
EDUCATIONAL PSYCHOLOGY

STRUCTURE

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1.1 INTRODUCTION

Man is curious by nature. He always wondered about the reasons and bases of his feelings, thoughts, and actions. The quest to know more about the behaviour of self and other living beings led to the rise of a new discipline regarded as Psychology. Earlier, psychology had no separate existence. It was studied under the heading of 'Mental Philosophy' as one of the branches of Philosophy. Psychology passed through different stages over the time to attain its present status.

Psychology as the Science of Soul: Psychology was first defined as 'Study of Soul'. Etymologically, the word Psychology is derived from two Greek words 'Psyche' and 'Logos'. 'Psyche' means soul and 'logos' means science, rational discourse, or study. However, this interpretation faced criticism from different corners and was rejected soon.

As soul is a metaphysical concept and cannot be studied by scientific methods.

Science of Mind: At second stage the word Psyche got new meaning and interpretation in terms of a new substitute i.e. Mind. Thus, psychologists of those days defined psychology as the 'Study of Mind'. The word mind also faced same criticism regarding its existence and functioning. So, due to the same controversy this meaning was also rejected.

Science of Consciousness: Rejection of the meaning of the word Psyche as Soul or Mind inspired the psychologists to search a new meaning of Psychology. Psychologists like William James (1890), Wilhelm Wundt (1892) and Edward B. Titchener (1894) defined psychology as the 'Study of Consciousness'. This definition was also rejected by psychologists as it did not include the subconscious and unconscious states of mind. Psychologists like Sigmund Freud, argued that only a small portion of the mind (around 1/10 part) is conscious. The major portion of the mind is subconscious and unconscious.

Science of Behaviour: Psychologists like McDougall (1905) and James Watson (1912) defined psychology as "Science of Behaviour". This definition is mostly acceptable to the modern psychologists. Behaviour is the specific response of an organism which can be experimentally analysed.

1.2 OBJECTIVES

After reading this lesson, you shall be able to:

- Describe the concept and Nature of Educational Psychology.
- Discuss the scope of Educational Psychology.
- Explain the relationship between Education and Psychology.

1.3 Concept, Nature, Scope and Relationship of Education & Psychology.

Meaning of Behaviour

Behaviour can be defined as all actions and reactions of an organism which can be seen, felt and observed in an objective way. Woodworth defined behaviour as a collective nature of various types of activities. He said, "Any manifestation of life can be called activities." In fact, the complete list of Verbs in an English Grammar can be regarded the

behaviour of the individual. Psychologically, behaviour can be divided into three domains or categories i.e Cognitive, Affective and Conative.

- a) **Cognitive behaviour:** It is related with thinking or knowing. It includes the activities like thinking, reasoning, understanding, memorising, imagination, decision-making, judgement, questioning etc.
- b) **Affective behaviour:** It is related with feelings. It includes feelings and emotions like joy, sorrow, anger, love, hatred, jealousy, etc.
- c) **Conative behaviour:** It is related with doing. It includes motor activities like playing, walking, running, jumping, dancing, typing, driving, cooking etc. It is also called as Psychomotor domain of behaviour.

MEANING OF EDUCATIONAL PSYCHOLOGY

Educational psychology aims at improving the processes and products of education. The term educational psychology is a combination of two words-Education and Psychology. Both education and psychology deal with behaviour. Education is the modification of behaviour whereas psychology is the study of behaviour. Thus, to modify behaviour it is necessary to study the behaviour first. In this regard, education and psychology are logically related. The growing knowledge of psychology is a useful guide for solving educational problems. It offers significant guidance and direction to everyone interested in improving the quality of teaching and learning.

Educational psychology, thus, is the study of human behaviour in relation to educational situations. It is the psychology of teaching and learning. This applied branch of psychology uses the knowledge of general psychology for the betterment in the process of teaching and learning. So, the psychology applied in the field of education is called as educational psychology.

DEFINITIONS

1. **Skinner:** "Educational Psychology is that branch of psychology which deals with teaching and learning."
2. **Peel:** "Educational Psychology is the science of education."

3. **Crow and Crow:** "Educational Psychology describes and explains the learning experiences of an individual from birth to old age."
4. **Chauhan:** "Educational Psychology is the systematic study of the development of an individual within educational settings."
5. **Trow:** "Educational Psychology is the study of the psychological aspects of educational situation."
6. **Kolesnik:** "Educational psychology is the application of findings and theories of psychology in the field of education."
7. **Stephen:** "Educational psychology is the systematic study of educational growth and development."
8. **Chatterjee:** "Educational psychology deals with the behaviour and experiences which are related to education of the child."

Thus, educational psychology is an applied positive science of behaviour that helps to study the behaviour of an individual in teaching-learning situations. It is regarded as a developing positive science because it deals with behaviour which is quite dynamic, inconsistent, and unpredictable. It is not a perfect positive science like Physics, Chemistry, Botany etc.

NATURE OF EDUCATIONAL PSYCHOLOGY

Researches and studies in the field of educational psychology provide sufficient evidences for the acceptance of educational psychology as a science. It has been accepted by all the scholars and psychologists that Educational Psychology is a Science of Education. The following arguments are put forth for the justification of the status of psychology as science like other positive sciences:

1. **Educational psychology is an applied science:** Educational psychology is an applied science. It is the application of psychological principles, laws, theories and methods in the field of education. It applies the knowledge of psychology to solve the problems of education.
2. **Educational psychology is a behavioural science:** Educational psychology is

a behavioural science as it deals with behaviour. It employs scientific methods and adopts a scientific approach for studying the behaviour in teaching-learning situations.

3. **Educational psychology possesses universally accepted body of facts:** Laws of educational psychology are universal. It possesses a well-organized, systematic and universally accepted body of facts supported by the relevant psychological laws and principles.
4. **Educational psychology employs scientific methods:** Educational psychology employs scientific methods of studying behaviour such as observation and experimentation. These methods are used to verify and generalize then facts of behaviour.
5. **Educational psychology emphasizes constant search for truth:** The findings of educational psychology can be challenged, modified or altered in terms of the latest explanations and studies. So, the findings of educational psychology are always open to verification.
6. **Educational psychology is empirical and factual:** Educational psychology is empirical and factual in nature. Its conclusions are objective, reliable and valid. The principles of educational psychology have achieved universal validity through continuous verification and re-verification under varying conditions.
7. **Educational psychology establishes cause and effect relationship:** Educational psychology emphasises that behaviour is a stimulus and response relationship. It analyses behaviour of the learner in terms of this relationship and establishes cause and effect relationship to explain the various aspects of behaviour.
8. **Educational psychology makes predictions:** Educational psychology makes predictions about behaviour. It makes use of various psychological tests such intelligence tests, aptitude tests, interest inventories, personality inventories etc. to predict the future performance and achievement of the learners..
9. **Educational psychology is a positive science:** Educational psychology is a positive science of behaviour. It is not a normative science. Normative sciences like Logic or Ethics deal with facts as they ought to be. A positive science deals

with facts as they are or as they operate. Thus, educational psychology studies the behaviour as it is rather than as it ought to be.

- 10. Educational psychology is a developing positive science:** Educational psychology cannot be regarded as a perfect positive science like physical and chemical sciences. It is considered as a developing positive science because it deals with behaviour which is quite complex, dynamic, inconsistent, and unpredictable in nature.

In short, it can be concluded that educational psychology is a positive and applied science of behaviour. It follows a scientific approach in studying behaviour. Educational psychology like any other science, makes use of scientific methods in collecting and studying data about learner, learning process and evaluation.

SCOPE OF EDUCATIONAL PSYCHOLOGY

Educational psychology is the practical application of the knowledge of behaviour in the field of education. It deals with the problems of teaching and learning keeping in view the various aspects of behaviour. The scope of educational psychology includes the study of behaviour in relation to educational environment. Following points highlight the scope of educational psychology:

- 1. Understanding the learner:** The subject matter of educational psychology revolves around the learner. It studies the effect of nature and nurture on the growth and development of a child. It studies innate powers, abilities, capacities, interests, aptitude, attitude, and other traits of personality of the learner to ensure complete development.
- 2. Understanding mental processes:** The scope of educational psychology includes the study of all mental processes like sensation, perception, concept formation, thinking, reasoning, imagination, understanding etc. to make the teaching-learning process effective. It studies the role of mental processes in the development of the individual.
- 3. Methods of studying behaviour:** The scope of educational psychology covers the knowledge of various methods of studying behavior. It enables the teacher to make effective use of introspection, observation, experimentation, rating scales,

interview and other techniques of studying behavior of the child.

4. **Concept and role of motivation:** Educational psychology studies meaning, characteristics and functions of motivation. It provides the knowledge of drives, incentives, and motives in learning. It also provides the knowledge of different techniques and theories of motivation in motivating the children.
5. **Nature and process of learning:** Educational psychology studies the nature and process of learning. It provides the knowledge of laws of learning, theories of learning, educational implications of theories of learning, factors conditioning learning, approaches of learning to make teaching learning effective in nature.
6. **Heredity and environment:** Man is the product of heredity and environment. Educational psychology studies the role and influence of hereditary and environmental factors in the growth and development of the learner. It also provides the knowledge of various studies and researches conducted in the field of heredity and environment to understand the learner.
7. **Individual differences:** Psychology of individual differences occupies an important place in the scope of educational psychology. Knowledge of individual differences helps the teacher to understand that no two individuals are exactly alike in the world. Every individual learner is unique in terms of his/her abilities, capacities, qualities, interests, tendencies, attitude, aptitude etc.
8. **Growth and development:** Educational psychology studies the stages of growth and development viz- infancy, childhood, adolescence, and adulthood. It provides the knowledge of physical, mental, social and emotional characteristics of all these stages to understand the learner.
9. **Mental health and hygiene:** Educational psychology studies the ways and means of maintaining mental health to help people function at their full mental potential. It includes all measures taken to prevent mental illness to ensure proper adjustment of the individual.
10. **Intelligence and its testing:** The scope of educational psychology includes the study of meaning, nature, and scope of intelligence. It provides the knowledge of theories of intelligence and their implications in the field of education. It covers

fundamental concepts in intelligence testing in terms of IQ, MA and CA to make use of intelligence tests.

- 11. Memory and forgetting:** Memory and forgetting are the important areas of study of educational psychology. It studies the nature, types and signs of memory. It also provides the knowledge of the various causes of forgetting and methods of improving memory for effective learning.
- 12. Psychological testing:** The scope of educational psychology includes the study of various techniques of psychological testing. Knowledge of educational psychology helps the teachers and educators to make use of various psychological testing techniques to test intelligence, attitude, aptitude, creativity, achievement, personality, motivation, stress etc. of the children in educational settings.
- 13. Exceptional children:** Educational psychology studies the meaning and characteristics of exceptional children. It provides the knowledge of various categories of exceptional children. It helps the teacher to understand the importance and need to educate exceptional children- gifted, physically challenged, visually challenged, hearing impaired, slow learners, creative children, mentally retarded or learning disabled children.
- 14. Development of personality:** Educational psychology studies the nature and development of personality of an individual. It studies the various types of personality. It provides the knowledge of various factors affecting personality. It suggests different methods and techniques of studying personality of an individual.
- 15. Classroom management:** The scope of educational psychology includes the study of strategies and techniques used to deal with disruptive behaviour of the students for effective classroom management. Knowledge of psychology helps the teacher to maintain order and sustain attention of the students in classroom.
- 16. Intelligence and its testing:** Educational psychology studies the meaning, types, characteristics and theories of intelligence. It provides the knowledge of chronological and mental age to teachers, psychologists, researchers, guidance workers etc. for the calculation of IQ. Knowledge of educational psychology also includes the uses of intelligence tests for different purposes.

17. **Creativity and innovation:** Educational psychology provides the knowledge of creativity and innovation in the field of education. It helps the teacher to understand the characteristics of a creative person to nurture creativity. It also studies the role of school in promoting creativity.
18. **Guidance and counselling:** The scope of educational psychology includes the study of guidance and counselling. It provides the knowledge of nature and various types of guidance and counselling. It equips the teacher with necessary skills and techniques for providing effective guidance and counselling to the students.
19. **Understanding the adjustment process:** The scope of educational psychology covers the study of the process and dimensions of adjustment for healthy living. It helps the teacher to understand the characteristics of a well-adjusted person and symptoms of maladjustment to ensure the proper adjustment of the students.
20. **Measurement and evaluation:** Educational psychology provides the knowledge of various objective methods and techniques of measurement and evaluation. It trains the teacher to use various psychological tests and techniques for understanding interests, aptitudes, academic achievement, intelligence, creativity, mental health and other aspects of personality of the students.

RELATIONSHIP BETWEEN EDUCATION AND PSYCHOLOGY

Education and Psychology are closely related with each other. In fact, they are complementary to each other. Education suggests, "What to learn" and psychology suggests, "How to learn". We have already studied that education is the modification of behaviour and psychology is the science of behaviour. Thus, the knowledge of behaviour is essential to modify behaviour in a desirable manner. In this way, psychology influences all the aspects of education. The following points highlight the relationship between education and psychology:

1. **Psychology and aims of education:** There are so many ideals and aims of education but psychology helps to fix the aims of education which can be practically achieved. It helps in achieving the aims of education keeping in view the individual differences.
2. **Psychology and curriculum:** Psychology widens the scope of curriculum by advocating the inclusion of curricular and co-curricular activities for the balanced

development of the child. It emphasises the role of games and sports, field trips, exhibitions, dramas, debates, film shows, drawing and painting etc. in the all-round development of the child along with the course of studies.

3. **Psychology and methods of teaching:** Psychology lays stress on innovative and interesting methods of teaching for making teaching and learning effective in nature. It advocates the use of multiple instructional procedure to facilitate the learning of different categories of the students. The use of various methods of teaching like Play-way Method, Project Method, Problem-solving Method, Montessori Method, Inquiry Method, Heuristic Method, Activity Method etc. is the contribution of psychology in the field of education.
4. **Psychology and teacher:** The knowledge of psychology helps the teacher to understand the learner, learning process and learning situations. It encourages the teacher to have sympathetic, affectionate and caring attitude towards the students. Moreover, it helps the teacher to identify and accept individual differences in the class to promote inclusiveness.
5. **Psychology and text-books:** Psychology helps in the planning and designing of text-books keeping in view the psychological principles. It provides direction to write text-books according to age, grade, interests and needs of the child. For example, text-books for earlier stages are loaded with colours, pictures, diagrams, activities and illustrations. Emphasis is laid on making the books attractive, colourful, useful and interesting to the child.
6. **Psychology and time-table:** Knowledge of psychological principles helps in the adequate framing of school time-table. Different subjects are placed in the time-table keeping in view their relative difficulty level and fatigue index. For example, not too difficult subjects are taught in consecutive periods. Moreover, adequate time is allotted for the organisation of co-curricular activities during school hours.
7. **Psychology and audio-visual aids:** Psychology advocates the use of audio-visual aids in the teaching-learning process. It believes that the maximum engagement of senses leads to better learning. It helps in retaining the attention of the child in teaching-learning process. Thus, the use of audio-visual aids makes learning easy,

interesting and permanent.

8. **Psychology and discipline:** The knowledge of psychology helps the teacher in solving the problems of indiscipline. The modern concept of discipline is purely based on psychological principles. The knowledge of psychological concepts like growth and development, guidance and counselling, mental health and hygiene, adjustment and maladjustment etc. is very important in making the child disciplined.
9. **Psychology and evaluation:** Psychology advocates the use of objective techniques and methods to evaluate the achievement of the learner. The introduction of continuous and comprehensive evaluation at the school level is the contribution of psychology in the field of education. Moreover, the concepts like semester system, grading system, choice based credit system etc. also have psychological bases.
10. **Psychology and administration:** Psychology has replaced the autocratic styles of administration by democratic approach. It encourages democratic and cooperative approach in dealing with students and staff. It helps in solving the problems of administration by mutual discussion and collaboration.
11. **Psychology and research:** Psychology conducts research to solve the problems of education. It helps in developing tools and techniques to improve the teaching learning process. It helps to control, direct, predict and shape the behaviour of the learners on the basis of research findings in the field of education.
12. **Psychology and innovation:** Psychology introduces innovations in the field of education for improving the process of teaching and learning. Project-based Learning, Competency-based Learning, Scenario-based Learning, ICT-based Learning, Flipped Classroom, Blended Learning, Collaborative Learning, Experiential Learning, Discovery Learning, Role Playing, Peer tutoring, MOOCs, Digital Text-books etc. are some of the latest innovations in education based on psychological principles.

1.4 LET US SUM UP

From the above discussion it can be concluded that Educational Psychology is the application of psychological knowledge, theories and principles to the field of Education. The scope of educational psychology is very wide and includes many more areas of

discussions. In short, the scope of educational psychology is ever growing due to latest researches and findings in the field.

Psychology supplies necessary knowledge and skills to achieve the aims of education. In this way, it is regarded as the science of education. It helps the teacher in many ways to shape and mould the behaviour of the students in desired direction.

1.5 LESSON END EXERCISES

1. Give the concept of psychology.
2. What do you mean by Education.
3. What is the nature of Educational Psychology.
4. Explain in detail the scope of Educational Psychology.
5. Discuss the relationship between Education and Psychology.

1.6 SUGGESTED FURTHER READINGS

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1.7 ANSWERS TO CHECK YOUR PROGRESS

- (i) Discuss the nature and scope of Educational Psychology.
- (ii) Write down any two definitions of Educational Psychology.

**MAIN FEATURES AND CONTRIBUTION OF GESTALT SCHOOL OF
PSYCHOLOGY TOWARDS EDUCATION**

STRUCTURE

- 2.1 Introduction
- 2.2 Objectives
- 2.3 Features and Contributions of Gestalt School of Psychology towards Education.
- 2.4 Features and Contributions of Psychoanalysis School of Psychology towards Education.
- 2.5 Features and Contributions of Constructivism School of Psychology towards Education.
- 2.6 Let us Sum Up
- 2.7 Lesson End Exercises
- 2.8 Suggested Further Readings
- 2.9 Answers to Check Your Progress

1.1 INTRODUCTION

The term Gestalt is German in origin. Gestalt Psychology originated in Germany in the early 20th century, mainly as a Psychology of Perception. It literally means Form, Pattern, Structure or Configuration not mere a summation of units or parts. This approach

strongly believes that learning is closely related to perception, configuration and organisation of mind and it takes place through insight. Therefore, this theory is also known as Insightful Theory of Learning.

Pioneer studies in this field are conducted by German psychologists- Max Wertheimer, Kurt Koffka, and Wolfgang Kohler.

The basic idea of this theory is that mental process and behaviour cannot be analysed into elementary units. An individual perceives the situation in totality or.

Gestalt psychologists tried to interpret learning as a purposive, exploratory, and creative enterprise. They used the term insight to describe the perception of the whole situation by the learner, and his intelligence in responding to the proper relationships.

In psychology, constructivism refers to many schools of thought that, though extraordinarily different in their techniques (applied in fields such as education and psychotherapy), are all connected by a common critique of previous standard approaches, and by shared assumptions about the active constructive nature of human knowledge. In particular, the critique is aimed at the "associationist" postulate of empiricism, "by which the mind is conceived as a passive system that gathers its contents from its environment and, through the act of knowing, produces a copy of the order of reality"

2.2 OBJECTIVES

After reading this lesson, you shall be able to:

- Describe the concept of Gestalt, school of Psychology.
- Discuss the main Features of Gestalt School of Psychology.
- Explain the contribution of Gestalt school of Psychology towards Education.

