho-equilibrium of students is an unhealthy

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relationship with their peer group. Normally, students ask earnestly for recognition from their peer group during later childhood and adolescence. However, popularity among the peer group depends on various factors, such as good looks, athletic abilities, social class academic performance, and special talents. If the student lacks these qualities, he may fail to get status amongst his/her peer group and gets frustrated and maladjusted.

14.6 SYMPTOMS / CHARACTERISTICS OF A MALADJUSTED PERSON

As a school teacher, you might have noticed a few such maladjusted students in your classroom too. At times, you might have even thought of seriously the reasons for their maladjusted behavior. There are numerous reasons in and out of the school which create frustration, that lead to maladjustment. Let us analyse the symptoms one by one. If a student is

Withdrawn and timid: Frequent withdrawals from difficult situations may make individual timid and weak in facing real life situations.

Shy and self-conscious: Shyness is usually associated with the self-consciousness, concern with the impression one gives to other people, and concern with their negative evaluation. Shy individual has low self-esteem and tends to anticipate adversities, thus offer keeping silent and avoiding eye contact.

Fearful: Fear is a strong emotion involving perception of danger, unpleasant agitation and offers a desire to hide from meeting students of higher classes. Being alone - a room, and ferry of dogs, strange noises, the dark etc.

Anxious: Anxiety is a personality trait, It results from conflict, which is an inevitable part of life Anxiety describes the individuals level of emotionality. We see many students who are tense and worried (highly anxious) and those who are cool (hardly anxious). Since anxiety's an inferred emotional state of an individual, it cannot be directly observed. It can be measured through psychological tests/techniques.

Delusion: Delusion is an irrational and obstinate belief that the individual actively defends e.g. a child does not work hard for the final examination and thinks that it is the God only who can get him through the examination and he fails. This shows the delusion in him which takes him maladjusted.

Extremely aggressive: Aggressive students show enterprising or energetic behavior or tendency to be dominating in the class or the school. Sometimes an individual fails to show the tenacity of

dominating in a social situation and hurts herself instead e.g. a child beats her doll kicks the dog, or other objects.

Tension: When a person does not feel a kind of inner freedom, the strain which results from muscular contradiction and through which muscles, tendons, etc, are stretched under a threatening situation.

High Aspiration: A person has high hopes and aspirations for his future life, when the hopes are not achieved, he becomes unrealistic in life.

Feeling of inferiority: A feeling of inferiority, arising from the sense of imperfection and incommensation in a particular sphere of life, which motivates the individual to strive for a higher level of development and as such, are the cause of all improvement in life situations. Each time a new level of achievement is reached, inferiority feelings reappear, continuing to stimulate upward movement. If inferiority feelings become exaggerated by adverse conditions at the home, physical or mental discords on inferiority complex may develop which makes an individual maladjusted.

Emotionally disturbed: If the internal and external adjustment of a child are not achieved, he becomes emotional e.g. weeping, quarreling, nail biting, thumb sucking, etc. and becomes maladjusted.

Isolated: Maladjusted children suffer from a feeling of isolation. This feeling does not allow them to mix and interact with other members of class, school, family or society. In families where parents are extremely busy and neglect their children, the children develop feelings of isolation or dejection. This makes them maladjusted.

Sensitivity: Maladjusted children are very sensitive. They get hurt easily e.g. on being teased by teachers in the classroom or parents in the family, sarcastic remarks by peers, un welcome advice by other etc.

Temper tantrums: When there is a bad-tempered out-burst, this is known as a temper tantrum e.g. if a child does not get fair treatment, sympathy, cooperation and freedom of action within reasonable limits, he feels maladjusted.

14.7. DEFENSE MECHANISM

So far we have discussed the different adaptive mechanisms that are employed to solve the problem intellectually. But defense mechanism is quite contrary to the adaptive measures. Defense mechanism may not assist an individual to solve his problem in a constructive way, but may impeded the constructive activity and become disruptive. Defense mechanism is a technique adopted by individuals to cope with tension, stress and anxiety that are mainly aroused by conflicts when an individual meets with such a problem

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instead of developing an insight to solve it. He may find an easy way to escape from the problem and give a totally different explanation for it. However psychologists are of the view that a defense mechanism rescues the individual from maladjusted behavior. Nevertheless, excessive use of such techniques may again lead to maladjustment.