2.3 FEATURES AND CONTRIBUTIONS OF GESTALT SCHOOL OF PSYCHOLOGY TOWARDS EDUCATION.

Main Features of Gestalt School of Psychology:

Gestalt school of Psychology viewed human behaviour and mind as a complete whole. The term Gestalt means totality, Structure, Figure or Unity. Gestalt school of thought came

into inception during early 20th century in Germany in the famous work of "The Attributes of Form" by the Australian Philosopher Christian von Ehrenfels. Gestalt psychology is based on the principle that "The whole is different than the sum of its parts". This study has major contributions in explaining the complex processes of perception and sensation, with major emphasis on the fact that human minds perceive objects or make sense of the world around them by viewing things in totality or from a holistic perspective.

1. **Survey of the problem-situation:** A careful survey of the problem-situation is essential to find the solution of the problem.
2. **Use of Past Experience:** Past experiences help in the insightful solution of the problem at hand.
3. **Intelligence of the learner:** Insightful solution of the problem depends upon the level of intelligence of the learner.
4. **Nature of situation:** Insightful solution depends upon the nature of the situation in which the learner has been placed. Some situations are more conducive to insightful solution than others.
5. **Trial of a mode of response:** Insightful learning passes through the process of trial and error but this stage does not last long. The initial efforts in the form of simple trial and error mechanism lead to insightful learning.
6. **Constant attention to the goal:** The learner is continuously required to focus on the goal till the solution is obtained.
7. **Repetition of successful performance.** The successful solution to a particular problem helps the learner to find the solution in other identical situations by making use of insight.

CONTRIBUTION OF GESTALT SCHOOL OF PSYCHOLOGY TOWARDS EDUCATION.

The greatest contribution of the insightful theory of learning is that it has made Education a purposeful and goal-directed activity. It considers learning as a cognitive process rather than a mechanical activity. However, following points highlight the Contribution of :

1. **Motivation:** Motivation is the golden road to learning. It creates curiosity and interest among students to learn new things. Thus, teacher should properly motivate the learners by generating interesting learning situations in the teaching-learning process.
2. **Interest and curiosity:** Attention plays a significant role in learning. Teacher has to capture the attention of the students to arouse their interest and curiosity in the teaching-learning process.
3. **Establish clear learning goals:** Teacher should establish clear learning goals before the students so that they may develop better understanding and apply the knowledge in different situations.
4. **Whole to parts:** Whole is more meaningful, understandable, motivating and comprehensive than the parts. In teaching, the teacher should first give a comprehensive view of new lesson and then analyse it into different parts. Suppose an English teacher has to teach poem to the students. They should be acquainted with the full poem first. Gradually they may be asked to grasp the poem stanza by stanza.
5. **Emphasis on insight:** This theory lays emphasis on insight rather than rote learning. So, teachers should encourage the students to develop a proper understanding of the subject. He should discourage cramming and blind learning on the part of the students. This theory also lays stress on learning through experimenting and testing of knowledge.
5. **Perception:** Children feel comfortable to solve problems using insight when provided with concrete materials. They handle and manipulate the materials as per their own ideas. Thus, it helps small children to perceive relations when they are given concrete material.
6. **Emphasis on problem-solving skills.** Life is full of problems and learners need proper experience and the art of overcoming attempts to explore one's deeper layers of human Mind to understand the causes of abnormal manifestation of human behaviour.

2.4 FEATURES AND CONTRIBUTIONS OF PSYCHOANALYSIS SCHOOL OF PSYCHOLOGY TOWARDS EDUCATION.

Psychoanalysis is an approach to psychology that originates from the work and theories of Sigmund Freud. In addition to Freudian psychoanalysis, this approach to psychology inspired the psychodynamic approach, which encompasses theories by other thinkers, including Carl Jung, Karen Horney, Erik Erikson, and Alfred Adler.

The term psycho-analysis was first used by an eminent medical person of Vienna, Austria Sigmund Freud. He popularised the concepts of Unconscious "Id" , "Ego" , " Superego" , " Free Association" and so on. His contribution to Mental Health and personality was quite substantial. He glorified sex impulse as root cause of mental sickness. He is the fore runner of counselling. Psychoanalysis which attempts to explore one's deeper layers of human Mind to understand the causes of abnormal manifestation of human behaviour

The primary assumption of psychoanalysis is the belief that all people possess unconscious thoughts, feelings, desires, and memories. According to Freud, neurotic problems in later life are a product of the conflicts that arise during the Oedipal phase of development.

Key elements of psychoanalysis include

- The idea that unconscious drives impact a person's behavior
- Psychological distress is often the result of upsetting information that has been hidden from consciousness
- That early childhood events play a critical role in the formation of personality
- That personality is comprised of three elements: the id, ego, and superego
- That people rely on defence mechanisms to protect the ego from distress caused by the desires and demands of the primitive id, which is fuelled by the unconscious mind

Contribution of Psychoanalysis school of Psychology towards Education.

Psycho-analysis has given rise to many movements and practices which have provided a stimulus to new education. It has changed the conception of education and intended its aim. Education is no longer considered as restraint to be achieved by external

regulatory means such as punishment and rewards.

The aim of education is the development of the whole personality - the development of intellect as well as emotions for socially desirable purposes.

Psychoanalysis has laid stress on such psychological incentives as love, use of instincts, permissiveness and leniency and the child's own will or interest. It has thrown light on and explained the variations that we find in the assimilation of various subjects among different children. This means that specific disabilities may be due to affective inhibition among other causes.

Psychoanalysis has explained the child's resistance to learning in terms of unfavourable environmental conditions, unsympathetic and critical teachers and parents, lack of preparations and emotional blocking caused by anxiety and aggression in the form of phobias or due to inharmonious parent-child or intra-parental relationships. Psychoanalysis, thus, brings out the importance of proper environment for the education of children. The environment in the school and in the home should be such as to reduce the chances of repression and increase the chances of sublimation. It should provide opportunities for spontaneous and creative activities and for all sublimations. Psychoanalysis has stressed the significance of play in the education of children. Play along with other natural interests of children should determine the various curricular and cocurricular activities in the school. This emphasis play has given rise to play therapy and play-way as important techniques in the treatment of scholastic and emotional problems. That psychoanalysis has given impetus to such movements as 'child guidance', mental hygiene, 'child-centrism' as well as "freedom of the child", cannot be denied. The latter has popularized such concepts as 'free discipline'.

Importance of respecting the child's individuality at an early age, of studying the early years of the child, of evaluating the standards of behavior from a new angle, of recognizing the strength of sex-impulse and sex-education are the other contributions of psychoanalysis to education.

One of the significant contributions, however, is the understanding that psychoanalysis has imparted of 'mal-adjustments' in children's behaviour and delinquencies in adolescence. Emotional conflicts due to defective inter-personal relationships within the family, repression of the child's between the unconscious needs and the demand or reality have been highlighted

as important causes without minimising the significance of the inadequate environmental conditions such as the broken home, poor economic situations, bad neighbourhood, inadequate school programmes, lack of proper recreational facilities and others.

To conclude, we can say that much of what is progressive in New Education, can be traced to the influence of psychoanalysis.

2.5 FEATURES AND CONTRIBUTIONS OF CONSTRUCTIVISM SCHOOL OF PSYCHOLOGY TOWARDS EDUCATION.

Constructivism is based on the idea that people actively construct or make their own knowledge, and that reality is determined by your experiences as a learner. Basically, learners use their previous knowledge as a foundation and build on it with new things that they learn.

Jean Piaget is known as one of the first theorists in constructivism. His theories indicate that humans create knowledge through the interaction between their experiences and ideas. The different schools of learning that have evolved through times show us how an array of ideas and establishment of developmental schools resulted in schools of thoughts such as behaviourism and cognitivism. Behaviouristic school of thought associates learning with response strengthening where the learner is repeatedly cued to give simple responses followed by immediate feedback, and receives rewards and punishment accordingly. It focuses on observable changes in behaviour, and new behavioural pattern being repeated until it becomes automatic. Cognitivism is based on the thought process behind the behaviour. Changes in behaviour are observed, and used as indicators to what is happening inside the learner's mind, while constructivism tells that we all construct our own perspective of the world through individual experiences and schema. Constructivism focuses on preparing the learner to solve problems in ambiguous situations.

Meaning of Constructivism

All knowledge is constructed and consists of what individuals create and express. It is also claimed that all knowledge is tentative, subjective and personal, since individuals make their own meaning from their beliefs and experiences. What is knowledge? What is knowing? How do we come to know what we know? These were important questions that became the concern for the epistemologists or philosophers who studied knowledge.

In the history of epistemology, the trend has been to move from a static, passive view of knowledge towards a more adaptive and active view. It is a theory of learning that has roots in both philosophy and psychology. It has a long history and major theorists such as John Dewey, Jean Piaget, Maria Montessori, Jerome Bruner and Lev Vygotsky have contributed to the field. Constructivism suggests that individuals create their own understanding based on the interaction of what they already know and believe, and the phenomena or ideas with which they come into contact. It is a theory of how the learner constructs knowledge from experience, which is unique to each individual. Constructivism is a system of explanations of how learners, as individuals, adapt and refine knowledge. Here, learners actively restructure knowledge in highly individualized ways, based on intellectual configurations on existing knowledge and formal instructional experiences. Among the constructivists, there are those who focus on the individual acting as sole agent in the process of constructing and reconstructing meaning.

Contribution of Constructivism school of psychology towards Education.

Constructivism has important and far-reaching implications for educational theory and practice. In the previous sections we have examined some of the theoretical dimensions of constructivism. In the present section we will consider the main practice related implications of constructivist principles for learning and pedagogy. We will also outline the constructivist conditions of learning and the roles that constructivism accords to the teacher and the learner. The main features of a constructivist approach to learning and pedagogy are the following: The constructivist epistemology rejects a transmission model of knowledge. Consequently, education is not based on the view that there is a fixed world of knowledge, transmitting of which to the learners, is the goal of education. Teaching and learning are not like the pipelines of the water supply distribution system of a city wherein the main supply reservoir is akin to the given body of knowledge, and the pipelines that carry water to the households, as if they were sending this water of knowledge to the learner. The traditional role of teachers as instructors and of learners as recipients of this instruction is out of tune with the constructivist approach. Teaching involves facilitating opportunities for construction of knowledge and learning involves making these constructions. The constructivist epistemology is based on the belief that new knowledge is constructed. A constructivist approach to curriculum development. The prior knowledge that learners bring with them to the teaching-learning situation in the classroom should be

brought to the forefront. This prior knowledge needs to be incorporated in the learning experiences that constitute teaching learning. On a visit to a primary school in district Bundi in Rajasthan, a teacher showed a yellow-coloured object to the children of class II and asked, " What colour is this? ". A little girl jumped with excitement and said 'Khatti!' Her response was incomprehensible till the teacher told me that khatti means 'kadhi' (a preparation of buttermilk and gramflour garnished with turmeric). Since kadhi is yellow in colour, her concept of yellow colour is that of the colour of 'kadhi'. The teacher then presented many more examples of yellow colour and said that this is 'peela rang'(yellow colour). Though it is difficult to say whether that child acquired the concept of 'yellow' or not, it nevertheless does tell us how children's new learning or constructions are based on their own previous constructions. Whether the teacher or the other children had 'kadhi' in their minds, this child's notion of reality was based on it. The prior knowledge varies from learner-to-learner depending upon the personal and social experiences that they have had in the past. It also varies from culture to culture. Therefore all learners cannot be expected to build on the same foundation. The learners can neither understand" & the same things nor understand them in the same way. If learning is a constructive process, then teaching needs to provide the opportunities for it by supplying the teaching learning experiences taking in account the prior learning and facilitating the building of new knowledge on this basis. For radical constructivists especially, the basis of teaching learning process should not be redetermined body of knowledge that may be regarded as essential or worthwhile knowledge by the teacher or the educational system; but what the learner already knows and is concerned about. The knowledge that is connected to the learner is more important than that which may be given in any discipline or area of study. Since the vantage point of knowledge construction is this preexisting knowledge of the learner, teachers need to probe and explore in detail What is the knowledge that learners bring with them. However, the social constructivists point out that individual constructions are essentially influenced by cultural constructs (accepted body of knowledge) as knowledge is a body of Shared, 'lived experiences. For example, the meanings that fine arts such as sketches, painting, sculpture; evoke in the viewers are based on common understanding shared by a community. The social constructivists consider knowledge as consensual and therefore emphasize the importance of discussion, collaborative learning, social negotiation, persuasion, and even demonstration like projecting models and sometimes direct instruction. Thus, a teacher

with a social constructivist orientation would acknowledge learners' personal constructions but would lead them, through the aforesaid processes, to a shared understanding of the phenomenon. Thus, when the child said khatti to denote yellow the teacher may explain, " Yes khatti is yellow colour but so is lemon or mustard flowers.

Thus they all belong to the colour category called 'yellow'

The trivial constructivist, however, believe that knowledge is absolute, fixed and knowable. They thus stress on enabling the learner to construct and reconstruct, organize, and reorganize, to structure and restructure; then understand so that it matches or at least approximates the external reality.

The constructivist perspective assumes that an active learner has the capacity to construct knowledge himself/herself. The learner is not somebody who needs to be forced to learn by the teacher. She has an inherent capability for it. In fact, that is how knowledge develops. However, the active construction of knowledge is not an instant process, but takes time. It requires self-reflection on the part of the learner. Piaget in fact conceptualized the notion of 'horizontal elaboration', which implied that when children first acquire a new concept, they like to mentally, just play around with it for a while, that they want to elaborate it horizontally. Teaching learning situations thus need to allow time and opportunities for this sort of horizontal elaboration, and overall active construction of knowledge.

'Driver (1988) listed the following six features of the constructivist perspective as it relates to schooling:

- Learners are purposive, active, and responsible for their own learning. They bring their prior experiences and knowledge to all learning situations.
- The process of learning is regarded as active in the sense that it entails activity on the part of the learner.
- Knowledge is not a thing that exists out there but is personally and socially constructed.
- It is not only the learners who bring their prior experiences to learning situations, teachers also bring in their prior conceptions to the teaching learning situations.

These prior conceptions are consanguine not only to the scholastic subjects they teach but also to their assumptions and viewpoint about teaching and learning.

- Teaching does not involve mere transmission of knowledge. It involves the organization of the learning situation and of tasks and opportunities, which facilitate the construction of knowledge.
- Curriculum is not a given that is to be learned; but a schedule of learning tasks, materials, and resources by virtue of which learners construct their knowledge.

2.6 LET US SUM UP

Constructivism as a theory of knowledge rejects a static, passive, or fixed view of knowledge and does not accord an objective value. Constructivism is centered on the idea that human knowledge and learning are actively constructed by the learner and not passively received from the environment. Knowledge involves mental structures that are constructed from experience. Validity, truthfulness, or completeness of the structures is not important; because if knowledge is made, there is no singular, universal absolute knowledge; if reality is pluralistic, then it is meaningless to debate about what the truth is. There are two main ideas that can be termed as the principles of constructivism: (i) the learner is not a passive entity but an active cognizing subject; (ii) the function of cognition is not the discovery or representation of the world but adaptation.

2.7 LESSON END EXERCISE

- 1) Discuss the contributions of Gestalt in the development of Psychology as a School.
- 2) Compare and contrast 'Psychoanalysis' and 'constructivism'.
- 3) What are main contributions of Psychoanalysis?
- 4) 'The whole is greater than the sum of its parts'; explain.
- 5) Briefly describe the educational implications of constructivism.

2.8 SUGGESTED FURTHER READINGS _____

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2.9 ANSWERS TO CHECK YOUR PROGRESS.

- i) Gestalt
- ii) Constructivism
- iii) psychoanalysis

INDIVIDUAL DIFFERENCES

STRUCTURE

- 2.1 Introduction
- 2.2 Objectives
- 2.3 Meaning and Determinants of Individual Differences.
- 2.4 Role of Hereditary and Environment in Individual Differences.
- 2.5 Implications of Individual differences for organizing Educational Programmes.
- 2.6 Let us Sum Up
- 2.7 Lesson End Exercises
- 2.8 Suggested Further Readings
- 2.9 Answers to Check Your Progress

1.1 INTRODUCTION

It is often said that no two individuals are exact duplicates; they differ from each other in some way or the other. Hence the job of the psychologist is to identify and understand this uniqueness in individuals. Such a similarity or difference between persons reveals individual differences. It happens in our day-to-day life when we see people around us. A question comes to mind; how and why people appear similar or different to each other? For example, when we think about their physical appearance, we often ask ourselves why some people have dark or fair complexion, why some people are tall and some are short,

why some are thin and why some are very fat. When we think about their psychological characteristics, we often come across people who are very talkative or less talkative, some laugh too much whereas others take much time even to smile, some are very friendly whereas some prefer to be alone. In psychology, these are called individual differences referring to the extent and kind of variations or similarities among people on some of the important psychological aspects such as intelligence, personality, interest, and aptitude. This lesson will also help us understand how to assess such similarities or variations among individuals.

2.2 OBJECTIVES

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

- Explain the meaning and determinants of Individual Differences.
- Discuss specific contribution of hereditary and environmental factors to individual differences,
- Differentiate between Hereditary and Environment factors.
- Elucidate the implications of Individual Differences for organizing Educational Programmes.

2.3 MEANING AND DETERMINANTS OF INDIVIDUAL DIFFERENCES.

Meaning

Individual differences are the more-or-less enduring psychological characteristics that distinguish one person from another and thus help to define each person's individuality. Among the most important kinds of individual differences are intelligence, personality traits, and values.

That people differ from each other is obvious. How and why they differ is less clear and is the subject of the study of Individual differences (IDs). Although to study individual differences seems to be to study variance, how are people different, it is also to study central tendency, how well can a person be described in terms of an overall within-person average. Indeed, perhaps the most important question of individual differences is whether people are more like themselves over time and across situations than they are to others,

and whether the variation within a single person across time and situation is less than the variation between people. A related question is that of similarity, for people differ in their similarities to each other. Questions of whether groups (e.g., groupings by sex, culture, age, or ethnicity) are more similar within than between groups are also questions of individual differences.

Definitions

C. V. Good (1959) Individual Differences stand for "The variation or deviations among individual in regard to a single characteristic or a number of characteristics, those differences which in their totality distinguish one individual from another."

Drever James, "Variations or deviations from the average of the group, with respect to the mental or physical characters, occurring in the individual member of the group are individual differences."

Skinner, "Today we think of individual differences as including any measurable aspect of the total personality."

Determinants of Individual Differences

The determinants of individual differences in human is related to the interaction between heredity and environment. So, to understand individual differences in development it is important to consider both inherited characteristics as well as environmental factors and their interplay.

1. Hereditary

Individuals have various endowments, abilities, and capacities provided by hereditary. Which decide the path of progress and development of an individual. Hereditary contributes significantly towards Physical Constitution. Hereditary also put limits upon individuals' growth and development in various dimensions. Hereditary also contributes to sex. Role of hereditary ends with conception.

2. Environment

Environment also plays key role in individual differences. No person from conception (start of life) to death gets the same environment. Individual differences occur on the bases

of simulation received by individual from his or her internal and external environment. This may include family set up, peer group, economic statuses, education

2.4 ROLE OF HEREDITARY AND ENVIRONMENT IN INDIVIDUAL DIFFERENCES.

Role of Heredity

The personality pattern is inwardly determined by and closely associated with the maturation of physical and mental characteristics which constitute the individual's hereditary endowment. Although social and other environmental factors affect the form, a personality pattern takes, it is not instilled or controlled from without but evolves from the potentials within the individual. The principal raw materials of personality-physique, intelligence and temperament are the results of heredity. How a person will develop depends on the environmental influences within which a person grows.

The significance of hereditary foundations in determining the personality pattern has been stressed by many researchers. It is generally held that personality is formed from the interaction of significant figures (first the mother, later the father and siblings, later extra familial figures) with the child. The child brings to this interaction biological constitution, a set of needs and intellectual capacities which determine the way in which a person is acted upon by the significant figures in her environment.

In the course of interaction of hereditary and environmental factors, the individual selects from his environment what fits his needs and rejects what does not. Thus, personality pattern develops through interactions with the environment which an individual himself has initiated. One reason for stressing the role of heredity in the development of personality is to recognize the fact that personality pattern is subject to limitations. A person who inherits a low level of intelligence, for example, cannot, even under the most favourable environmental conditions, develop a personality pattern that will lead to adequate personal and social adjustment, then a person with high level of adjustment. Thus, heredity sets limits to a person's development. Furthermore, recognition of the limitations imposed by heredity underlines the fact that people are not totally free to choose and develop the kind of personality pattern they want. Using intelligence again as an illustration it may be said that a person with a low-grade intelligence cannot develop the personality pattern of a leader

even though he wants to do so and even though he has a strong motivation to try to develop the personality traits essential for leadership.

Role of Environment

No trait is so dependent on heredity that it would not require certain minimal environmental conditions for its development. This is true even of physical traits and certainly much more so of intellectual, social, and emotional ones. At any given moment an individual is the product of countless interactions between his genetic endowment and physical and sociocultural environment. By physical environment we refer to the natural world surrounding the individual: Climate, terrain, food supplies, disease germs and so on. By sociocultural environment we mean the world of people, customs, values, and man-made objects.

Physical Environment

People of the earth live under diverse conditions of climate, terrain and natural resources. Some live in dense jungles and others on barren deserts, some live on high mountains and others on flat prairie lands. Some live where it is extremely cold and others where it is oppressively hot, some live where it rains most of the time and other where there is chronic drought. In some places food and other resources are plentiful, in others they are so scarce that most of the individual's life must be spent in eking out a bare subsistence. Some areas are infested with disease and other hazards to physical safety, others are relatively free to disease and danger.

Climate and Terrain

People inhabiting areas where conditions of climate or terrain are unfavourable tend to undergo adaptive physiological changes. For example, the circulatory system of the Eskimo tends to lie deep within a protective fatty layer which conserves his body heat.

Scarcity, Disease and Other Unfavourable Conditions

Even today millions of people live in areas where disease is rife and food supplies are inadequate. Such conditions take a tremendous toll in reduced physical vigor, bodily damage, and loss of life. Because adverse physical conditions influence the way a group lives, we may assume that they also exert some effect, at least indirectly, on the personality development of individual members. However, the precise effect is difficult to assess, for

again we typically find cultural factors complicating the total situation.

It becomes very difficult to evaluate the effect of physical environment on individual and group differences in development. Except in cases where unfavourable conditions lead to actual bodily damage, as in malnutrition and disease, the role of the physical environment seems a less important than that of the sociocultural environment.

Socio-cultural Environment

In much the same sense that man receives a genetic heritage which is the end product of countless million years of evolutionary history, so he receives a sociocultural heritage which is the end product of many thousands of years of social evolution. This heritage varies dramatically from one social group to another, but the various cultures of the world have enough in common to enable us to speak meaningfully of "human culture". Every group, for example, has its language, family and social structure, customs, values, music, and art. These "institutions" are characteristically human and tend to be transmitted by similar means in every society. Sometimes the instruction is deliberate, but just as often it is not. Following are the chief means by which the sociocultural environment exerts its influence on individual development.

i) Group Membership and Instruction

Both deliberately and unconsciously, each society teaches its concepts, values and accepted behaviours to its children. This instruction is largely accomplished by the social institutions such as home, school and temple or their equivalents. Thus systematic instruction, together with the examples set by adults or other "models" tend to make for some degree of uniformity and to establish what may be called the basic personality type of the particular society. The individual's basic personality structure is affected not only by the larger social group but also by the various subgroups to which one belongs—groups based upon his family membership, religion, occupation, social class, age and sex. Each subgroup tends to foster certain values, beliefs and approved* behaviour patterns which may in turn be subject to the restrictions imposed by society. The fact that everyone belongs to somewhat different type of subgroup tends to produce individual differences, just as common membership in the larger cultural group makes everyone somewhat alike.

ii) Status and Role

In every social structure there are a variety of distinguishable positions - doctor, teacher, carpenter, parent, student, child and so forth - each of which contributes in some way to the total group functioning and is accorded a certain 'social status'. Status brings with it both privileges and responsibilities. For example, the medical doctor has the privilege of practicing medicine and is held in high regard by other members of society. In return, he is expected to follow the ethical code of profession. If he fails to do so, he may have his medical license revoked and be relegated to an inferior social standing.

To clarify what is expected of a person with a given position and status, society establishes various roles for its members to play, each associated with a certain pattern of expected behaviour. Thus, the role of an army officer calls for loyalty, decisiveness, courage, and resourcefulness. Each person of the society, young or old, tends to develop the skills, behaviour, and values that his role seems to demand. If he deviates too far from what is expected of him, he is likely to run into difficulties in his social relationships.

2.5 IMPLICATIONS OF INDIVIDUAL DIFFERENCES FOR ORGANISING EDUCATIONAL PROGRAMME

Teachers and educationalists need to be consistently aware of the phenomenon of individual differences while dealing with children and learners generally.

The knowledge of individual differences will come in very handy for the teacher, and by the same token, the learners strive for the attainment of the teaching-learning objective. The implications will therefore be that:

- The teacher should individualize his teaching given the differences among learners.
- The knowledge of individual differences will enable the teacher to understand and tolerate the inherent differences among learners.
- Counselling techniques to be adopted by the teacher should be based on the counselling needs of individuals because of individual differences.
- The teachers should give assignments or responsibilities to individuals on the bases of their capabilities.
- The teacher should employ different motivation techniques in stimulating the different learners' interests.

- The teacher should also endeavour to make use of a variety of teaching aids to ensure that the message gets across to different learners and that their attention is also secured.
- Learners' sitting arrangement should also be considered by the teacher, the sitting arrangement should be such that, for instance, those learners who are shortsighted (myopic) or are hard of hearing are to be seated in front of the class or close to the loudspeaker where it is in use.
- Group assignments should be given occasionally. The groups should consist of individuals with different abilities. This enables relatively weak students to learn from their peers.
- The teacher should as much as possible avoid labelling learners, this could lead to a lot of emotional discomfort to individuals labelled and such labelling could lead to dislike for the teacher, school, and learning.

2.6 LET US SUM UP

In this unit you have studied about the two important factors - heredity and environment - which influence the development of individuals, resulting in individual differences. You have also read about various research studies conducted in this field of study. Now-a-days, it is almost certain, and all of us also believe, that individual differences are the result of the interaction of heredity and environment. While we recognize the importance of heredity in individual differences, we are almost equally confident of the role environment plays in building up the personality of the individual. A teacher can provide a favorable educational environment in the school to help the child develop his potentialities. A non-favorable environment is bound to be detrimental in the process of development of the student. The teacher in the classroom should understand that every student has individual differences distinguishing them from one another. Therefore, we must know to handle above-average, average, and below-average students in the class to learn. Every student tends to learn.

2.7 Lesson End Exercise

1. What are the main factors responsible for producing individual differences?
2. What is the genetic basis of heredity'? Cite some studies in support of hereditary influences on individuals.
3. What do you mean by environment'? How is the behavior of the individual influenced by it?
4. What is the impact of heredity and environment on personality development'? Describe it.

2.8 SUGGESTED FURTHER READINGS

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2.9 ANSWERS TO CHECK YOUR PROGRESS

1. Every individual has a specific set of limits which are the result of his biological heredity inherited from his parents or forefathers.
2. Each parent and those of two parents i.e. mother and father have a number of possible combinations of genes So these combinations of genes are responsible for individual differences.
3.
 - a) Genes are found in groups or exist singly).
 - b) The combinations of genes arc called chromosomes.
 - c) Skin cell and bone cell depend upon thecellularenvironment

CONCEPT FORMATION

STRUCTURE

- 4.1 Introduction
- 4.2 Objectives
- 4.3 Meaning of Concept Formation
- 4.4 Attributes of Concepts
- 4.5 Development of some Concepts
- 4.6 Role of Teacher in Concept Building
- 4.7 Let Us Sum Up
- 4.8 Lesson End Exercise
- 4.9 Suggested Further Readings
- 4.10 Answers to check your progress

4.1 INTRODUCTION

Human beings are blessed with higher level of cognitive abilities to deal with day to day stimuli/situations. Humans are capable of interpreting raw sensations into a coherent, meaningful perception to acquire knowledge of the external world. In this journey of acquiring knowledge, sensations and perceptions pave the way for the final stage namely Concept Formation. Concepts are the abstract forms of past experiences. These are considered as the most important tool of our thought and expression. Child's mental and social developments

are very much influenced and controlled by the adequacy and non-adequacy of his concepts about things, persons events and phenomena. Concept formation brings economy to thinking, reasoning and problem-solving behaviour. It helps the child in acquiring the knowledge and skills with ease and facility. Therefore, it is essential to help the child in attaining different kinds of concepts.

4.2 OBJECTIVES

After reading this lesson, you shall be able to:

- describe the meaning of Concept Formation
- elaborate the Attributes of Concepts
- illustrate the development of some Concepts
- explain the role of Teacher in Concept Building

4.3 MEANING OF CONCEPT FORMATION

Before understanding the meaning of concept formation, it is essential to elaborate the meaning of Concept. In simple terms, concept can be defined as an idea or understanding of what a thing is. The meaning of a word is a concept. In this way, a concept is a rule that may be applied to decide if a particular object falls into a certain class.

Psychologically, concepts are defined as cognitive abstractions which represent classes of things, events, or ideas. In general, concepts are seen as natural semantic categories which help to unite things, qualities, and occurrences on the basis of a similarity of characteristics. A few important definitions of the term concept are discussed as under

Babbie: "The mental images we use to bring order to the mass of" things in the social world."

Munn: "A concept is a process which represents the similarities in otherwise diverse objects, situations or events."

Morgan: "A concept is a process representing a common property of objects or events."

Ross: "Concepts are patterns schemes or mental categories which enable us to interpret the objects of our thought, whether perceptual or imaginative."

The process by which we discover the feature or features which are 'common' to a large number of objects and associate these with a symbol which thereafter may be applied to other similar objects is called 'Concept formation'. It is the process by which we learn to form classes of things, event, people, and so forth.

Concept formation is, thus a higher-order cognitive activity that operates on information that has been perceived through our sensory organs and encoded and stored in memory. This process involves categorizing the data conceptually and applying that knowledge to planning, goal-setting, problem-solving, and reasoning. The formation of concepts begins with the inception of the activity of thinking in the child, because thinking is not possible without concepts.

Concepts develop gradually out of a series of experiences. Concept formation involves following four steps:

- 1. Observation:** The first stage in the formation of concepts is the observation of an event, object or an experience. This is the stage of becoming aware about a variety of connected experiences revealed to the individual through perception. Without observation of such particular instances, concepts cannot emerge. This can be either direct or indirect.
- 2. Comparison:** Next stage is the comparison of these instances which highlights the essential attributes found in all these instances in common.
- 3. Generalisation:** Repeated experiences or observations of different objects result in a tendency to form a general idea. Thus, a child first sees one dog, then another dog, then a third and so on and begins to form the general idea of a dog. This is called the process of generalisation. The process of generalisation explains how the child acquires many concepts like the concepts of gender, shape, number, etc.
- 4. Discrimination or Differentiation:** Along with generalisation and the observation and organisation of similarities among things and objects, the child also becomes aware of the differences between them. Thus, all dogs are alike and all cows are alike. At the same time dogs and cows are different from each other and big dogs are different from small dogs, and bulls are different from cows.
- 5. Abstraction:** The process by which the experience is analysed in the absence of actual situations is known as abstraction. It is abstraction which actually transforms

comparable and contrasting experiences into concepts. Concepts like force, energy, mind, truth are all examples of abstract concepts.

4.4 ATTRIBUTES OF CONCEPTS

A concept is simply a category or class of objects, events, qualities, or relations that share one or more defining features. These defining features allow us to discriminate the members of one category from the members of another category (or class). In this sense, the defining features of a concept are called as attributes of concept. These are generally regarded as the common qualities, characteristics or traits that cause us to place examples in the same category. In the case of Fruit the essential attributes are fleshy (or dry), seed enclosing, sweet (or sour), edible (or not edible) and the cost of that fruit. However, all the characteristics are not essential to the concept. While purchasing fruits from the market we often see the price per kilo beside each type of fruit, we know that this sign does not play a role in distinguishing fruit from other foods and objects. Cost can be referred to as a non-essential attribute of fruit as it appears in the market. Most concepts have attributes that are often associated with the concept but not essential to it. Again, part of knowing a concept is distinguishing the essential attributes from the non-essential ones. Following discussion highlights the important attributes of concepts:

1. **Learnability:** Learnability of concepts varies from simple to complex. Some concepts are easily learned than others by individuals who share similar cultural experiences and language. For example, concepts having readily perceptible instances such as cow, dog, cat, crow and car are learned easily than the instances such electrons and protons which are not readily perceptible.
2. **Usability:** Concepts vary in their use in day to day life. Some concepts have frequent use than others in understanding and forming principles. For example, in day to day life situations concepts of numbers in Mathematics are used more than the concepts trigonometric ratios.
3. **Validity:** Validity of a concept depends upon the agreement of its meaning and definition. Concepts in natural sciences are more valid than the concepts in social and behavioural sciences as the concepts in natural sciences like atoms, molecules, cells etc. are well-defined and standardised than the concepts in social and behavioural sciences

like, intelligence, democracy, poverty, diversity, leadership etc.

4. Language: Language plays a significant role in the development of concepts. 'Cognitive conflict' arises where the child is exposed to some new information which contradicts with the existing information. This causes disequilibrium and in resolving the conflict concepts are formed.

5. Pattern: A concept is rich entity which binds together the particulars and limits them into a comprehensive whole. It refers to the relatedness of defining attributes. This may be termed as a concept of the whole. As the child perceives the whole thing and does not attend to parts, he first forms the concept of the whole and later on that of the parts.

6. Prototypes: People conceptualize the world in terms of discrete prototypes. A prototype is an ideal instance of a concept which thus incorporates the features shared, in different degrees by most instances of the concept. For example, the concept of a bird allows us to include in it such unbird-like birds as ostriches, penguins, and chickens. Greater the similarity between an instance and a prototype the more likely we are to consider the instance as a member of a concept which the prototype represents. Thus a robin should be perceived as a more typical bird (i.e., prototype) than a chicken because, while both have feathers and wings, the robin can fly.

7. Psychological essentialism: The belief that members of a category have an unseen property that causes them to be in the category and to have the properties associated with it. Objects fall into many different categories, but there is usually a most salient one, called the basic-level category, which is at an intermediate level of specificity (e.g., chairs, rather than furniture or desk chairs).

8. Instances of perceptibility: Concepts vary with respect to the extent to which their instances can be sensed, as a plant has many instances which can be manipulated, seen, touched and smelt, whereas eternity has no perceptible instance. With increasing age, individuals are able to identify the less obvious attributes of concept instances. In addition, a child can learn about them through symbolic representation, especially verbal experiences.

4.5 DEVELOPMENT OF SOME CONCEPTS

Concepts are essential for learning and intellectual development, as they provide a foundation for more advanced understanding and learning. They also allow us to build upon existing knowledge and make connections between different fields or areas of study. Development of concepts is a gradual and continuous process. A child first attains concrete concepts and gradually develops abstract concepts about the world around him. Following are the important concepts attained by the child during the different stages of growth and development:

1. **Concept of Self:** The infant develops some concepts of self at the early age of six months, though he cannot put it into language. After gradual learning the child starts distinguishes between different sense organs and physical parts of the body.
2. **Concept of Space:** The concept of space plays an important role in perception and concept formation. An infant gradually learns to distinguish between right and left, up and down, forward and backward and different directions. When the child comes in contact with the outer world, he finds so many places of his interest. This is more so when the child gets opportunity to visit far-off places with his friends and parents. He finds opportunity to form concepts of large distances. The distance is inferred by means of experience.
3. **Concept of Time:** An infant lives in the present. Before the age of three years, tomorrow has no meaning for him. Slowly and gradually, the child develops the concept of time. He starts distinguishing between now and then, yesterday and tomorrow, morning and evening. He learns the names of different days in a week. At the age of 8, he also learns to name the months in a year. The child learns to use watch and tell time accurately.
4. **Concept of Form and Colour:** An infant below the age of 3 years can recognize forms and colour. From 3 to 6 years of age he can combine colours. At the age of 6 he can combine different forms. At the kindergarten stage the child is influenced by the different types of colours and forms. Playing with toys helps the child in the formation of concepts of forms and colours.
5. **Concept of Numbers:** Children learn to recite numbers between the age of 2 to 3 years. Studies reveal that a child of 4 years can count two things, while a child of 5 years can count four and that of 6 years can count 12 things. A child of 6 years can count

numbers up to 100. At the age of 7 years a child can add and subtract numbers and solve simple questions of multiplication and division. At the age of 9 years a child develops numeral concepts up to 1000.

6. Concept of weight: At the early stages of growth and development, a child connects weight with size and thinks that bigger things have more weight. Gradually he learns to distinguish between size and weight and comes to know that the weight of a thing cannot be determined only keeping in view the size. For example, a small bucket filled with sand has more weight than a bag full of cotton.

7. Concept of Currency: A child learns the concept of currency to distinguish between different coins and notes to make their use for different purposes. Even before going to school some children collect coins given to them. At the age of 6 years a child can recognize different coins and their related value.

8. Concept of Causation: A child learns to behave differently towards different persons and objects. At the age of 2 to 4 years he knows what type of behaviour is expected of him in different occasions towards different persons. He learns to predict the cause and effect relationship. By using different things, clothes, etc. and experiencing the consequences the child forms the concepts of causation.

4.6 ROLE OF TEACHER IN CONCEPT BUILDING

Teacher plays a very significant role in facilitating the children to attain different types of concepts. The teacher must guide the students at every stage of concept building. Psychologists suggest following techniques to help the children in developing concepts.

1. Establish clear learning goals: Teacher should establish clear learning goals before the students so that they may develop better understanding and apply the knowledge in different situations.