You may like to go through the various types of defenses mechanism along with suitable illustrations given in the following paragraphs.

Repression is a tension-reducing device and is temporary in state. Human tendency is to retain the pleasurable experiences in mind and push aside the undesirable one's to the sub-conscious mind or one may force oneself to forget such unpleasant experiences by repressing it. This is true even with growing children.

Reaction formation is a technique where in an individual reacts in an extreme way for the one he is already in conflict about. It is just switching over from one end of reaction to the other end. For example, a child who has been very notorious during his early school becomes cooperative later on and helps in the study of his classmates.

Rationalization is a mechanism where in the individual gives false reasons, other than the actual one in order to reduce his guilt feeling raised out of conflict. A student, after successfully completing his Senior Secondary School Education, eager to seek admission at the Indian Institute of Technology, could not succeed in the test or interview. He conveniently blames the authorities for their defective testing or interviewing technique.

Similarly students who scoreless marks may blame teachers for their poor achievement. This type of rationalization is known as sour grapes mechanism. It gets its name from the story of Aesop's fables, who secured his pride by saying that the unattainable grapes are sour and hence not worth attempting. However, this technique could be used even in the reverse way also by rationalizing, with a sweet reason, A simple illustration could be a senior teacher who has lost the chance of promotion may proclaim that she is happy with the present job, as it does not demand much commitment. But internally she might have longed to become the headmistress of the school and felt sorry for not getting the post.

Identification is a technique by which an individual fulfils his basic needs by associating himself emotionally with famous persons or popular institutions. By allying himself with popular persons he gets satisfaction, thereby overcomes his limitation and shortcomings. Through this technique he glorifies himself when his own goals are not fulfilled. For example, Varun feels proud to boast that he resides in the same street where Sachin Tendulkar does. A person who hails from Merkara may proudly proclaim that General Cariappa is his

grandfather's nephew. By identifying yourself with famous personalities, one reduces one's inferiority complex.

Sublimation is a type of mechanism, wherein the individual compensates for the socially discredited behavior in a socially accepted way. In other words, one may try to substitute for what is not achieved in life when a person's physical urges are not fulfilled, and he substitutes his energy by involving himself in a socially acceptable manner. For an example, a person who is biologically not satisfied may resolve his frustration by developing interest in sports, scientific research or social services.

Compensation is a mechanism in which an individual substitutes attainable goals for the goals which are difficult to attain in their life, for some reason. There is a difference between sublimation and compensation. For example, a student who is weak in studies, may put extra effort to develop a beautiful handwriting, similarly a student who cannot fare well in athletics may develop her ability in dancing. In such situations you find that students try to prove their ability in order to save their ego or self-esteem. Those students who suffer from inferiority complex may feel secure by adopting such mechanism. The compensation mechanism is a vulnerable aid to adjustment. It reduces tension and promotes good mental health. However, you should remember that compensation can be done in the negative direction also. A highly complex student may turn out to be a truant or delinquent student.

Ego-centrism is another type of defense mechanism employed by insecure students. You might have seen some ego-centric type of children in your classroom. Such children ask a lot of irrelevant questions, talk loudly, play mischievous pranks and try to be witty, mainly to draw the attention of others. You might have come across instances when an older student bursts crackers in the class when you were teaching the lesson. A case study of the particular boy may reveal that he is very poor in mathematics and continuously fails in the monthly text.

14.8. JUVENILE DELINQUENCY

14.8.1 The Juvenile Justice (care and Protection of children) Act 2000

The Juvenile Justice (care and Protection of children) Bill having been passed by both the Houses of Parliament received the assent of the president on 30th December 2000. It came on the statute book as the Juvenile Justice (care and Protection of children) 2000 (56 of 2000) The Juvenile justice (care and Protection of children) Act 2000 (56 of 2000) (30 December 2000)

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An act of consolidate and amend the law relating to Juveniles in conflict with law and children in need of care and protection by providing for proper care protection and treatment by catering to their development needs and adopting a child friendly approach in the adjudication and disposition of matters in the best interest of children and for their ultimate rehabilitation through various institutions established under their enactment.