2. Emphasis on correlation: Teacher should lay emphasis on correlation between various topics and subjects. Teacher should create situations in the classroom where past knowledge can be used in new learning.

3. Meaningfulness of the task: The more meaningful the material, the rapid and easier is the concept formation. Therefore, teacher should engage the students in meaningful

tasks. Rote learning should be discouraged.

4. Use of illustrations and teaching aids: There are many things which cannot be brought in the classroom to provide direct experience to the students. Teacher should make effective use of various audio-visual aids in teaching like charts, models, specimens, diagrams, pictures, posters, multi-media etc. Proper use of verbal illustrations and examples should also be made during teaching.

5. Use of life like methods: Concept formation occurs effectively if the methods are life like and interesting. Teacher should cite examples from the real life situations of the child. Thus, teaching should be made life like, psychological and child-centred.

6. Emphasis on practice and revision: Teacher should lay stress on practice and revision to make learning permanent. It helps the learner to use acquired knowledge in new situations.

7. Emphasis on learning by doing: Teacher should lay emphasis on learning by doing to facilitate concept formation. Theoretical teaching should be replaced by practical application of the knowledge.

8. Emphasis on learning by insight: Learning by insight helps in retaining the facts and concepts for a longer period of time and facilitates transfer. Therefore, spoon-feeding and cramming should be discouraged.

9. Emphasis on deliberate efforts: Concept formation very much depends upon a deliberate effort on the part of the learner. Therefore, teacher should encourage the students to interpret a new situation in the light of the past.

10. Use of intelligent methods: Concept formation is closely related to the intelligence of the learner. Therefore, intelligent methods of teaching should be used in teaching.

11. Use of generalisations: Teacher should provide maximum opportunities for the mastery and application of generalisations to maximise the process of concept formation. Students should be encouraged to draw inferences from observed facts to form concepts of various things, events or facts.

12. Associative learning: Developing association between tasks and events during learning paves the way for concept formation. Thus, teacher should make the maximum

and optimum use of laws of association for providing knowledge of different subjects to the students.

13. Development of desirable attitude and ideals: A positive attitude makes the learner ready to welcome new experiences and recognise different kinds of learning opportunities. Thus, teacher should make efforts to develop desirable attitude and ideals of forming concepts among the students.

14. Preparation on the part of the teacher: Preparation and planning are regarded as investment in teaching-learning process. Teacher should properly plan the lesson keeping in view the various attributes of concepts to ensure formation of concepts.

15. Principle of variety: Teacher should try to bring variety in the teaching of a subject. He should use multiple instructional techniques, examples and teaching aids to facilitate the process of concept formation.

16. Use of discussion: The teacher should invite questions from the students on different problems. He should encourage them to raise queries and clear doubts. Opportunity should be provided for free discussion in the classroom situation.

17. Use of analogies and metaphors: Analogies and metaphors are helpful in using past knowledge or experience to new learning situations. These help the teacher in developing associations between different and unrelated ideas or situations to form concepts.

18. Experiential learning: Experiential learning is constructivist learning, where students are active learners, constructing their own knowledge, rather than observing the demonstrative behaviour of a teacher. Such learning may involve instructional strategies like experiments, field observations, field trips, focused imaging etc.

19. Independent study: Independent learning involves a planned independent study by students under the guidance or supervision of a classroom teacher. It may involve one or more of the following strategies viz. assigned questions, computer assisted instruction, research projects. Students involved in independent learning are often highly motivated by the opportunity to explore topics that are of interest to them. Students can capitalize on their strengths while improving areas of weakness.

20. Demonstration and questioning: Teacher should make use of demonstration technique in the classroom or laboratory to make concepts clear to the students. Questions to learners about how two or more items are related and teacher's demonstration with various objects and materials are important means for helping learners to acquire concepts.

21. Structured inquiry process: Concept attainment is an indirect instructional strategy that uses a structured inquiry process. In structured inquiry process teacher encourages the students to investigate a question or problem through a prescribed procedure. Students are provided proper guidance and involved in hands-on investigations to develop basic inquiry skills, such as making observations, raising hypotheses, collecting and organising data, drawing conclusions, making inferences and finding solutions.

Check Your Progress-1

Note: (a) Write your answers in the space given below.

(b) Compare your answers with those given at the end of the lesson/above sub-section.

1. Fill in the blanks

- (i) A concept is a process representing a _____ property of _____.
- (ii) Concepts are defined as _____ which represent classes of things, events, or ideas.
- (iii) Concepts develop gradually out of a series of _____
- (iv) The defining features of a concept are called as _____ of concept.
- (v) The teacher must _____ the students at every stage of concept building.

2. Write the Attributes of Concepts

3. Illustrate the development of some Concepts

4. Mention the role of Teacher in Concept Building

4.7 LET US SUM UP

Concept formation is an essential cognitive process by which we categorize and make sense of the world. Several theories seek to explain this process and the factors that influence it. Gaining a good understanding of concept formation assists in problem-solving and analytical reasoning. Forming concepts helps us to make sense of the world and prepares us to anticipate or predict future events more successfully. Concept formation is an essential cognitive process by which we categorize and make sense of the world. Several theories seek to explain this process and the factors that influence it.

4.8 LESSON END EXERCISE

1. Discuss the concept and attributes of concept formation.
2. Elaborate the development of some concepts.
3. Illustrate the role of teacher in concept building

4.8 SUGGESTED READINGS

1. Aggarwal, J.C. (2007). Basic ideas in educational psychology. New Delhi:Shipra Publications.
2. Bhatnagar, A.B. &Bhatnagar, A. (2021). Advanced educational psychology. Meerut: R. Lall Book Depot.

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 11. Mayer, R. E. and Wittrock, R.C. 2006. Problem solving. In Handbook of educational psychology (pp. 287-304). Mahwah,NJ: Erlbaum.
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4.9. ANSWERS TO CHECK YOUR PROGRESS

- (i) Common , objects or events
- (ii) cognitive abstractions
- (iii) experiences
- (iv) attributes
- (v) guide

REASONING

STRUCTURE

- 5.1 Introduction
- 5.2 Objectives
- 5.3 Meaning of Reasoning
- 5.4 Steps in development of Reasoning
- 5.5 Types of Reasoning
- 5.6 Role of Teacher in
- 5.7 Let Us Sum Up
- 5.8 Lesson End Exercise
- 5.9 Suggested Further Readings
- 5.10 Answers to check your progress

5.1 INTRODUCTION

Life is not smooth-sailing all the time. It is full of problems and situations for which there are no readymade solutions. It requires reasoning to deal effectively with all such types of solutions for happy living. Reasoning plays a significant role in one's adjustment to the environment. Problem-solving activity is sometimes referred to as reasoning. This involves the manipulation of abstract symbols. It is much like trial and error behaviour involving mental exploration instead of motor exploration. It not only determines one's cognitive

activities but also influences the behaviour and personality as a whole.

5.2 OBJECTIVES

After reading this lesson, you shall be able to:

- describe the meaning of Reasoning
- explain the steps followed in Reasoning
- illustrate the types of Reasoning
- elaborate the role of Teacher in development of Reasoning

5.3 MEANING OF REASONING

Reasoning is that form of thinking which occurs when the individual is confronted with a problem that requires a solution or demands some adjustment. Individual makes use of this ability not only to solve an immediate problem but to anticipate future problems as well. It is essentially a cognitive ability and is like thinking in many ways. It is the mental process of looking for reasons for beliefs, conclusions, actions or feelings.

Definitions

Garrett: "Reasoning is a stepwise thinking with a purpose or goal in mind"

Gates: "Reasoning is the term applied to highly purposeful, controlled and selective thinking".

Skinner: "Reasoning is the word used to describe the mental recognition of cause and effect relationships, it may be the prediction of an event from an observed cause or the inference of a cause from an observed event".

Munn: "Reasoning is combining past experiences in order to solve a problem which cannot be solved by mere reproduction of earlier solutions."

Thus, reasoning is a highly specialized thinking which helps an individual to explore mentally the cause and effect relationship of an event or solution of a problem by adopting some well-organized systematic steps based on previous experience combined with present observation.

5.4 STEPS IN DEVELOPMENT OF REASONING

John Dewey described reasoning as 'Reflective thinking'. According to him reasoning involves certain steps. These are explained in detail as under:

1. A felt difficulty: Reasoning begins with a felt difficulty. The individual must be aware of a difficulty. Unless, he is aware of the difficulty, there is no problem. A felt difficulty may be theoretical or practical in nature. For example, problems of philosophers are generally theoretical whereas the problems of educationists are practical in nature. Teachers and students face problems in their day to day teaching learning situations which require immediate solution. The more an individual is conscious of a problem, greater will be the zeal to find the solution. Hence, students should be trained to experience the difficulties and problems in their day to day life situations.

2. Location and definition of difficulty: After experiencing the difficulty the individual has to locate and define the difficulty or problem. Individual is required to analyse the difficulty and problem thoroughly. Teacher should guide the students to locate and define the nature of difficulty or problem.

3. Locate, evaluate and organize information: After feeling and defining difficulty, it is essential to collect information. Information may be collected from books, photographs, periodicals, internet, radio, television or observation. After information has been collected, it should be evaluated. After this, information should be organized and classified.

4. Discovering relationships and formulating hypothesis: After organizing information, attempt is made to discover relationship between various collected facts to formulate hypothesis.

5. Evaluating hypothesis: Gates and others have suggested three steps in evaluating hypothesis:

- a) One should determine whether the conclusion completely satisfies the demands of the problem.
- b) One should find out whether the solution is consistent with other facts and principles which have been established.

- c) One should make a deliberate search for negative instances which may raise doubts on conclusion.
6. **Applying the solution:** The final step is the application of the solution i.e. accepting or reasoning the hypothesis.

5.5 TYPES OF REASONING:

Reasoning is said to be the productive and advanced stage in the complex process of thinking. It is a more serious and complex mental process which needs a well-organised brain and deliberate efforts. It can take many forms, ranging from simple decision-making to complex algorithms that fuel artificial intelligence. However, reasoning is usually classified into two main types- Inductive reasoning and Deductive reasoning

1. **Inductive reasoning:** Inductive reasoning is a logical process that involves using specific experiences, observations or facts to evaluate a situation. In this type of reasoning, the process of induction is followed. Here, the reasoning is from the particular to the general i.e. drawing a general conclusion based on particular observation. In fact, it is a specialized thinking aimed at the discovery or construction of a generalized principle by proving that if a statement or a rule is true in one particular case, it will be true in all the cases of same form and order.

Inductive reasoning employs theories and assumptions to validate its observations. It is different from deductive reasoning in the sense that it requires deducing a general rule from a specific case or cases. So, it is polar opposite of deductive reasoning.

For example, Socrates is mortal, Plato is mortal, Aristotle is mortal; therefore, all human beings are mortal.

2. Deductive reasoning:

Deductive reasoning begins with making a general assumption that you know or believe to be true and then drawing specific conclusion based on this assumption. In other words, it is reasoning from general to particular.

It is a method of proving a theory or hypothesis using formal logic and observations. It is the ability to draw some logical conclusions from known statement or evidences. Here, one starts with already known or established generalized statement or principle and applies

it to specific cases. For example, we may have statements like 'All men are mortal' which is a general statement. From this it can be inferred that a particular man or individual is mortal. Deductive reasoning is used in formal thinking like syllogistic reasoning. For this there should be minimum of two statements, the first is called major premise. For example, "All figures with three angles are triangles", "All men are mortal", etc. The second statement is called the minor premise which is a particular statement. For example, "A is a man", "This figure is a three angled figure". From the two statements i.e. major and minor premises the conclusion is drawn. This is called as deductive reasoning.

Henry L. Roediger and others (1987) in their book Psychology categorized deductive reasoning into three types as under:

- a) **Conditioned reasoning:** It is the reasoning tied down by some specific condition such as the following.

For example, if there is a solar eclipse, the street will be dark. There is a solar eclipse. Therefore, the streets are dark.

- b) **Categorical reasoning:** This type of reasoning is based on some categorical statements.

For example, all Robins are birds. All birds lay eggs. Therefore, all Robins lay eggs.

- c) **Linear reasoning:** This type of reasoning involves straight forward relationships among elements.

For example, if A is taller than B and B is taller than C, A is the tallest.

5.6 ROLE OF TEACHER IN REASONING

Children need to develop reasoning skills in order to carry out problem solving in the real world. Following techniques can be adopted by the teacher to develop reasoning among the students:

1. **Familiarity with life problems:** Teacher should make the students familiar with day to day life problems.
2. **Modelling logical thinking:** Demonstrating and modeling logical thinking processes in the classroom lead to the development of reasoning among the students.

Teachers should train the students in the class to analyze information, evaluate evidence, and make sound judgments.

3. **Effective communication:** In a classroom setting, communication is a way through which teachers and students share or clarify ideas. Teachers should encourage students to share ideas with others either orally or in writing. Students need to be clear, convincing, and decisive in their expressions.
4. **Discussion and dialogue:** Research indicates that discussion and dialogue are closely linked to the development of reasoning skills. Encouraging students to participate in dialogues in which they can put forth and support arguments, as well as respond to, criticise, and/or evaluate the ideas of their peers or group members. It enables them to be more confident towards learning as well as being open to accepting other people's ideas. In a group setting, students can present arguments and consider the counterarguments of their peers, which in turn help them learn to support their reasoning and evaluate the viewpoints of others.
5. **Questioning and inquiry:** The way a teacher asks questions during a lesson has a big impact on how far students develop reasoning. Teachers can contribute greatly towards the development of reasoning among the students by "skillfully probing students' reasoning and observing students' problem-solving." Therefore, teachers should pose questions that give students opportunities to interact with a variety of thinking and sense-making processes rather than assigning exercises that just require students to follow well-known procedures or imitate worked examples. Teacher's discussion or inquiry support students in reflecting on and expanding upon their prior knowledge as they produce new knowledge. Teachers should continuously look for evidence of student thinking while making appropriate pedagogical shifts in pushing them to elaborate, explain, and justify their thinking.
6. **Promoting critical analysis:** Students should be encouraged to critically analyze information, arguments, and perspectives. They should be trained to identify biases, assumptions, and fallacies in reasoning.
7. **Developing Analytical Skills:** Teachers should incorporate activities that develop analytical skills, such as data analysis and interpretation among the students.

Emphasis should be laid on integrating real-world examples that require students to use reasoning to draw conclusions.

8. **Multiple representations:** Teachers should make use of multiple representations for understanding, describing, developing as well as communicating different features of the same concept. Multiple representations may include words, symbols, diagrams, formulas, grids and tables, manipulatives, graphs, pictures, and many more.
9. **Mathematical tasks:** Administration of appropriate tasks is regarded as one of the most essential aspects of stimulating students' reasoning. Teachers ought to pose tasks and activities that are bound to trigger higher-order thinking among students because their reasoning is shaped by the tasks they encounter in the classroom. It is also evident that thought-provoking tasks initiate specific moves to promote reasoning and understanding as they encourage students to begin to build their justifications and sharing of ideas.
10. **Encourage decision-making:** Teachers should focus on developing child's decision-making skills. Help the child to weigh the pros and cons of available options, apply fundamental concepts and pick the most feasible option independently. This exercise will also make them confident about handling complex situations single-handedly.
11. **Inspire creativity:** Studies reveal that creativity is the key to develop reasoning skills among the children. Teachers should seek innovative ways to encourage students to think in a novel and different way. Let young minds invent their unique ways of presenting and explaining concepts.
12. **Brainstorming sessions:** Brainstorming is a groundbreaking trick to boost critical thinking in young children. It provides opportunity to the students to come together with their thoughts and ideas. However, it is crucial to create a judgement-free zone to encourage a wild and unfiltered flow of ideas. Mind-mapping, weighing pros and cons and asking 'what ifs' are some other rules for conducting a brainstorming session.
13. **Prompt them to be unique:** Every child is unique and has a different thought

process. And every mentor should encourage students to maintain their individuality while solving critical reasoning problems. Students should have the confidence to come up with their own version of the story, ideas, and explanations without hesitation. Any child who wins this has higher chances of perfecting critical thinking skills in the future.

- 14. Collaborative learning:** Studies have shown that students who work collaboratively have a deeper understanding of content, are better problem-solvers, and approach tasks more critically than students who do not. In sum, working in groups can allow students to practice the essential analytical skills that contribute to everyday reasoning.

By actively engaging in these roles, teachers can contribute significantly to the development of reasoning skills in their students. These skills are essential for academic success, problem-solving, and decision-making in various aspects of life.

Check Your Progress-1

Note: (a) Write your answers in the space given below.

(b) Compare your answers with those given at the end of the lesson/above sub-section.

1. Fill in the blanks
 - (i) Reasoning is a stepwise _____ with a purpose or goal in mind.
 - (ii) Reasoning is combining _____ in order to solve a problem.
 - (iii) Reasoning is usually classified into two main types viz. _____.
 - (iv) Inductive reasoning is from _____.
 - (v) Deductive reasoning is from _____.
2. Enumerate the steps followed in Reasoning

3. Illustrate the major types of Reasoning

4. Mention the role of Teacher in development of Reasoning

5.7 LET US SUM UP

Reasoning is very important in education. It is a highly specialized thinking which helps an individual to explore mentally the cause and effect relationship of an event or solution of a problem by adopting some well-organized systematic steps based on previous experience combined with present observation. Reasoning abilities help the individuals to interpret, assess, and accept facts and arguments, it has a significant impact on one's ability to learn from new information and experiences. Deductive and inductive reasoning are important to study and practise because they strengthen critical thinking skills, which help an individual to improve problem-solving abilities, increase interpersonal and leadership skills, and help to empathise with others.

5.8 LESSON END EXERCISE

1. Discuss the meaning of Reasoning. Explain the steps followed in the development of Reasoning.
2. Illustrate the major types of Reasoning.
3. Elaborate the role of Teacher in development of Reasoning.

5.9 SUGGESTED FURTHER READINGS

1. Aggarwal, J.C. (2007). Basic ideas in educational psychology. New Delhi: Shipra Publications.
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10. Walia, J.S. (2003). Foundations of educational psychology. Jalandhar: Paul Publishers.

5.10 ANSWERS TO CHECK YOUR PROGRESS

- (i) Thinking
- (ii) Past experiences
- (iii) Inductive reasoning and Deductive reasoning
- (iv) Particular to the general
- (v) General to particular

PROBLEM SOLVING

STRUCTURE

- 6.1 Introduction
- 6.2 Objectives
- 6.3 Meaning of Problem-solving
- 6.4 Approaches of Problem-solving
- 6.5 Phases of Problem -solving
- 6.6 Role of Teacher in
- 6.7 Let Us Sum Up
- 6.8 Lesson End Exercise
- 6.9 Suggested Further Readings
- 6.10 Answers to check your progress

6.1 INTRODUCTION

Life is full of problems. No matter how hard you try to avoid them, problems will always pop up. These problems may vary from very simple to more complex situations. These are an unavoidable part of everyday life. Situations requiring problem solving are of great variety. They have several characteristics in common. Man is able to solve them successfully only if he has proper experiences and the art of overcoming difficulties in life. This habit may be acquired from early stages of education. As the child grows up he learns

new methods of tackling problems. The problems are solved by the use of rules, simple or complex. An individual is required to possess adequate skills as how to respond these kinds of situations to find a solution and stride towards achieving his purpose. Thus, serious and deliberate efforts have to be made to overcome these impediments. Finding answers to difficulties that arise in daily life is referred to as problem-solving in psychology.