Whereas the constitutions has in several provision including clause (3) of articles 15 clauses (e) and (f) article 39 articles 45 and 47 impose on the state a primary responsibility of ensuring that all the needs of children are met and that their basic human rights are fully protected and whereas the general assembly of the United Nations has adopted the convention on rights of the child on the 20th November 1989.

And whereas the convention on the rights of the child has prescribed set of standards to be adhered to by all state parties in securing the best interest of the child.

And whereas the convention on the rights of the child emphasizes social reintegration of child victims to the extent possible without resorting to judicial proceedings

And whereas the Government of India has rectified the convention on the 11th December 1992

And whereas it is expedient to reenact existing law relating to juveniles bearing in mind the standards prescribed in the convention on the rights of the child the united nations standard minimum rule for the Administration of Juvenile Justice 1985 (the Beijing Rules) the united nations rules for the protection of Juveniles deprived of their liberty (1990) and all other relevant international instrument

Be it enacted by parliament in the fifty firstly of the republic of India as follows:

Preliminary

1. Short title extent and commencement

- This act may be called the juvenile justice (care and protection of children) Act 2000
- It extends to the whole of India except the state of Jammu and Kashmir
- It shall come into force on such date as the central Government may by notification in the official Gazette appoint

2. Definition in this ant unless the context otherwise requires

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Advisory board means a central or a state advisory board or a district and city level advisory board as the case may be constituted under section 62

1. Came into force on 01.04.2001 vide S.O 177 9E) dated 28th February 2001 published in the Gazette of India Extra pt.11 sec 3(ii) dated 28th February 2001

2. Child in need of care and protection means a child

- Who is found without any home or settled place or abode and without any ostensible means of subsistence
2. Who resides with a person (whether a guardian of the child or not) and such person
- Has threatened to kill or injure the child and there is a reasonable likelihood of the threat being carried out.
 - Has killed abused or neglected some other child children and there is a reasonable likelihood of the child question being killed abused or neglected by that person
 - Who is mentally or physically challenged or ill children or children suffering from terminal diseases or incurable diseases having no one to support or look after
 - Who has a parent or guardian is or incapacitated to exercise control over the child.
 - Who is being me likely to be grossly abused fortunated or exploited for the purpose of sexual abuse or illegal acts
 - Who found vulnerable and is likely to be inducted into drug abuse or trafficking
 - Who is being or is likely to be abused for unconscionable gains
 - Who is victim of any armed conflict civil commotion or natural calamity
 - Committee means a child welfare committee constitute under section 29
 - Juvenile or child means a person who has not complete eighteenth year of age
 - Juvenile in conflict with law means a juvenile who is illegal to have committed an offence
 - Children home means institutions established. By a State Government or by voluntary organization and certified by that Government under section 34

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- Committee means child welfare committee constituted under section 29
- Offence means an offence punishable under any law for the time being in force.

14.8.2 Juvenile Delinquents created and not born school for reforms

It has been proved that delinquent behavior is a learned reaction delinquents do not inherit from their parents or ancestors but are made so by the uncongenial environment and social conditions. (Udai Shankar 1958) observes Delinquency is not inherited; it is the product of social and economic conditions and is essentially a coefficient of the friction between the individual and the community. The most important causes of antisocial behaviours are environmental and sociological in character.

It is therefore the unconvivial family school neighborhood and society social environment which should be blamed for the delinquent behavior of the child since he picks up delinquent traits in such situations. We shall now consider how environmental influences delinquent character formation among minors.

A defective and deficient family environment is a fertile for the germination of delinquency. As matter of fact family life and delinquency are closely related. The findings of various studies indicate that the family environment in which the following relationships or conditional prevail is most susceptible to delinquency.