6.2 OBJECTIVES

After reading this lesson, you shall be able to:

- describe the meaning of Problem-solving
- explain the approaches of Problem-solving
- illustrate the Phases Of Problem -solving
- elaborate the role of Teacher in Problem-solving

6.3 MEANING OF PROBLEM-SOLVING

The term 'problem-solving' refers to the mental process that people go through to discover, analyze, and solve problems. It is a form of learning in which the appropriate response must be discovered to solve the encountered problem. It is the intentional planning and execution of practical solutions to issues that come up in one's life. It is kind of a mental process or a phenomenon dedicated towards solving problems by discovering and analyzing the problem. It is a process dedicated to finding not just any solution, but the best solution to resolve any problems.

Woodworth and Marquis (1948): Problem-solving behaviour occurs in novel or difficult situations in which a solution is not obtainable by the habitual methods of applying concepts and principles derived from past experience in very similar situation."

Skinner (1968): Problem-solving is a process of overcoming difficulties that appear to interface with the attainment of a goal. It is a procedure of making adjustment in spite of interferences.

Mayer and Wittrock (2006): Problem solving is a as "cognitive processing directed at achieving a goal when no solution method is obvious to the problem solver".

Goldstein and Levin (1987): "Problem solving has been defined as higher-order cognitive

process that requires the modulation and control of more routine or fundamental skills."

Robert M. Gagne (1976): Problem-solving may be viewed as a process by which the learner discovers a combination of previously learned rules which can be applied to achieve a solution for a novel situation."

6.4 APPROACHES OF PROBLEM SOLVING

There is no such thing as one best way to solve every kind of problem, since there are unique problems depending upon the situation there are unique solutions too. At times, there is no exact science to effective problem solving, especially if there are multiple supposed routes that could lead to success. Thorndike's cat and Kohler's chimpanzee were faced with problem solving situations, and the animals exhibited a good ability of solving the problems even though after considerable efforts. Following are major approaches to problem solving:

1. TRIAL AND ERROR PROBLEM SOLVING BEHAVIOUR

Trial and error approach of problem solving is characterised by repeated and varied attempts by the individual to find the solution of the problem until success is achieved. Edward Lee Thorndike of Columbia University, New York, USA is pioneer in conducting experiments on animals to study the problem solving behaviour of the animal. The approach is popularly known as Trial and Error approach of problem solving.

Thorndike advocated that, the problem solving behaviour of human beings and animals primarily depend on Trial and Error. He put a hungry cat in a puzzle box. There was only one door which could be opened by correctly manipulating a latch. A fish was placed outside the box. The smell of the fish acted as a strong motive for the hungry cat to come out of the box. The cat made a number of random movements and in one of the random movements, the latch was manipulated accidentally. The cat came out and got its reward.

The same experiment was repeated several times and it was found that the cat in each successive attempt took less time in reaching the goal. It took 160 seconds for the first successful attempt, but a few seconds for the last trial.

Essential conditions of trial and error approach of problem solving are:

1. Drive: Drive is an essential factor that makes an organism active.. In this case, it

was hunger that stimulated the cat to come out of the box.

2. **Goal:** Goal is a reason to act. In this case, food was the goal.
3. **Block:** Trial and Errors occur only when there is barrier or blockade in between hunger and food. The cat was confined in the box with a closed door.
4. **Random movement:** When the solution is not available, organism tends to act in random manner. The cat tried hard to come out of the box by making random movements.
5. **Chance/accidental success:** As a result of consistent random movements, cat succeeded in opening the door by chance.
6. **Selection of right response:** Accidental success is not the ultimate solution to any problem. Organism is required to select the right response.
7. **Fixation of right response:** It is the final stage of learning. The organism has to stay fixed on the right response to make learning permanent. In this case, cat mastered the trick to come out of the box.

Thus, the experiment shows that the cat and other animals initially adopt trial and error approach in certain problem-situations. Finding the solution in in such situations is gradual and shows no indication of insight or understanding.

2. INSIGHT PROBLEM SOLVING BEHAVIOUR

Another popular approach of solving problems is to solve them through insight. In fact, insight is the sudden solution to a long-vexing problem, a sudden recognition of a new idea, or a sudden understanding of a complex situation.

Pioneer studies in this field are conducted by German psychologists- Max Wertheimer, Kurt Koffka, and Wolfgang Kohler. This approach regards problem solving as a purposive, exploratory and creative enterprise. They used the term insight to describe the perception of the whole situation by the learner, and his intelligence in responding the proper relationships.

Kohler conducted experiments on chimpanzees to display that the animals perceive the situation as a whole to find the solution of the problem by making use of insight. In one

experiment, a hungry chimpanzee named Sultan was confined in a cage. Kohler kept bananas outside the cage, beyond the reach of the chimpanzee. It tried its best but could not reach the food. Two sticks neither of which was long enough to reach the bananas were placed outside the box. The chimpanzee tried with the shorter stick but could not reach to the banana. The animal then used the shorter stick to reach the longer one and was able to reach the banana with longer stick by making use of insight. In another experiment, Kohler suspended a banana from the roof of a cage, beyond the reach of the animal. The chimpanzee attempted to get the bananas but could not reach to them. He put the boxes under the bananas and climbed on them to reach the bananas. These experiments also show that insight follows trial and error behaviour on the part of the animal. Once the animal learns to solve a problem by insight, there is every possibility of high degree of transfer to similar problems. These experiments demonstrated the role of intelligence and cognitive abilities in higher learning such as problem solving

Essential Features of Insightful Approach of problem solving:

1. **Survey of the problem-situation:** A careful survey of the problem-situation is essential to find the solution of the problem.
2. **Use of past experience:** Past experiences help in the insightful solution of the problem at hand.
3. **Intelligence of the learner:** Insightful solution of the problem depends upon the level of intelligence of the learner.
4. **Nature of situation:** Insightful solution depends upon the nature of the situation in which the learner has been placed. Some situations are more conducive to insightful solution than others.
5. **Trial and error mode of response:** Insightful learning passes through the process of trial and error but this stage does not last long. The initial efforts in the form of simple trial and error mechanism lead to insightful learning.
6. **Constant attention to the goal:** The learner is continuously required to focus on the goal till the solution is obtained.
7. **Repetition of successful performance:** The successful solution to a particular

problem helps the learner to find the solution in other identical situations by making use of insight.

3. HEURISTICS APPROACH OF PROBLEM SOLVING BEHAVIOUR

Heuristics refer to mental shortcuts or rules of thumb that individuals use to make quick decisions and find solutions to problems. These approaches are practical strategies that help simplify complex problem-solving processes, enabling individuals to make faster decisions with limited information.

Heuristic approach of solving problems was proposed by renowned economist and cognitive psychologist Herbert Simon. He explained heuristic as a mental shortcut commonly used to simplify problems and avoid cognitive overload. He advocated that facts and information should be explored by the students on their own efforts.

While heuristics can be efficient in certain situations, they can also lead to errors and biases. It's essential to be aware of these cognitive shortcuts and, when necessary, complement them with more deliberate and analytical problem-solving approaches.

4. ALGORITHM APPROACH OF PROBLEM SOLVING BEHAVIOUR

The algorithmic approach to problem-solving involves using a step-by-step procedure or a well-defined set of rules to reach a solution. The concept of an algorithm is most commonly used in reference to computer science, mathematics and other fields of study. Our brain relies on algorithms every day to resolve issues.

Algorithms provide clear, unambiguous instructions for solving a problem. In this approach input is provided which is processed through a series of steps and output is produced. The output should represent a solution to the problem. Algorithms can be reused for similar problems. Once a well-designed algorithm is created, it can be applied to different instances of the same problem. It provides a structured and systematic way to address complex problems, offering a clear path to a solution.

6.5 PHASES IN PROBLEM SOLVING

In a problem solving method a systematic and orderly process is adopted for carrying out the teaching-learning process. In this technique children learn by working on problems. The process begins with the felt difficulty or problem. The students are made to

think out all the possible situations of the confronted problem on the basis of their previous knowledge. They are expected to observe, understand, analyze and interpret the situation to find solution of the problem.

The commonly followed steps for finding the solution to the problem are as under:

- 1. Awareness of the problem:** The first step in problem solving is presence or awareness of the problem. Students usually face several difficulties, questions, doubts and problems, the answer to which is not available in books. The students must be aware of the problem being faced by them. The problem should be stated in clear, exact, definite and unambiguous terms.
- 2. Understanding the problem:** The problem faced should be understood properly for the desired solution of the problem. The limitation of the problem and its area of operation should be clearly outlined. It should be clearly defined and its purpose should be made clear to the problem solver. Students can find the specific solution of a problem if they are able to comprehend all the component factors of a problem situation.
- 3. Collection of relevant information or data:** After defining and understanding the problem, the students are encouraged to collect information relevant to the problem. They are guided to consult various text books, reference books or extra books. The teacher may suggest various points to them. They are asked to explore the various sources of information to find the solution of the problem.
- 4. Analysis of the collected data or information:** The information collected is analysed in the light of finding out the possible solution of the problem. The irrelevant data is abandoned and useful data is kept for the solution of the problem. The facts collected need to be evaluated and classified to draw relevant conclusions. The correctness of a conclusion depends upon the particular facts used and the way they are organised in support of a hypothesis.
- 5. Formulation of hypothesis or tentative solutions:** A hypothesis is a tentative solution of the problem. There can be different predictive or tentative solutions for the problem at hand. Students frame the possible solutions based on the information collected. To think over such tentative solution refers to formulation of hypothesis.

Formulation of hypothesis or tentative solutions after the statement of the problem and collection of relevant data is an important stage in problem solving.

6. **Selecting or testing of a proper hypothesis:** An attempt is made to search out the best possible solution of the problem out of the possible tentative solutions. For this purpose the formulated hypotheses are tested in terms of their validity and practicability. The selection of the relevant hypothesis should be made cautiously. Even though one may be mentally set to accept one hypothesis, the merits of alternative suggestions or hypotheses should be examined carefully and compared.
7. **Drawing conclusions and making generalisations:** In this step the formulated hypotheses are accepted, rejected or modified. A hypothesis is accepted if it is proved in the light of conducted study and experiment. Generalizations are drawn on this basis. A hypothesis is rejected in case there are negative results. If any hypothesis is neither proved nor disproved, it is modified in the light of obtained results.
8. **Application of the solution:** The final step in the process of solving problem is the application of the solution. Problem solving is considered most effective if the solution remains in place and is updated to respond to future changes.

6.6 ROLE OF TEACHER IN PROBLEM SOLVING

An important objective or goal of modern education is to develop problem-solving skills or abilities in the pupil. Teachers play a crucial role in facilitating and nurturing problem-solving skills among students. Problem-solving is not only a critical skill for academic success but is also essential for navigating real-world challenges. Here are several key roles that teachers play in fostering problem-solving abilities in students:

1. **Introduce novelty:** Novelty means the quality of being new and different. It captures the attention of the students and motivates them to learn something new. Teacher must introduce novelty into his teaching to maintain curiosity and interest among the students. Thus, novelty plays a very important role in motivation.
2. **Sense of healthy competition:** Human beings are competitive by nature. Developing a sense of healthy competition among the students inside or outside the

classroom can be an excellent catalyst for boosting their motivation. Competition should involve a degree of equality and cooperation among contestants. Healthy competition inspires students to do their best.

3. Knowledge of result: It is observed that the knowledge of results facilitates motivation and improves functioning or performance of the learners. Thus, teacher should help the students to anticipate the result of their efforts.

4. Present real life and symbolic models: Humans learn through the process of observation and imitation. The teacher can influence the behaviour of his students by his attitude and ideal living, written and verbal presentation and by the use of various techniques.

5. Meaningfulness of the task: The more meaningful the material, the rapid and easier is the learning. Therefore, teacher should engage the students in meaningful tasks to enhance their level of motivation. Rote learning should be discouraged.

6. Development of desirable attitude and ideals: Development of desirable attitude and ideals plays a very important role in motivation. Teacher should make best efforts to develop desirable attitude and ideals among the students.

7. Creating good learning conditions: Creating a good learning environment can be the difference between failure and success of achieving the goal. Teacher must create good learning conditions to enhance the performance of each and every learner.

8. Providing challenging problems: Teachers should offer problems that require critical thinking and creativity. Tailoring the difficulty level to match students' abilities, ensuring a balance between challenge and attainability should be the major considerations while providing challenging problems to the students.

9. Use of modern technology: Use of modern technology like ICT can also help in enhancing motivation among the learners. It helps in engaging the maximum senses of the students in teaching learning process to sustain interest and attention of the students.

10. Use of illustrations and teaching aids: Teacher should make effective use of various audio-visual aids in teaching like charts, models, specimens, diagrams, pictures, posters, multi-media etc. to motivate the students. Proper use of verbal illustrations and examples should also be made during teaching.

- 11. Use of life like methods:** Teacher should make use of interesting and life-like methods of teaching like inquiry method, heuristic method, discovery method etc. to inculcate problem-solving skills among the learners. Teacher should cite examples from the real life situations of the child. Thus, teaching should be made life like, psychological and child-centred.
- 12. Variety of experiences:** Teacher should provide a variety of learning experiences to the learners inside and outside the classroom. Teacher should mix up his lessons with different preferences to keep all students motivated. Doing so will help students stay engaged and pay attention.
- 13. Encourage students to take responsibility:** Assign different jobs to the students inside and outside the classroom to develop a sense of responsibility among the students. Students take classroom jobs as a privilege rather than a burden. They will work hard to meet the expectations.
- 14. Encourage self-reflection:** Most children want to succeed in life. They just need help to figure out what to do to achieve success. Teacher must motivate the students to determine their own strengths and weaknesses. Help them to set their own objectives and goals keeping in view their strengths and weaknesses.
- 15. Effective and immediate feedback:** Teacher must provide effective and immediate feedback to the students regarding progress made in achieving the set goal. Teacher should offer chances to improve who struggle with classwork. Teacher should help students to figure out where they went wrong and how they can improve next time.
- 16. Track progress of students:** Teacher can make use of artificial intelligence and other techniques to track the progress of each and every child in the class. Teachers can use this record to improve student motivation. It will allow the students to introspect as how much they are learning and improving to achieve the desired goal.
- 17. Collaborative learning:** Students feel motivated when teachers provide them opportunities to share their questions and what they have learned with their peers. Students demonstrate increased work effort when there is a sense of collective responsibility for learning. Teacher should plan student-to-student dialogue within a lesson, and identify activities that can be undertaken in pairs or groups.

18. Teach within a specific context: Teach problem-solving skills in the context in which they will be used. Teacher should use real-life problems in explanations, examples, and exams. Do not teach problem solving as an independent, abstract skill.

19. Ask questions and make suggestions: Ask students to predict "what would happen if . . ." or explain why something happened. This will help them to develop analytical and deductive thinking skills. Also, ask questions and make suggestions about strategies to encourage students to reflect on the problem-solving strategies that they use.

20. Encourage independence: Model the problem solving process rather than just giving students the answer. Have students work through problems on their own. Ask directing questions or give helpful suggestions, but provide only minimal assistance and only when needed to overcome obstacles. Group work should be assigned to students so that they can frequently help each other, and talking about a problem helps them think more critically about the steps needed to solve the problem.

21. Encourage thoroughness and patience: Try to communicate that the process is more important than the answer so that the student learns that it is ok to not have an instant solution. This is learned through your acceptance of his/her pace of doing things, through your refusal to let anxiety pressure you into giving the right answer, and through your example of problem solving through a step-by step process.

22. Provide a variety of problem-solving experiences: Offer games, puzzles, discussions, literature, and projects that children design - a wide range of activities that inspire creative and critical thinking and encourage children to stretch their minds.

Check Your Progress-1

Note: (a) Write your answers in the space given below.

(b) Compare your answers with those given at the end of the lesson/above sub-section.

1. Fill in the blanks

(i) Problem-solving is a process of _____ difficulties that appear to interface with the attainment of a goal.

- (ii) Problem solving involves _____ and _____.
- (iii) Trial and Error Problem-solving approach is advocated by _____.
- (iv) _____ is the sudden solution to a long-vexing problem, a sudden recognition of a new idea, or a sudden understanding of a complex situation.
- (v) An important objective or goal of modern education is to develop _____ in the pupil.

2. Enumerate the approaches of Problem-solving.

3. Illustrate the phases of Problem-solving.

4. Mention the role of Teacher in development of Problem-solving.

6.7 LET US SUM UP

In psychology, problem solving does not necessarily refer to solving psychological/ mental issues of the brain. The process simply refers to solving every kind of problems in life in a proper manner. The idea of including the subject in psychology is because psychology deals with the overall mental process. The problem-solving method is an effective teaching strategy that promotes critical thinking, creativity, and collaboration. It provides students with real-world problems that require them to apply their knowledge and skills to find solutions. By using the problem-solving method, teachers can help their students develop the skills they need to succeed in school and in life.

6.8 LESSON END EXERCISE

1. Discuss the meaning and approaches of Problem-solving.
2. Illustrate the major phases of Problem-solving.
3. Elaborate the role of Teacher in Problem-solving.

6.9 SUGGESTED FURTHER READINGS

1. Aggarwal, J.C. (2007). Basic ideas in educational psychology. New Delhi: Shipra Publications.
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9. Piaget, J (1952). Origins of intelligence in children. New York: International Universities Press.
10. Walia, J.S. (2003). Foundations of educational psychology. Jalandhar: Paul Publishers.
11. Mayer, R. E. and Wittrock, R.C. 2006. Problem solving. In Handbook of

educational psychology (pp. 287-304). Mahwah,NJ: Erlbaum.

12. Bhatnagar, A.B. &Bhatnagar, A. (2021). Advanced educational Psychology. Meerut: R. Lall Book Depot.

6.10 ANSWERS TO CHECK YOUR PROGRESS

- (i) overcoming
- (ii) concept formation, discovery learning
- (iii) Edward Lee Thorndike
- (iv) insight
- (v) problem-solving skills

DEVELOPMENT OF THINKING

STRUCTURE

- 7.1 Introduction
- 7.2 Objectives
- 7.3 Meaning of Thinking
- 7.4 Classification of Thinking
- 7.5 Steps in the development of Thinking
- 7.6 Tools of Thinking
- 7.7 Forms of Thinking
- 7.8 Role of teacher in development of Thinking
- 7.9 Meaning of Language Development
- 7.10 Sequence of Language Development
- 7.11 Factors influencing Language Development
- 7.12 Role of teacher in Language Development
- 7.13 Let Us Sum Up
- 7.14 Lesson End Exercise
- 7.15 Suggested Further Readings
- 7.16 Answers to check your progress

7.1 INTRODUCTION

Human beings are superior to all other beings. The ability to think and the reason is what separates the human beings from other species, including higher animals. Thinking of man has been an inevitable factor in the evolution of the society to a complicated structure. The way that an individual approaches to various day to day problems and seeks solutions depends largely upon his cognitive abilities. Abilities like thinking, reasoning and problem-solving may be considered to be some of the chief cognitive abilities to deal with different types of situations in life. There is no denial over the statement that the challenges and problems faced by the individual or by society, in general are solved through series of efforts involving thinking and reasoning. The powers of thinking and reasoning may thus be considered to be the essential tools for the welfare and meaningful existence of the individual as well as society.