- A broken home where the family is incomplete due to death desertion separation or divorce
- Improper parental control
- Unusual jealousy and rivalry among siblings or children within the family and reactions like my parents gave him more love than they gave me.
- The delinquent and criminal behavior of the parents or other family members
- Domestic conflicts
- Economic difficulties and poverty of the family
- Dull monotonous and uninteresting home environment
- Denial of reasonable freedom and independence to the youngsters
- Maltreatment and injustice to the youngsters
- Lack of proper physical and emotional security

In these situation and environment the child does not get the opportunity for the satisfaction of his basic needs. He falls victim to

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emotional problems like inferiority in security jealous or suppression which leads to maladjustment and consequently turns him into a hostile rebellious and antisocial personality. Thus uncongenial home conditions are entirely to blame for juvenile delinquency and in all circumstances the root cause of delinquent behavior must be looked for in the family background and home environment.

Preventive measures schools for reforms

The remedy lies in both prevention as well as treatment. While implementing preventive measure an effort should be made to organize and improve the social or environmental; conditions in such a way that the children do not feel maladjusted get involved in the company of antisocial elements or turn into rebels against society. Curative measure involves that if a child commits an offence he should not be put behind bars or treated as a criminal but should be tackled psychologically and sympathetically through the special rehabilitative educational and correction programmes.

The following suggestions work well in this direction:

1. **Parental educational:** This requires parental education which may be provided through guidance services clinics and voluntary social organizations
2. **The child company:** Parents' family members and authorities should keep a close watch on the activities and social environment of the children and take care to see that they do not fall into bad company.
3. **Substitute environment:** Special schools must be arranged so that they may be provided with a health environment for their emotional and social adjustment
4. **Rectifying school education and environment:** The school environment should be healthy and congenial. The curriculum methods of teaching discipline classroom behavior of the teacher and the social atmosphere of the school should be rectified so that children do not get involved in problems of emotional and social maladjustment. The head master as well as the teachers should be familiar with the psychology of individual difference and delinquency

Curative measures: the problem of juvenile delinquency should not be regarded as a social problem. It is an educational and welfare problem. The children and young person's act of Britain can be adapted with some modifications in India. Its essential features are

1. Establishment of special juvenile courts with trained magistrates to deal with juvenile delinquents

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2. Appointment of trained social workers or probation officers for taking charge of delinquent cases.
3. Taking the help of clinical psychological and psychiatrist for understanding the delinquent behavior of children.

14.9. MENTAL HEALTH

14.9.1. Concept and Meaning of Mental Health

In modern days the emphasis on the positive view of mental health makes an emphasis on competence of effectiveness. This relates more towards attitude than towards skill. The Mental health is treated in the discussion of leadership, problem solving and whole range of academic achievement.

Mental health has two aspects. It is both individual and social. The individual aspect indicates the individual is internally adjusted. He is self-confident, adequate and free from internal conflicts. But he achieves this internal adjustment in a social set up. The society has certain values systems and traditions. It is within this framed work, the internal adjustment has to be set up. Only then the individual becomes a person who is acceptable as a member of his society. Society forces are inconstant flux. They were constantly changing. So one should develop ability to; make personal and social adjustment according to the demands of the society.

14.9.2. Characteristics of Mentally Healthy Person

The characteristics of well-adjusted person are as follows:

1. A well-adjusted person has some insight into and an understanding of his motives, desires his weakness and story points. He can evaluate his behavior objectively and can accept his short comings and weaknesses.
2. He has a sense of personal work, feel worthwhile and important, self-respect and feel secured and sense of personal security.
3. He has faith in this ability to succeed, solves his problems by his own initiative and effort. He feels confident of himself in everyday life.
4. He enjoys emotional stability, free from persistent emotions, not rigid in this behavior.
5. He has a variety of interests and generally lives in a well balanced life of work. He has developed rest for living.
6. He has developed a capacity to tolerate frustrations and disappointments in life. He does not go to pieces as a result of his fears, anger and worries.

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7. He has a rational attitude towards the problems concerning everyday life. He practices good habits which include nutritious diet, sleep, rest, relaxation, protection and personal cleanliness.
8. His behavior has been socialized. He lives in a world of realizing than fantasy. He does not evade responsibility.
9. He gives meaning and purpose to his daily activities. He develops definite attitude towards values of life. He is able to; think for himself and make his own decisions.

14.9.3. Mental Health in School

Mental health well-being is as important as physical well-being for efficient functioning in school. The individual has to adjust himself in the school. There are many situations in the school which require adjustment. When child is admitted, he has to meet new experiences, acquire new skills and behave according to new school standards. Educational backwardness to form appropriate inter relationship are always associated with some form of maladjustment.

Learning is dependent on sound mental health. Health students have a desire to acquire more and more information and skills that will give them better control over the environment. Mental health is as essential to the learning process as Intelligence. Mental health is an inseparable part of education.

14.9.4. Influence of School in Maladjustment

In school, there is a great realization of the importance of teacher-pupil relationship in adjustment. Adjustment is a life-long process starting from birth to the death. There are many conditions in school which may lead to maladjustment of children.

- Inadequate curriculum may lead to maladjustment; it must be dynamic, flexible and reasonable.
- Teacher, who develops autocratic behavior, causes maladjustment.
- Classroom climate makes a vital contribution in promoting adjustment.
- Co-curricular activities in the form of play, library work, debates and discussions help the development of personality and devoid of maladjustment.

14.9.5. Mental Health of Teacher

The basic personality pattern of the teacher, his training and attitudes are important factors in building healthy classroom climate. It

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promotes the mental health of students. The teacher's attitude towards his personal qualities will help promote the classroom climate.

In school, teacher-pupil relationship in adjustment is important. He may exercise this authority in an autocratic way. So many researchers have proved that authoritarian atmosphere created a great deal of emotional tension and aggression among students. In Laissez-faire group, there was absence of constructive group activity, cooperative effort and realization of the goal.

But in democratic group, there was big moral, very good relationship between efficient democratic and permissive atmosphere high moral constructive behavior and very satisfactory development. In and outside the classroom, the children need secure, accepted appreciated and recognized.

14.9.6. Characteristics of Mentally Healthy Teacher

The teacher is the centre of authority in the classroom. He should possess certain characteristics as follows:

- The teacher should be alert, enthusiastic and show Interest in the activities of pupils and classroom.
- He must have the ability to maintain natural and pleasant relationship
- He must exhibit patience, sympathy, sincerity, fairness in dealing in the pupils.
- Teacher should also include interest in games, sports, dramatics and other socio-cultural activities.
- He must have a sense of humor with the ability to enjoy jokes.
- He must possess physical fitness and good health status.
- He is flexible in beliefs, opinion and attitudes.
- He has a good disposition and is consistent in his behavior
- His personal appearance and manners are pleasing.
- He is aware of his own mistakes.

14.9.7 Adjustment problems of Teacher

There are some difficulties in the way of the teachers to perform their expected role and provide the right type of leadership with children is not an easy task. A well adjusted teacher is capable of showing mature attitudes towards pupils' immature behavior. Another problem of the teacher is his low socio-economic status. Further there is a heavy load of service and the public criticism about teaching profession.

The aggressive teacher offers resorts to physical and mental torture and criticism. He develops sadistic tendencies. There are some

teachers who lack security and confidence. They may exercise their authority by adopting the policy of divide and rule.

14.9.8 Role of Teacher in Minimizing Maladjustment of Students

Some categories of maladjustment children require systematic and prolonged treatment by the experts. Majority of children only suffer from maladjustment of a mild type and can be treated by human sympathy and understanding.

As a teacher you must look into the early signs of maladjustment. There may be children that are anxious, aggressive, lonely, lethargic or truant. Early detections of such cases will help for the prevention. A teacher who is friendly, helpful, cheerful, patient and fair is liked by most of the children. Those students may be diverted to creative activities such as Music, painting, Poetry and Drama and so on.

14.9.9 How to Improve Teacher's Mental Health?

As a teacher you are responsible for mental health status of students. Your responsibilities are classified into three kinds:

- Responsibility for Academic Achievement
- Responsibility for Personal Growth
- Responsibility for National and World citizenship

The different roles of counselors, facilitators, instructional managers, evaluations reluctantly disciplinarians, academic instructors and curriculum designers should be recognized. The development of professional competence is to play these roles more effectively. Different roles require different strategies.

The first task is to improve teacher-pupil relations. Frequent meetings can be held to discuss the programme concerning all teachers. Orientation an in-service programmers are giving awareness about modern teaching techniques, which improve the teacher- pupil relationship. Teacher club should be established to bring the teacher close to each other. Educational tour and excursion should be arranged to develop necessary skills to work with other teacher.