7.2 OBJECTIVES

After reading this lesson, you shall be able to:

- describe the meaning of Thinking
- classify Thinking
- illustrate the steps in Thinking
- elaborate the tools of Thinking
- enumerate the role of teacher in development of Thinking
- explain the meaning of Language Development
- understand the sequence of Language Development
- identify factors influencing Language Development
- illustrate the role of teacher in Language Development

7.3 MEANING OF THINKING

Thinking involves all forms of mental activities. It includes perception, imagination, memory or concept formation. All these are the different forms of thinking.

APA Dictionary of Psychology defines thinking as "cognitive behaviour in which ideas, images, mental representations and other such hypothetical elements of thought are experienced or manipulated."

Ross: "Thinking is a mental activity in its cognitive aspect or mental activity with regard to psychological aspects".

Garrett: "Thinking is a behaviour which is often implicit and hidden and in which symbols are ordinarily employed".

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

Woodworth: "Thinking is mental exploration for finding out the solution of a problem."

Kolesnik: "Thinking is the reorganization of concepts."

7.4 CLASSIFICATION OF THINKING

Thinking is fundamental to the processes of problem-solving and learning. Individuals must acquire relevant knowledge and experiences in order to develop the various types of thinking. Thinking can be classified as follows:

1. Critical Thinking vs. Creative Thinking:

- **Critical Thinking:** This type of thinking involves analyzing and evaluating information, arguments, or ideas in a logical and systematic way. It focuses on assessing the validity and relevance of information.
- **Creative Thinking:** This type of thinking involves generating new ideas, approaches, or solutions. It emphasizes the ability to think outside the box, explore possibilities, and create novel concepts.

2. Convergent Thinking vs. Divergent Thinking:

- **Convergent Thinking:** This type of thinking focuses on finding a single, correct solution to a well-defined problem. It involves narrowing down options to reach a specific conclusion.
- **Divergent Thinking:** This type of thinking involves generating a variety of

ideas or solutions in response to an open-ended question or problem. It encourages exploration of multiple possibilities.

3. Analytical Thinking vs. Holistic Thinking:

- **Analytical Thinking:** This type of thinking involves breaking down complex information into smaller components, examining details, and understanding the underlying structure or patterns.
- **Holistic Thinking:** This type of thinking focuses on understanding the bigger picture, considering how various elements are interconnected, and appreciating the wholeness of a system or context.

4. Strategic Thinking vs. Tactical Thinking:

- **Strategic Thinking:** This type of thinking involves considering long-term goals and planning to achieve them. It emphasizes making decisions that are in tune with overarching objectives.
- **Tactical Thinking:** This type of thinking focuses on short-term actions and plans that contribute to the overall strategy. It deals with the implementation of specific tasks to achieve immediate objectives.

5. Concrete Thinking vs. Abstract Thinking:

- **Concrete Thinking:** This type of thinking involves understanding and dealing with situations that have a tangible, concrete existence. It is focused on real, observable facts.
- **Abstract Thinking:** This type of thinking involves understanding concepts, ideas, or principles that do not have a concrete, tangible existence. It deals with general principles and theoretical constructs.

6. Reflective Thinking vs. Reactive Thinking:

- **Reflective Thinking:** This type of thinking involves anticipating one's own thoughts and experiences, learning from past experiences, and making informed decisions based on self-examination.

- **Reactive Thinking:** This type of thinking involves responding quickly to immediate stimuli without deep contemplation. It may be instinctive and driven by automatic responses.

7. **Linear Thinking vs. Nonlinear Thinking:**

- **Linear Thinking:** This type of thinking follows a step-by-step, sequential approach. It involves a logical progression from one point to another.
- **Nonlinear Thinking:** This type of thinking involves a more flexible and creative approach, where the thought process may not follow a linear path. It allows for exploration of multiple ideas simultaneously.

These classifications are not mutually exclusive, and individuals often use a combination of these thinking styles depending on the context and nature of the problem or task at hand.

7.5 **STEPS IN DEVELOPMENT OF THINKING**

The development of thinking skills is a gradual and lifelong process. While individuals may progress through different stages of growth and development at different rates, there are general steps in the development of thinking. The process of the development of thinking generally comprises of following stages:

1. **Sensorimotor Stage (Infancy):** At this stage, thinking is primarily based on sensory experiences and motor actions. Infant learns to coordinate sensory input with motor actions. An understanding of object permanence is also developed.
2. **Preoperational Stage (Preschool Years):** At this stage, language and symbolic thinking develop, but reasoning is intuitive and egocentric. Development of language and the ability to use symbols are the common features. Stage is also known for the development of egocentric thinking.
3. **Concrete Operational Stage (Elementary School Years):** At this stage, logical and operational thinking emerges. The development of thinking is usually limited to concrete and tangible experiences. Child develops the understanding of concrete operations, conservation, and basic logical principles.

4. **Formal Operational Stage (Adolescence and Beyond):** This stage characterizes the development of abstract and hypothetical thinking. Adolescents learn to solve complex problems at this stage and make use of reasoning. This stage is known for the development of abstract thinking, hypothetical reasoning, and the ability to think about possibilities and consequences.
5. **Early Adulthood and Beyond:** Continued refinement of thinking skills, cognitive flexibility, and metacognition take place at this stage. It leads to further development of critical thinking, decision-making, problem-solving, and metacognitive skills.
6. **Lifelong Learning and Experience:** Continuous adaptation and refinement of thinking skills based on life experiences, education, and exposure to diverse perspectives lead to the development of higher mental faculties. Individual applies critical thinking across various domains, embracing lifelong learning, and adapting thinking strategies based on new information

The development of thinking is a dynamic and interconnected process that involves biological, cognitive, social, and environmental factors. It is influenced by both innate capacities and external stimuli, and is regarded as continuous process.

7.6 TOOLS OF THINKING

Thinking is a complex process, and individuals use various tools and strategies to facilitate different aspects of cognitive functioning. The various tools involved in the thinking process are discussed below:

1. **Images:** Images are mental pictures. They consist of personal experiences of objects, persons or situations, heard and felt. These mental pictures symbolize actual objects, experiences and activities. In thinking, we usually manipulate the images rather than the actual objects, experiences or activities.
2. **Concepts:** Concept is indispensable in thinking. It is a general idea that stands for a general class and represents the common characteristics of all objects or events of this general class. Concepts extend limits of thinking to include both the past and future. Concepts economize the efforts in thinking, for example, when we hear the word 'Chandrayaan' we are at once reminded not only about the Indian lunar probe under the Chandrayaan programme as a space mission but also our

own experiences and understanding of the space programme come to the surface in our consciousness to stimulate our thinking at that time.

3. **Symbols and signs:** Symbols and signs are representative of general thoughts. They stand for substitute of the actual objects, experiences and activities. For example, traffic lights, railway signals, school bells, badges, songs, flags and slogans all are symbolic expressions. These symbols and signs stimulate and economize thinking.
4. **Language:** Language is another most efficient and developed tool used for carrying out the process of thinking. When a person reads, writes or hears words, phrases or sentences in any language one is stimulated to think. Reading and writing of documents and literature play a very significant role in stimulating and promoting the thinking process.
5. **Muscular activities:** Thinking involves the movement of groups of our muscles. A high positive correlation has been found to exist between thinking and muscular activities of an individual. The more an individual engages himself in thought process, the greater is the general muscular tension and conversely as one moves towards a state of muscular relaxation, the thought processes gradually decline.
6. **Brain functions:** Thinking is primarily regarded as a function of the brain. Our brain is credited to be the chief instrument of the thinking process. The experiences registered by our sense organs have no meaning unless these impressions are properly interpreted by the brain to derive some meaning. The mental pictures or images can be stored, reconstructed or put to use only on being processed by the brain. What happens in our thought process is simply the function or product of the activities of our brain.

These tools can be used individually or in combination, depending on the context and the specific thinking task at hand. Effective thinkers often employ a diverse set of tools to navigate various cognitive challenges.

7.7 FORMS OF THINKING

The process of thinking is started by senses and then goes through the perception, imagination, and fantasy. In a broad sense thinking includes all forms of cognition, perception,

imagination, memory and conception. Thinking is reflected in many forms such as reveries, controlled association, reasoning, conceptual thinking, imagination, day-dreams, creativity, judgement etc. Main basis for thinking are assumption, calculation, presumption, proposition, speculation, supposition, and inference. Each time that we imagine, remember, solve a problem, or daydream, we are using thinking processes. Following are the major forms of thinking:

1. Perceptual or Concrete Thinking: It is regarded as the simplest form of thinking. The basis of this type of thinking is perception i.e. interpretation of the information absorbed by our senses - to create thoughts. It is also called concrete thinking as it is carried out on the perception of actual or concrete objects and events. It is a common observation that young children first begin to view the world as concrete thinkers. They form thoughts about objects only when the objects are present and not after they have been removed from their environment. For example, if a child is playing with a toy, the infant forms thoughts about the size of the toy, perhaps even the sound that it makes. When the toy is taken away from the child, they may cry at first, but immediately stop thinking about the toy once they find another object that grabs their attention.

2. Conceptual or Abstract Thinking: Conceptual or Abstract thinking refers to an individual's ability to form thoughts about the information presented to them using complex concepts and ideas. Abstract thinking is a critical aspect of social interactions and communication as it allows individuals to study non-verbal cues, comprehend humour, analogies and other symbolic representations. The ability to think in this manner usually develops in late childhood and adolescence. Abstract thinkers also perform well on standardised intelligence tests. Abstract thinkers are able to form complex thoughts about theories, emotions and language.

3. Reflective Thinking: Reflective thinking is utilised when there is a need to solve complex problems. It requires reorganization of all the relevant experiences to a situation or removing obstacles instead of relating with that experiences or ideas. In this process brain reorganises all of our experiences pertinent to a specific situation in an attempt to relate experiences and ideas to find viable solutions to the challenges we face. Reflective thinking may therefore be understood as an introspective cognitive process. In reflective thinking, we reflect upon past experiences and learn from them. In this type, thinking

processes take all the relevant facts arranged in a logical order into an account in order to arrive at a solution of the problem.

4. Divergent thinking: It is a process during which a thinker studies infinite solutions to a problem, in order to develop an innovative answer that is a product of a free-flowing, flexible cognitive process that creates connections between these infinite solutions.

5. Convergent thinking: It is a more focused process that analyses a set of solutions and selects from them a solution to the proposed problem. For example, while solving a multiple-choice questionnaire, we study the options available to us and choose the one that we think best answers the question posed. Convergent thinking is a more analytical process that concentrates on finding the best answer, as opposed to divergent thinking that encourages individuals to take creative risks that may or may not have the desired outcome.

6. Critical thinking: Critical thinking is one of the most complex thinking processes that require higher cognitive skills and abilities such as reflection and reconstruction of thoughts and experiences to interpret, analyse, evaluate and make unbiased inferences. Critical thinkers need to separate themselves from their inherent prejudices and belief systems in order to arrive at the truth. In the age of social media, when consuming online information, it is imperative that we think critically. When presented with information, we must be cautious of the source of the information, its objectivity and its potential impact on readers/viewers, before we form an opinion on the matter. If we were to place blind faith in all of the information coming our way, without questioning its authenticity and intention, we would fail to be critical thinkers and instead become victims of confirmation bias.

7. Strategic thinking: Strategic thinking is considered as the ability to think rationally and comprehensively considering the long-term implications of actions and decisions. Strategic thinkers develop plans and make choices that are helpful in achieving goals, anticipating potential outcomes and adapting to changing circumstances.

8. Holistic thinking: Holistic thinking involves looking at problems or situations as a whole, rather than focusing on individual components. Holistic thinkers often focus on a big picture and attempt to identify connections between seemingly unrelated pieces of information. This type of thinking generates new ideas and leads to innovation.

These forms of thinking are not mutually exclusive, and individuals often employ a

combination of them in various situations. Effective thinking often requires a flexible approach, where different forms of thinking can be applied depending on the context and the nature of the problem at hand.

7.8 ROLE OF TEACHER IN DEVELOPMENT OF THINKING

A teacher's task in the class room is not limited to the teaching of a subject or developing knowledge, skills and understandings among students. Merely teaching facts does not help students to achieve their potential. Education should enable the students to think and solve problems. It should also enable them to understand the underlying meanings instead of memorizing facts for grades. As teachers, therefore, it is our duty to ensure that students think and reason on their own in a critical, creative and intelligent manner. However, following measures can be adopted by teachers to develop thinking skills among the students:

- 1. Encourage curiosity:** Teachers should create a safe and supportive environment where students feel free to ask questions, explore their interests and pursue their curiosity. They should encourage students to question and analyze the information presented to them.
- 2. Challenge ideas and assumptions:** Teachers should encourage students to question assumptions and look at problems from multiple perspectives. They should provide opportunities for students to challenge existing ideas and think outside the box.
- 3. Foster creativity:** Teachers should provide opportunities for students to express themselves creatively. They can do this through art projects, creative writing assignments, and other activities that encourage students to think beyond the conventional.
- 4. Provide feedback:** Teachers should provide constructive feedback that encourages students to reflect on their work and make improvements. Feedback should be specific and focused on the development of critical thinking skills.
- 5. Encourage collaboration:** Teachers should encourage students to work together in groups to solve problems and share ideas. Collaboration promotes critical thinking and encourages creativity by exposing students to a diverse range of perspectives and ideas.
- 6. Model critical thinking:** Teachers should model critical thinking by asking open-ended questions, using evidence to support their arguments, and encouraging students to

challenge their own assumptions.

Thus, the role of a teacher in developing thinking is to provide opportunities for students to explore and express themselves, challenge assumptions, and develop the skills needed to think critically about the world around them.

7.9 LANGUAGE DEVELOPMENT

From the Stone Age of primitive living to the Space Age of modern living the human race has made steady but significant progression. Unlike the subhuman species like birds and animals that are mostly governed by instincts which remain unaltered, man has been able to develop his powers of observation to learn to think and solve problems of life he encounters from time to time. It is difficult to imagine the life our ancestors who might not have been able to communicate meaningfully as the modern sophisticated thinkers do. What kind of a world would it have been before the invention of language? How many different languages have come into existence during the past few thousand years? Of course the initial stage of language development must have been quite an arduous task. Since language is a human behaviour it is essential that it is learnt. It is only through trial and error one gains mastery over language.

Meaning

Language consists of phonemes, morphemes, and grammar. Syntax and semantics are parts of grammar and enable listeners to distinguish between the surface structure (underlying meaning) of sentences. Language development in children is the process of developing ability to comprehend and communicate through speech. It is defined as, the process of developing the capacity to speak, which starts with the children hearing and understanding the pitch of the mother's voice and culminates with the child being able to use words effectively to transmit thoughts and desires. Language development is a crucial element of childhood and early stages of education. It supports the capacity of children to learn aspects of spoken communication. It indicates brain growth and maturity.

7.10 SEQUENCE OF LANGUAGE DEVELOPMENT

Language development of all children follows a certain sequence. This means that there are stages in the learning of language that are universal. All children pass through the

same stages while acquiring language and they do so at approximately the same ages, irrespective of the language they speak. The main thing to which attention must be paid is that even though in the world there are thousands of languages which have different vocabularies, still that language which belongs to any group is quickly learnt by the members of the group without giving any consideration to it that the language is simple or complex. It is because of this that we can say that ability in language is universal and follows a sequence. Following are sequential stages in language development:

Crying: The earliest form of communication that a child uses to express her emotions is crying. From birth to one month of age, this is about the only sound the baby produces to communicate her distress and discomfort. Most mothers are able to make out what the baby's cry indicates-whether she is hungry, wet or just irritable.

Cooing: Around one month of age babies begin to make cooing sounds in addition to crying. This stage continues up to 4-5 months after birth. Cooing is actually a vowel-like sound, particularly like '0000.....'. Babies make cooing sounds when they are contented and satisfied. They seem to derive pleasure out of it. When the little infant coos, the people talk back to the innocent creature by repeating the sound infant produced-and by making some new sounds. In turn, the infant responds with more cooing. Such 'dialogues' become more frequent with each passing day. Such interactions also promote the development of an emotional bond between the caregiver and the infant.

As the time passes, child spends more time in practising the sounds. The child delights in producing new sounds and repeats them by varying the pitch and loudness. The infant seems to be exploring the possibilities of combining sounds. This experimentation is a very important stage in the acquisition of language since it gives the infant an opportunity to attain mastery over sounds. Initially the child produces and practises the vowel sounds, (i.e. a, i, e, o, u) like, "aaa ...", "iiii..." "oooo...". Gradually the infant practises consonant sounds like "p, b, m, d" by combining them with vowels like "beeee ...", "maaaaa ...", "paaaa.....", "baaaa....".

Babbling: Studies have shown that between the age of six and ten months, the infant begins to babble and repeats syllables like 'ba' 'ma', 'pa', 'da', and 'ne' over and over again. This is referred to as babbling. As in the earlier stage, the infant continues to produce new sounds and experimenting with them. In the early stages of-babbling, the infant may produce

sounds like those in adult speech and it seems as if the baby has learnt some words. For example, when the baby babbles "mamama ..." or "papapa ...", the parents feel that the child is saying "mama" to mean the mother and "papa" to mean the father. But these are not really words because the child does not use them to refer only to parents. The infant makes these utterances in many different contexts and even when the parents are not present. The infant's utterances become words only when these are consistently used to refer to a particular object/person.

In the later stages of babbling, the infant transforms babbling sounds into a 'sentence' with the rising and falling of intonation and rhythm. Babbling may also have an emotional tone and may reveal the baby's anger, fear, pleasure or surprise. The intonation in babbling helps the adult to guess what the child is trying to communicate. Thus, the infant learns the rhythm or the tone of speech before she learns the specific words.

About this time the infant begins to use gestures to ask for things and points at objects. When babbling is accompanied with gestures, it helps to clarify the child's intention. Of course, the child still uses crying to make her wants known.

The First Words: Usually around the first birthday, the infant says the first word. This word may not match the words as adults speak but the child uses the word consistently to refer to something, action or quality. An infant may use the word like "mi" for "milk" and "maani" for water. Thus, the first words are the ones that refer to familiar objects and people, everyday events and actions. These words are the ones which people around the child have been using consistently in their speech and encourage the infant to repeat in similar manner. Some other common first words are mama, papa, ball, dog, bye-bye.

Naming familiar objects: Children usually begin to name some familiar objects between the age of 12 and 18 months.

Two word "sentences": By 24 months, children learn to put two words together. This could be their name and a request, or your name and a request, or a question, like "mama car?"

It is important to note one thing that while the stages of language acquisition are universal (i.e., each child must go through these stages in a particular sequence) though the age ranges are not rigid. There is an overlap between the stages so that the child babbles as

well as coos at the same age. It is a common observation that when the child begins to say first words, the babbling also continues. It is to be noted that there are individual differences among children in the rate of development. Therefore, while the average age of saying the first word is around the first birthday, some children may do so at ten months and others at fourteen months.