In discussion, teacher should not impose his decision. Curriculum planning should be done in advance in the beginning of every course/year. In service programmes should be periodically held them to update their knowledge. A close relationship has to be established between school and community under the guidance of teacher when the students go to local villages for social service.

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14.10. EDUCATIONAL IMPLICATIONS

After studying the different techniques of adjustment, both adaptive and defensive, you might feel that at least once or twice, you too have employed some of these techniques to overcome conflicting situations in your life. However, as a teacher, what is your role towards your students when they face such problems or situations? The implications are analyzed and discussed as follows. Your role is to:

- **Identify problems and maladjusted children:** Children with personal inadequacies and who are maladjusted in the school environment should be identify/recognized. Problem children require special attentions in the school in general and in the classroom in particular. Students who suffer from physical disabilities should be asked to sit in the front row so that they are under direct observation of the teacher. Moreover they should be referred to physicians for appropriate medical checkup if so required.
- **Reinforce the isolated:** Special care should be given to students who isolate themselves from others. Regulated boosting of their ego may help them overcome the feeling of isolation. School activities should be designed in such a way that every student receives due attention from the teacher and acclaim for creditable achievements.
- **Reform the inferior:** You should identify the students who are poor in specific subjects like math's and science and diagnose their specific problems. At the same time you should identify the special abilities of such students provide them maximum opportunity to excel in their special abilities. By compensating for their shortcomings you can help them cope with their inferiority complexes.
- **Transform aggression:** The mission of converting the aggressive and hostile feeling of maladjusted students lies in your hands. The socially useful outlets for energy as that of athletic contest painting, dramatics and stage plays will assist the aggressive students to overcome from the repression and anxiety.
- **Encourage healthy development of self:** If you, as a teacher, possess values like honesty, truthfulness, sincerity and perseverance, naturally the students will develop same sentiments towards you and admire you. By emulating the personality of such teachers, they develop master-sentiment in themselves. Apart from this, you should encourage the students to read autobiographies of great personalities like Mahatma

Gandhi, Vivekananda, Maulana Abdul Kalam Azad, Ambedkar etc.

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- **Train in will-power:** The family as an institution is undergoing changes in the value system. The generation gap between parents and children creates conflicts in the family. Adolescents often experience conflicts/dilemmas. Whether in observing the traditional familial values or in adhering to new emerging values. In such a situation you can play your role effectively. You can adopt certain new approaches to develop value judgment amongst students. There are certain interesting approaches like value analysis, value discussion and jurisprudential inquiry through which student can reach the solution. These approaches develop will-power, reasoning ability and rational judgment amongst students.
- **Refurbish the skills of counseling:** You are expected to be motivated to acquire extra knowledge about counseling and refurbish it. The National institute of Mental Health and Neuro Sciences (NIMHANS) in Bangalore, has been actively engaged in orienting and organizing counseling programmes for the benefit of school teachers. Participating in useful programmes of that type will help- the teachers to counsel the problem children in the classroom. The intervention programmes conducted in NIMHANS are open for all teachers. The orientation programmes focus on the nature and causes of various problems, disorder of emotions such as extreme shyness, over-anxiousness or depression, disorder of conduct such as lying, stealing and truancy. As an effective teacher, you should enrich your knowledge by attending these programmes.
- **Refer to counselors:** Teachers who do not have scope to enrich themselves with the knowledge of counseling by attending various programmes may refer the problem children to professional counselors. The trained counselors may diagnose the case and provide appropriate guidance and counseling to students.

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Check your Progress

- Notes:** a) Write your answer in the space given below:
b) Compare your answer with the one given at the end of the unit.

4. Fill in the blanks

- a) National Society for Mental Hygiene publishes a journal called.....
- b) The objective of mental hygiene is to provide an opportunity to develop histo the maximum.
- c) Mental health hygiene preserves health.

5. Write the statements whether True or False

- i) Mentally healthy person has self-respect.
- ii) Mentally healthy person enjoys emotional stability.
- iii) Mentally healthy person has no rational attitude towards problems.
- iv) Mentally healthy person's behavior has not been socialized.
- v) Mentally healthy person gives meaning and purpose to his daily activities.