7.11 FACTORS INFLUENCING LANGUAGE DEVELOPMENT

Language development in children takes place in different stages according to a certain sequence. Sometimes its speed becomes fast and sometimes its speed becomes comparatively slow. The speed of language development is affected by many factors. These factors can be categorized as biological and environmental factors:

Biological Factors

Biological factors which are factor that the child is born with and cannot be prevented

Biological factors which are factor that the child is born with and cannot be prevented

Biological factors are the factors with which a child is born. These include the genetic make-up of the child and the maturational timetable. Basic to learning language is the ability to listen and to produce sounds.

The following three facts point the biological predisposition to acquire language.

- Human body is equipped for the purpose of speaking, hearing and understanding language.
- All newborns are most responsive to the sound of the human voice which shows that we have an inborn ability to learn language.
- All children go through the same stages while acquiring language and they do so at approximately the same ages, irrespective of the language they speak. This universal sequence implies that no matter how hard you may try to teach a child of one year, the child cannot be taught to speak sentences. The child has to be maturationally ready to learn to speak. These facts emphasize the biological basis of language development. Others factors are:

1. **Health:** The language development of children is greatly influenced by their health.

In the first four years, if the child suffers from a severe and prolonged illness, his vocabulary remains much less than that of normal children of his age and his language development slows down.

2. Intelligence: Language development is largely influenced by the level of intelligence. Children whose intelligence level is high, their language development happens more quickly and faster. Poor vocabulary, wrong pronunciation of simple words and learning less from their experiences etc. are found in children of low intelligence. As a result, their language development is retarded. Mentally skilled children not only learn to speak, write and read early, but they also communicate their mature thoughts. The main reason for this is that due to their sharp intelligence, mental maturity comes quickly in them.

3. Sex differences: There is no clear influence of sex on the language development of infants in the first year of life. However, studies have shown that by the age of 2-3 years the effect of sex is clearly visible on the language development of boys and girls.

Environmental Factors

Even though we have the sensory organs and the tendency to speak, no child can learn language in the absence of interaction. It is a common observation that the child who grew up without contact with people could not speak normally and it was difficult to teach her later. It is also observed that children who are hard of hearing or deaf, begin to babble at the same time as other children but after some time the amount of babbling decreases, since they do not get a feedback. If not provided a hearing aid, the child will grow up without learning to speak. This brings out the importance of environmental factors in language acquisition. Thus, in a normal environment, the child is continuously surrounded by people who talk to each other and her. The infant picks up new words from the context in which they are spoken and in this manner her language develops. However, following environmental factors affect the language development of the child.

1. Family environment: Family environment has a great impact on the language development of the child. Children observe and imitate the behaviour of the members of the family. The good human values imparted by the family makes the child moral, social and sensitive. It helps in shaping the personality of the child in right direction.

2. Social life and culture: Child learns the language as per his social and cultural

background. The culture of the society exposes the child to various customs, traditions, norms, food habits language etc. All these elements of culture influence the language development of the child.

3. Childhood experiences: Childhood experiences play a very important role in the language development of an individual. The child at birth is like a clean or blank slate. The experiences gained during childhood shape the overall language development of the child.

4. School environment: School is regarded as the second home of the child. The total programme of the school influences the language development of the child. Teacher's communication, curricular and co-curricular activities, administrative style etc. influence the language development of the child.

5. Peer group: Peer group also plays a very important role in the language development of the child. Children learn different kinds of linguistic skills through peer interaction. It is often observed that the language development of such children who do not find peer interaction is more retarded as compared to the language development of children whose parents allow them to mix with their peers.

6. Neighbourhood: Neighbourhood affects the language development and other physical, moral, social and emotional aspects of the personality of a child. It provides opportunities to learn various essential life and language skills. Interactive and stimulating neighbourhood help in the language development and good personality traits among the children.

7. Mass media and information technology: The influence of mass media and information technology cannot be ignored on the language development of the child. Different means of modern technology influence linguistic skills and other social, emotional or mental aspects of personality of the children.

In short, multiple factors are responsible for language development of the child. These factors lay a solid foundation for the development of linguistic skills among the children.

7.12 ROLE OF TEACHER IN LANGUAGE DEVELOPMENT

The language is most important being a vehicle of communication. It is, therefore, necessary that the teacher should keep in mind the teaching factors of individual needs,

meaningful repetition and a good example in his teaching of language. A rich and vast experience must be provided to the child to increase his language acquisition. Following techniques adopted by the teacher facilitate the language development of the child:

1. **Recitation:** Recitation helps in efficient and effective learning. It arouses active participation of the learner, yields progressive information about the errors and right responses, thereby, permitting the correction of errors, furnishes.
2. **Language drills:** A language drill is a type of highly controlled oral practice in which the students respond to a given cue. It can be a very effective approach for learning new vocabulary or language structures. It is widely used to introduce new vocabulary to the children. Drills can be useful teaching-learning material because they provide practice of small, manageable chunks of language. It helps in internalising the target language and make the children able to produce it independently in the future, both in speech and writing.
3. **Dialogue:** Dialogue is a very popular technique learning a number of linguistic skills. Dialogues are primarily used to provide speaking practice but can also develop listening. These are useful for listening to and practicing pronunciation, intonation, and other phonological features.
4. **Role plays:** Role play is a way of bringing situations from real life into the classroom. It may also include plays, dramas, sociodramas, and simulation. In role play, students need to imagine a role, a context, or both and improvise a conversation. Role plays can range from highly structured, short exchanges to those that are longer and more open ended.
5. **Use books to build vocabulary:** Toddlers have an innate drive of repeating the things. Teachers can embrace this drive by reading the same book again and again (and encouraging families to do the same). This helps children begin to understand the rhythms of language and absorb the structure of sentences and storytelling. Alongside the regular favorites, teachers can introduce new books to accelerate the process of language development among the young learners.
6. **Literary activities:** The literary activities like debates and discussions, seminars, symposia, essay-writing, essay-writing competition, story writing competition, quiz competition, school publications, library work, declamation contest, poetry recitation, individual and group reading etc. etc. help in the language development and self-expression..

Students learn to control nervousness and avoid fear. They improve their language, enrich their vocabulary and develop the habit of using correct pronunciation.

7. Dramatics: Drama or dramatics is the art of acting or producing plays. It is one of the forms of performing arts. Students learn so many essential language skills through drama. It develops the linguistic ability of the actor. Students can improve their vocabulary, speech, pronunciation, tone, intonation and other qualities of speech and expression.

Check Your Progress-1

Note: (a) Write your answers in the space given below.

(b) Compare your answers with those given at the end of the lesson/above sub-

1. Fill in the blanks

- (i) Thinking is a _____ process in which we use ideas or symbols in place of overt activity.
- (ii) Thinking is _____ for finding out the solution of a problem.
- (iii) Thinking is the _____ of concepts.
- (iv) Language development in children is the process of developing ability to comprehend and communicate through _____.
- (v) Children _____ and _____ the behaviour of the members of the family.

7.13 LET US SUM UP

Thinking includes imagining, remembering, problem solving, daydreaming, free association, concept formation, and many other processes. Language is very important in forming conceptual experience. It is the tool of thought. When we obtain concepts from the analysis of perceptual experience, and label them by means of words we use language to extend their significance still further. Without language, we cannot possess abstract concepts like liberty, justice, goodness. Language not only fixes results of our thinking but it furnishes the only means by which that thinking may be extended. Psychologists take interest in the structure of language because in it they find the aspects of human structure of thinking.

7.14 LESSON END EXERCISE

1. Discuss the meaning and various tools of Thinking.
1. Elaborate the role of teacher in development of Thinking.
2. Explain sequence of Language Development
3. Enumerate the factors influencing Language Development.
4. Illustrate the role of teacher in Language Development

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7.16 ANSWERS TO CHECK YOUR PROGRESS

- (i) problem-solving
- (ii) mental exploration
- (iii) reorganization
- (iv) speech
- (v) observe and imitate

LEARNING ITS KINDS & GAGNE HIERARCHY OF LEARNING

STRUCTURE

- 8.1 Introduction
- 8.2 Objectives
- 8.3 Meaning Of Learning
- 8.4 Kinds of Learning
- 8.5 Hierarchy of learning Gagne
- 8.6 Let Us Sum Up
- 8.7 Lesson End Exercises
- 8.8 Suggested Further Readings

8.1 INTRODUCTION

Human learning begins before birth; in fact, it may have begun earlier due to the embryo's desire for independence and contact with its environment while still inside the womb & lasts till death as a result of continuous interactions between individuals & their surroundings. Learning can happen through habituation, classical conditioning, operant conditioning, or more complicated activities like play, which are only observed in very sophisticated animals. Either conscious or unconscious learning can take place. Learning has a transformative power on all aspects of life. It allows us to grow as individuals, as professionals, as critical thinkers, & as confident people. Embracing a mindset that is always changing In a constantly changing world, learning enables us to adapt, evolve,

and succeed. Our competitiveness & professional relevance are maintained by learning, which keeps us up to date on the latest technological advancements, best practices, & trends. Because it creates opportunities for new opportunities, promotions, and job changes, we are able to achieve our professional goals with the help of Learning. One gains the ability to evaluate the acts, examine data, and make informed judgements, all with the help of learning. Additionally, it provides us with the selfworth and confidence to overcome obstacles. Learning is a life-changing force that affects all facets of existence. It gives us the ability to develop critically, thrive professionally, grow personally & gain confidence. Adopting an attitude of constant change learning allows us to adapt, change, and prosper in a world that is always changing.

8.2 OBJECTIVES

After having gone through this unit, you will be able to:-

- ✓ To acquaint the students with the concept of Learning.
- ✓ To enable the students to understand the nature and Kinds of Learning.
- ✓ To help the students to understand Gagne Hierarchy of Learning.
- ✓ To acquaint the students with the importance of Gagne levels of Learning.

8.3 MEANING OF LEARNING

Learning is "a process that leads to change, which occurs as a result of experience & increases the potential for improved performance & future learning." an individual feel more accomplished & self-sufficient when he pick up new knowledge and abilities. This self assurance carries over to other facets of our lives, enabling them to grow, adapt & prosper in a world that is changing quickly hence it allows the people to develop, adjust & thrive in a rapidly changing world. It is indispensable in our daily lives. Learning improves our social & professional lives, gives problem-solving abilities & leads to a sense of personal fulfillment. Learning improves critical thinking and problem-solving abilities and provides the tools necessary to evaluate the available information do data analysis & make informed judgments. A more successful & meaningful life can result from adopting a lifelong learning mindset. Take on new challenges, seize growth opportunities & follow the passions. Hence Learning is the process of acquiring knowledge, skills, or understanding

through study, experience, or teaching. Learning keeps us abreast of the newest developments in technology, best practices, and trends, which maintains our competitiveness and professional relevance. We are able to accomplish our professional objectives since it opens doors to new prospects, promotions, and career changes. It sharpens one's critical thinking and problem-solving skills and gives the means to assess the evidence, analyze data, and develop wise decisions. In addition, it gives us the confidence and self-worth to take on difficulties, conquer barriers, and come up with creative solutions in a variety of spheres of life. In this way Learning also promotes personal empowerment. There are various types of learning, including formal & informal learning, experiential learning, and self-directed learning, classical conditioning and operant conditioning and so on. The ability to learn is possessed by humans, animals, and some machines; there is also evidence for some kind of learning in certain plants. Some learning is immediate, induced by a single event (e.g. being burned by a hot stove), but much skill and knowledge accumulate from repeated experiences.

Definitions Of Learning

- "A change in human disposition or capability that persists over a period of time and is not simply ascribable to processes of growth."
- From The Conditions of Learning by Robert Gagne
- "The process of gaining knowledge and expertise."
From The Adult Learner by Malcolm Knowles
- "Learning is the process of acquiring new knowledge and new responses." - Woodworth
- "Learning is a process of progressive behaviour adaptation." -B.F. Skinner
- "Learning is an acquisition of habits, knowledge and attitudes." -Crow and Crow
- "Learning is a change resulting from behaviour." -J.P. Guilford
- Learning is shown by change in behaviour as a result of experiences of an individual."
-Lee J. Cronbach

8.4 KINDS OF LEARNING

- **Formal Learning:** This kind of learning occurs in formal educational settings including colleges, universities, and schools. It is usually supervised by teachers or instructors and adheres to a predetermined curriculum. Formal education frequently results in qualifications, degrees, or certifications.
- **Informal Learning:** Learning takes place outside of official educational environments. It may occur as a result of interactions, daily experiences, or independent research. Informal education is frequently impulsive and motivated by curiosity or personal interests. Reading books, viewing instructional films, or taking up activities that improve knowledge and abilities are a few examples.
- **Experiential Learning:** The focus of experiential learning is on learning via hands-on experience and introspection. It entails actively interacting with actual circumstances, using knowledge in useful contexts, and critically analyzing the results.
- **Learning by Direct Experience and Reflection:** This approach is known as experiential learning. Applying knowledge in realworld circumstances, actively participating in them & critically analyzing the results are all part of it, experiences like internships, apprenticeships & practical training programs frequently employ this kind of learning.
- **Self-directed learning** It is the process by which people choose to take charge of their own education. It entails determining learning resources, creating personal objectives & tracking one's own advancement. Self-directed learners frequently use online tutorials, courses, or learning environments to advance their knowledge & abilities at their own speed.
- **Active learning :-** Active learning When someone takes charge of their learning, they are engaging in active learning. Encourages students to engage in an internal conversation because comprehending material is the fundamental component of learning. Understanding is the basic element in Active learning.
- **Classical conditioning,** In classical conditioning a reflex-eliciting stimulus is

frequently matched with a previously neutral stimulus until, at some point, the neutral stimulus elicits a reaction on its own.

- **Rote learning** is the process of learning knowledge by heart so that it is remembered by the student precisely as it was read or spoken. Learning by repetition is the main method utilised for rote learning, and it is predicated on the notion that a student can accurately retain the information. It is learning without understanding the concept or simple terms it is similar to cramming.

8.5 AGNE'S HIERARCHY OF LEARNING

The science of instruction and learning was advanced by American educational psychologist Robert Gagné (1916-2002). During World War I, Gagné served in the American Air Corps and initially established the principles of "good instruction." Subsequently, Gagné studied the function of multimedia content in training and extended his theories of instructional theory to virtual learning. Since its inception, the industry has relied on Gagné's approach as an effective training template, and it still has an impact today. The Gagné's Nine Conditions of Learning, Gagné's Taxonomy of Learning, and the Gagné's Nine Events of Instruction are other names for the Gagné's Nine Levels of Learning paradigm. Gagné's Nine Levels of Learning is the name we use to simplify the model. Learning and development initiatives were changed by Gagné's concept. We call the model "Gagné's Nine Levels of Learning" in order to keep things simple. Programmes for learning and development as well as education in general were transformed by Gagné's model. Gagné's research allowed him to categorise the learning process into three different areas. He then further deconstructed these categories into nine learning levels. According to Gagné's concept, when having an instructive experience, learners go through nine stages. The model also shows how teachers can assist students as they progress through the nine stages of an educational experience. These stages may occur throughout a single eLearning course, a classroom training session, or even a programme. Making sure that all nine steps are completed throughout the learning journey is crucial. Gagné's technique offers a methodical approach to teaching. A well-known educational psychologist named Robert Gagne created the Gagne Hierarchy of Learning. It describes a sequence of phases or stages that people go through when picking up new knowledge or abilities.

There are nine levels in the hierarchy, which are as follows:

Grab attention: The goal of this level is to get the learner's interest and focus in order to foster a mentality that is open to receiving new information.

Explain goals to students: To give direction, make sure the learning experience's goals and objectives are communicated clearly.

Stimulate recollection of prior knowledge: To build connections and speed up learning, draw on the learner's prior experiences and knowledge of the subject.

Deliver the information: Present new knowledge or abilities in an understandable and structured way utilising a variety of teaching techniques, such as lectures, visuals and demonstrations

Provide learning guidance: To assist students in comprehending and using the material, provide resources, support, and direction.

Elicit performance: Motivate students to practise or apply what they have learnt in order to actively interact with the content.

Providing Feedback: Give constructive criticism on students' performance in order to clear up any misunderstandings & reinforce proper comprehension.

Evaluate performance: Use examinations or evaluations to gauge how well students understand the material and how far they have come.

Improve retention and transfer: Give students chances for practice and application to help them remember and apply their newly learned information or abilities to practical settings.

In order to improve learning, the Gagne Hierarchy of Learning can be used in a variety of educational contexts as a helpful guide for instructional design.

8.6 LET US SUM UP

Learning is not something done to students but rather something students themselves do. It is the direct result of how students interpret and respond to their experiences.. It is the direct result of how students interpret and respond to their experiences. it is important to keep in mind that learning content or information constitutes only one part of learning in

university courses. Regardless of the field of study, students need to have significant opportunities to develop and practice intellectual skills/thinking processes (e.g. problem-solving, scientific inquiry), motor skills and attitudes/values that are important to their fields of study. In addition, students need opportunities to develop interpersonal and social skills (often referred to as soft skills) that are important for professional and personal success. There are various kinds of learning which helps an individual to adjust in all types of situations like formal learning, informal learning, experiential learning, and self directed learning, active learning etc. besides this Nine levels of Gagne learning are the stages which the individual or the learner should follow when picking up of any knowledge to update themselves.

8.7 LESSON END EXERCISE

- Q1 Define Learning?
- Q2 Write down any three definitions of Learning?
- Q3 Briefly Discuss various kinds of Learning?
- Q4 Discuss Gagne Hierarchy of Learning?
- Q5 How Gagne's Nine levels of learning are useful in the process of Learning ?

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THEORIES OF LEARNING

STRUCTURE

- 9.1 Introduction
- 9.2 Objectives
- 9.3 Pavlov Theory of Learning
- 9.4 Skinner theory
- 9.5 Hull's Reinforcement Theory of Learning
- 9.6 Lewin Theory of Learning
- 9.7 Let Us Sum Up
- 9.8 Lesson End Exercises
- 9.9 Suggested Further Readings

9.1 INTRODUCTION

What does learning entail or what is involved in learning? What is the process by which an individual learns facts, figures, skills, habits, interests, dispositions, and other relevant subjects? & How does a person acquire knowledge about facts, statistics, abilities, routines, hobbies, attitudes & related topics in his life? Psychologists have proposed various theories of learning to try to organize & solve all of these issues so that it can address all the problems related to learning in a best possible way. These theories fall into two main categories: behaviourist or connectionist theories and cognitive theories. The behaviorist school encompasses theories that are either behaviourist or connectionist.

Based on the connection or correlation between the stimulus & the response, they interpret learning. Cognitive theories are rooted in the Gestalt psychology school of thought and cognitive psychology. They emphasise the significance of purpose, insight, understanding, reasoning, memory & other cognitive components in the process. Their interpretation of learning is based on the relationship or correlation between the stimulus & the response. The Gestalt psychology school of thought & cognitive psychology are home to cognitive theories, which highlight the importance of purpose, insight, understanding, reasoning, memory & other cognitive components in the process.