6. Fill in the blanks

- a. Learning depends on sound.....
- b. The activities in school which help the development of personality and devoid adjustment are calledactivities.
- c. In classroom atmosphere creates a great deal of emotional tension and aggression.

7. Indicate the following statements whether they are 'True' or '.False'

- i. The teacher should be alert and enthusiastic.
- ii. The teacher must have a sense of humor and enjoying jokes.
- iii. The teacher is rigid in beliefs, opinion and attitudes.
- iv. The teacher is un aware of his own mistaken.
- v. The teacher is able to understand students' behavior.
- vi. The aggressive teacher often resorts to physical and mental torture

14.11. LET US SUM UP

Mental health is a positive state signifying complete physical, mental and social wellbeing. The role of parents, teachers and schools contribute to the mental health of children. This unit discussed the following issues:

- Mental hygiene is a science that deals with the process of attaining mental health and prevents mental illness.

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- The characteristics of a mentally healthy person are discussed.
- The mental health of a teacher promotes mental health of their students.
- Defence mechanism is a technique which maintains mental health.
- Frustration, ii) Conflicted, iii) Adjustments mechanisms are discussed.

14.12 UNIT END EXERCISES

- “Mental Health of Teachers promotes Students’ Mental Health” – Discuss with convincing arguments.
- Find out Maladjusted students and apply adjustment technique. Write a report on it.
- As a teacher, write your role in increasing the teacher-students relationship. How the relationship is an important factor in promoting learning of students?

14.13 ANSWERS TO CHECK YOUR PROGRESS

1. In this case the girl has:

- A desire to participate in the badminton match.
- A fear that she may lose in the game.
- This is an approach - avoidance conflict which may lead her to
- Avoid the match though she is motivated to participate.

2.

- Mature in thinking
- Emotionally balanced
- Capable of independent decision making
- Fulfilled needs

3.

Causes of maladjusted behavior of Sudalaimuthu are:

Lack of role –model in father

- Socio-economic status
- Unequal treatment with other siblings
- Mother vents her anger on Sudalaimuthu for his stubborn behavior
- This treatment in family results in aggressive behavior in the school and more punishment by the teachers
- In this case the girl has:

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- A desire to participate in the badminton match
- 4. a) Mental Hygiene, b) Potentialities and c) Mental
- 5. i) True, ii) True, iii) False, iv) False and v) True
- 6. a. Mental health, b. Curricular and c. Authoritarian
- 7. i. True, ii. True, iii. False, iv. False, v. True, vi. True

14.14 SUGGESTED READINGS

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MODEL QUESTION PAPER
B.Ed., I YEAR
70112 - EDUCATIONAL PSYCHOLOGY

Marks :75

Model Question Paper

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PART – I

I. Write all the questions.

10 x 2=20 marks

1. Define Psychology
2. Differentiate Heredity and Environment
3. What do you mean Attention?
4. What is Transfer of Learning?
5. Who is called a physically Disabled Child?
6. Write the advantages of giving rewards in your class.
7. Define the term “Intelligence”
8. List the four dimensions of creativity.
9. What is personality?
10. Mention any four characteristics of a well adjusted person.

PART – II

II . Write any FIVE Questions out of Eight. 5x5 = 25 marks

11. What are the relationship between Psychology and Education?
12. Differentiate between Development and Growth
13. What is Metacognition?How will you implement in your class?
14. Write the significance of individual differences to a classroom teacher.
15. Briefly discuss about the Emotional Intelligence
16. How will you measure the creativity among your students? Explain.
17. Describe the Integrated personality
18. Write a report to find out Maladjusted students and suitable adjustment technique?

PART – III

III. Write any Two Questions in the following Internal Choice.

2x15=30 marks

19. (a) “Knowledge of Educational psychology is essential for a Teacher”- Justify
(or)
(b) How will you make you classroom effective through applying motivational strategies? Explain.
20. (a) Describe in detail about the Theories of Intelligence
(or)
(b) “Mental Health of Teachers Promotes the Students’ mental Health” – Discuss in detail .