9.2 OBJECTIVES

After having gone through this unit, you will be able to:-

- ✓ To acquaint the students with various Theories of Learning.
- ✓ To acquaint the students with Classical conditioning Theory of Learning
- ✓ To help the students in understand Skinner Theory of Learning.
- ✓ To Help the Students to understand Hull's and Tolman theory of Learning.
- ✓ To Equip the students with Lewin's Theory of Learning

9.3 CLASSICAL CONDITIONING THEORY OF LEARNING

Russian biologist Ivan Pavlov created Pavlov's hypothesis, sometimes referred to as classical conditioning, at the beginning of the 20th century. This hypothesis describes how frequent pairings of a neutral stimulus might lead to its association with a reflexive response. In his well-known experiment, Pavlov demonstrated how a dog will instinctively salivate (a reflex response) when he rang a bell (a neutral stimulus) prior to offering it food. The dog started to drool at the sound of the bell alone, even in the absence of food, after trying the bell and food pairing multiple times. A key tenet of Pavlov's theory is this process of learning by association. It implies that responses and behaviors can be taught by repeatedly matching stimuli, and that these connections can have an impact on behavior in the future. A key tenet of Pavlov's theory is this process of learning by association. It implies that responses & behaviours can be taught by repeatedly matching stimuli, and that these connections can have an impact on behaviour in the future. The

psychology community has benefited greatly from Pavlov's idea, which has been used in a variety of contexts such as advertising, education & therapy. It has also advanced our knowledge of the pathophysiology of specific phobias and emotional reactions. All things considered, the study of human behavior and learning has greatly benefited from Pavlov's theory of learning.

Extinction: Pavlov's theory states that salivation is a conditioned response that gradually diminishes and is extinct if the conditioned stimulus (a bell) is delivered repeatedly without the unconditioned stimulus (meal). Extinction is a process that shows how learnt associations can gradually become weaker or vanish.

Spontaneous Recovery: The conditioned response may recover after extinction without requiring additional conditioning, provided that enough time has passed. It is suggested that the learnt association is muted rather than entirely eliminated by this occurrence, which is called spontaneous recovery. The ability of organisms to generalize their conditioned reactions to comparable stimuli is also explained.

Generalisation and Discrimination: Another way in which organisms might use Pavlov's theory to explain conditioned responses to similar stimuli is through generalisation. Dogs that have been trained to salivate in reaction to a certain tone, for instance, may do so in response to tones that are similar. On the other hand, discrimination refers to the capacity to distinguish between similar stimuli and only react to the particular conditioned stimulus.

Higher-Order Conditioning: Pavlov showed how associating a neutral stimulus with a previously established conditioned stimulus could cause the neutral stimulus to become conditioned. Multiple levels of learning can build complicated associations, as seen by this process, which is called higher-order conditioning.

Pavlov's theory has been utilised in behaviour modification treatments, including aversion therapy for unwanted behaviour modification and systematic desensitisation for phobia treatment. The practical importance of classical conditioning in treating a range of behavioural disorders is illustrated by these examples.

Impact on Contemporary Psychology: The groundwork for behaviorism, a branch of psychology that highlights how environmental cues shape behaviour, was established by

Pavlov's research. The comprehension of associative learning has also been advanced by his studies.

EDUCATIONAL IMPLICATIONS :- CLASSICAL CONDITIONING THEORY

Foster positive relationship with learners:- To comprehend how children pick up particular responses and behaviors, consider the idea of classical conditioning. By associating enjoyable activities with academic assignments, educators can use this notion to foster positive relationships with learning.

Behaviour Modification: By using Pavlov's theory, teachers can influence and mould their students' behaviour in the classroom. The concepts of classical conditioning can be applied by educators to eradicate undesired behaviours and reinforce desired ones.

Understanding Learning Processes: Teachers can make use of Pavlov's theory to get insight into how their student's learn. Teachers may create effective learning environments and teaching tactics by understanding how environmental cues shape behaviour.

Individual Differences: Teachers can better appreciate that pupils may react and associate stimuli differently according to Pavlov's theory. With this information, teachers may better adapt their pedagogy to each student and establish a welcoming, productive learning atmosphere

Bottom of Form

Motivation and Engagement: Teachers can employ positive reinforcement to inspire and involve students by recognising the role that conditioning plays in learning. Teachers can boost students' motivation & interest in academic activities by combining learning with enjoyable experiences.

In general, Pavlov's theory of learning has important ramifications for education, offering insights into the learning processes and behaviour modification strategies that can be applied to produce successful and engaging

9.4 B.F SKINNER :- OPERANT CONDITIONING THEORY OF LEARNING

The idea of operant conditioning, commonly referred to as Skinner's learning theory, was created by renowned psychologist Skinner in the 20th century. This idea focuses on how an action's outcomes maintain and shape it. In contrast to Pavlov's classical

conditioning, which emphasises the function of stimuli in learning, Skinner's operant conditioning theory emphasises the influence of rewards and penalties on behaviour. Some of the key points of this theory is as below :-

Reinforcement: According to Skinner, actions that result in rewards (reinforcement) are more likely to be repeated, whereas actions that result in penalties (punishment) are less likely to take place. Positive reinforcement involves providing a desired stimulus, and negative reinforcement involves eliminating an unpleasant stimulus.

Reinforcement plans: Skinner also researched several reinforcement plans, such as continuous reinforcement, which involves rewarding the desirable behaviour on each occasion.

Reinforcement Schedules: Skinner also researched other reinforcement schedules, such as intermittent reinforcement (which involves rewarding the desired behaviour only seldom) & continuous reinforcement (which involves rewarding the behaviour every time it occurs). He provided evidence that long-term behavior maintenance is frequently better achieved by intermittent reinforcement.

Shaping: Skinner proposed the idea of shaping, which is providing reinforcement for progressively closer approximations of a desirable behaviour. Complex abilities and behaviors can be created over time by gradually rewarding behaviors that resemble the target behavior more & more.

Skinner's operant chamber, also referred to as the "Skinner box," was a controlled setting used to research animal operant training. Using the box, researchers could control reinforcement and see how it affected the subjects' behaviour, which were usually rats or pigeons.

Applied Behavioural Analysis: The therapy method known as applied behavioural analysis, which uses the principles of operant conditioning to change behaviour, especially in people with behavioural disorders or developmental disabilities, has been greatly influenced by Skinner's work.

EDUCATIONAL IMPLUCATIONS :- OPERANT CONDITIONING THEORY

Behaviour Modification: According to Skinner's theory, behaviour may be changed by the application of rewards and penalties. With this method, teachers can encourage positive behavior in their students and stifle negative ones. This can be implemented through negative reinforcement-removing unpleasant stimuli or consequences-or positive reinforcement-awards and praise. 2.

Customised Education: Based on Skinner's theory, teachers are urged to take into account each student's particular learning requirements and preferences. Teachers can adapt their instructional tactics to accommodate a variety of learning preferences and types by recognising the function that consequences play in the learning process.

Classroom Management: By stressing the use of precise and consistent consequences for student behaviour, Skinner's theory can guide classroom management strategies. Teachers can establish a disciplined & productive learning environment by putting in place a system of rewards and penalties.

Self-regulated Learning: Skinner's approach encourages pupils to acquire the abilities necessary for self-regulated learning. Teachers can instill a feeling of personal accountability and self-discipline in their students by assisting them in understanding the connection between their actions and the results.

Ongoing Assessment: In order to reinforce learning, Skinner's theory highlights the significance of continuous assessment and feedback. Teachers can utilise this strategy to give students immediate and targeted feedback, assisting them in realising the effects of their actions and making necessary adjustments.

Top of Form

Bottom of Form

9.5 HULL'S REINFORCEMENT THEORY OF LEARNING

Drive-reduction theory is a comprehensive explanation of behaviour developed by renowned psychologist Clark L. Hull in the middle of the 20th century. This hypothesis holds that in order to preserve a state of homeostasis, organisms are driven to engage in

behaviours that lessen physiological urges (such as hunger, thirst, or discomfort). According to Hull's theory, reinforcement takes place when an action results in a physiological urge being reduced or eliminated, increasing the link between the action & the drive-reducing result. Hull's theory, which highlights how behaviour can reduce drive, is strongly linked to the idea of reinforcement even though it does not use the term "reinforcement theory" in its name. Hull's theory also included learning, motivation & behavior principles as well as mathematical models, which helped to provide a thorough understanding of the concept. Clark L. Hull postulated that when a behavior lessens or eliminates a physiological drive, the behaviour and the drive-reducing effect become more strongly associated, leading to reinforcement. Hull's theory is strongly tied to the idea of reinforcement through behavior's drive-reducing consequences, even if it isn't called "reinforcement theory" explicitly. A thorough framework for comprehending both human and animal behaviour was developed as a result of Hull's theory, which also included mathematical models & concepts of learning, motivation, and behaviour.

EDUCATIONAL IMPLICATIONS OF HULL'S THEORY OF LEARNING

Mathematical Formulation: One of the main features of Hull's theory was the use of mathematics to explain behaviour and learning. To explain how urges, habits, and reinforcements relate to one another, he created a sophisticated set of equations and mathematical models.

The objective of this methodical approach was to offer a structured structure for comprehending the mechanisms that underpin motivation and learning.

Primary and Secondary urges: In accordance with Hull's thesis, organisms are driven by basic urges that are directly tied to physiological requirements, such as hunger and thirst. The decrease of basic urges is linked to secondary drives, which are acquired or conditioned motivations. The decrease of main and secondary urges is intimately linked to reinforcement, which strengthens related behaviours. Hull additionally incorporated the

Incentive Motivation: Hull included the idea of incentive motivation into his theory as well, putting up the possibility that cues or environmental stimuli linked to drive decrease could take on positive reinforcement. This concept highlighted how environmental cues influence behaviour and broadened our understanding of reinforcement beyond only

physiological requirements. Hull put out the theory of reinforcement hierarchies, which postulate that varying degrees of reinforcement and drive reduction correspond to distinct behaviours.

Actions that reduce greater drives have a higher probability of being reinforced and sustained, whereas actions linked to weaker drives might not have as much of an effect. g: Hull's theory also addressed the processes of learning and transfer of training. He proposed that learning occurs through the formation of stimulus-response associations, and the transfer of training is influenced by the generalization of learned responses to new situations.

Criticisms and Legacy: While Hull's theory made significant contributions to the understanding of reinforcement and motivation, it has also faced criticisms for its complexity and reliance on mathematical formulations. Nevertheless, Hull's work has had a lasting impact on the study of learning, motivation, and reinforcement, influencing subsequent research in the field of psychology.

Overall, Clark L. Hull's drive-reduction theory provided a comprehensive framework for understanding the role of reinforcement in learning and behavior, integrating motivational, physiological, and environmental factors into a formalized model of behavior. His contributions have significantly shaped the study of reinforcement processes and continue to influence contemporary research in psychology.

9.6 KURT LEWIN THEORY OF LEARNING

The field theory of learning was created by the innovative psychologist Kurt Lewin, who emphasised the significance of an individual's environment & interactions within it. Lewin suggests that learning is a socially contextualised, dynamic process that is shaped by the psychological and social influences of the individual. The requirement of each person's needs, motives & objectives in determining their learning experiences is emphasized by Lewin's theory of learning. He felt that learning happens in stages: first, there is "unfreezing," in which the person's preexisting beliefs and behaviours are questioned & reconsidered; next, there is "change," in which new ideas and behaviours are taken up; & last, there is "refreezing," in which the modified beliefs & behaviours are assimilated into the person's identity. Lewin also underlined how a person's social milieu shapes their educational experiences. He held that people learn via their relationships with other people & that

the social context in which learning takes place can either help or impede the process of learning. Lewin's theory of learning, taken as a whole, emphasises the dynamic and interactive nature of learning within a social context and stresses the significance of comprehending the individual's psychological and social influences in molding their learning experiences. He carried out a great deal of research on group dynamics, leadership & behaviour, emphasising how social interactions, power relationships & group norms affect how individuals learn and evolve.

Force Field Analysis: One technique for figuring out what influences or impedes change is Lewin's force field analysis. He suggested that a person's conduct is determined by the relative amounts of "restraining forces" & "driving forces," or elements that encourage change & impede it, respectively. When motivation surpasses resistance, a change in behaviour is experienced, resulting in learning. The significance of group dynamics in the learning process was underscored by Lewin. The importance of social interactions, power dynamics, and group norms on individual learning and transformation were highlighted in his vast research on group behaviour and leadership.

EDUCATIONAL IMPLICATIONS :KURT LEWIN'S THEORY OF LEARNING

Action Research: Lewin promoted "action research," an approach to learning and transformation that entails an iterative, cooperative process of problem-solving in authentic settings. In order to achieve meaningful & significant learning results, this approach places a strong emphasis on active participation, reflection, and adaptability.

Gestalt Principles: Lewin's theory also draws from Gestalt psychology, which highlights how perception & learning are holistic processes. According to his theory, learning is the process by which people reorganise their meaningful "Gestalts," or patterns, to make room for fresh knowledge & viewpoints. Together, these ideas show how Lewin's holistic theory of learning describes it as a dynamic, context-dependent process influenced by the interaction of social, environmental, and individual elements.

His theory has influenced social psychology, organisational development & educational psychology for a long time. Lewin first proposed the idea of "life space," which is the entirety of a person's psychological experiences, including their feelings, ideas, and actions. Social connections, environmental circumstances, and individual motives are only a few

examples of the internal and external elements that impact the life space.

Tension: Tension is a psychological state of "discomfort" brought on by opposing forces in a person's living space, according to Lewin. The person is driven to seek resolution by education and personal development as a result of this tension.

9.7 EDWARD TOLMAN THEORY OF LEARNING

Edward Tolman was a well-known psychologist best recognised for developing the groundbreaking theory of learning known as "cognitive behaviorism" or "purposive behaviorism." According to Tolman's theory, expectations, beliefs, and mental images are examples of cognitive processes that influence behaviour and learning. The following are some salient features of Tolman's learning theory:

Cognitive Maps: According to Tolman, all living things, including humans and animals, create mental maps of the spatial organisation of their surroundings. These cognitive maps are essential for directing intentional behaviour because they allow people to navigate and engage with their environment.

Latent Learning: Tolman used rats to illustrate the idea of latent learning, which is learning that takes place in the absence of direct reward. He saw that rats had the ability to Latent Learning: Tolman used rats to illustrate the idea of latent learning, which is learning that takes place in the absence of direct reward. Rats, he found, were able to create mental maps of a maze even in the absence of rewards for their exploration. Tolman used this evidence to support his claim that learning comprises more than just stimulus-response correlations and also entails the acquisition of information and understanding.

Anticipation: Tolman highlighted how crucial anticipation is to behaviour and learning. According to his theory, people form cognitive expectations about the results of their activities & these expectations control how they behave. This cognitive component of learning represents an individual's comprehension of the connections between their actions and the results, going beyond basic stimulus-response pairings. Purposive Behaviour: Tolman's learning theory is also called "purposive behaviourism" since it places a strong emphasis on how behaviour is goal-directed and purposeful. Tolman argues that behavior is influenced by an individual's objectives, values, and cognitive representations of their surroundings rather than only being a reaction to external stimuli. Tolman's Maze

experiments: Tolman demonstrated the cognitive foundations of behaviour and learning through his experiments on "cognitive maps" and "latent learning," which involved rats in mazes. The behaviorist theories of learning that were prevalent at the time were contested by these investigations, which also advanced cognitive psychology. All things considered, Tolman's theory of learning emphasises the importance that mental models, expectations, and goal-directed behavior play in the cognitive processes that underpin behavior and learning. Behavioural neuroscience, educational psychology & cognitive psychology have all been impacted significantly by his work.

Sign Learning: Tolman introduced the idea of "sign learning," which is the act of connecting stimuli to certain connotations or "signs." Learning: "Sign learning," as put out by Tolman, is the act of connecting inputs to particular meanings or He claimed that living things pick up on, understand, and react to cues from their surroundings. "signs." According to his theory, creatures use their cognitive representations and expectations to help them understand and react to cues from their surroundings. This viewpoint emphasizes how mental processes influence behaviour and stresses the cognitive component of associative learning.

Cognitive Behaviourism: Tolman's approach is frequently described as a type of behaviourist theory that combines behaviourist ideas with cognitive processes. By highlighting the significance of internal mental representations and cognitive structures in comprehending behaviour and learning, he aimed to close the gap between behaviourism and mentalism. Intervening Variables: Tolman defined "intervening variables" as internal cognitive elements that operate as mediators. procedures based on behaviourist theory. By highlighting the significance of internal mental representations and cognitive structures in comprehending behaviour and learning, he aimed to close the gap between behaviourism and mentalism.

Intervening Variables: Tolman defined "intervening variables" as internal cognitive variables that moderate the association between reactions and inputs. These elements- such as beliefs, expectations, and cognitive maps-act as the conduits via which learning affects behaviour. The necessity of taking internal mental processes into account while studying behaviour and learning was brought to light by Tolman's emphasis on intervening variable

Tolman stressed the significance of comprehending not only stimulus-response correlations but also the entire learning process. Using this method, teachers can help students develop a comprehensive comprehension of the material and inspire them to draw connections between various ideas

9.8 LET US SUM UP

From the above theories of learning it was commonly observed that Theories of Learning plays a significant role in the process of Teaching & Learning moreover Understanding learning theories is crucial to comprehending how people pick up information, hone skills & mould their behaviour. They offer a framework that aids in the understanding of the complexities of the learning process by researchers & educators. We can better understand how individuals learn, what drives them & how to design learning environments, by researching various learning theories. These theories, which include constructivism, cognitivism & behaviourism, provide a variety of viewpoints and pedagogical approaches, allowing teachers to adapt their teaching practices to the demands of a wide range of students. Having a solid understanding of learning theories enables us to create memorable and stimulating learning environments that encourage critical thinking, teamwork, and problem-solving abilities. We can realize the full potential of education by putting learning theories into practice. Hence learning theories are of paramount importance in understanding how individuals acquire knowledge, develop skills and shape their behaviours.

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MOTIVATION

STRUCTURE

- 10.1 Introduction
- 10.2 Objectives
- 10.3 Etymological Meaning Of Motivation
 - 10.3.1 Meaning & Nature of Motivation
- 10.4 Functions of Motivation
- 10.5 Maslow self Actualization Theory of Motivation
- 10.7 Murray Theory of Motivation
- 10.8 Theory of achievement Motivation 10.9 Let Us Sum Up
- 10.10 Lesson End Exercises
- 10.11 Suggested Further Readings

10.1 INTRODUCTION

All human behaviour is driven by motives or drives, which are the foundation of all human endeavours. Motivation is important in many areas of life and at different stages of an activity. Hence, motivation is essential for success and accomplishment in life. Given that all learning involves motivated learning, motivation is referred to as the "golden road to learning," the "sine qua non of learning," and a powerful aspect in learning. Without consistent, deliberate, and focused effort, learning cannot be successful, effective, or efficient. A key component that inspires people to perform at their highest level and aids in achieving

organisational objectives is motivation. Employee productivity will grow with strong positive motivation, while it will decrease with strong negative motivation. Motives, or urges, are the basis for all human activities and determine every action taken by humans. In numerous spheres of life and during various phases of an endeavour, motivation is crucial. So, in order to succeed and achieve in life, motivation is necessary. Learning isn't successful, productive, or efficient if it's not done with regular, informed effort. Motivation plays a vital role in motivating individuals to reach their maximum potential and supporting the accomplishment of organisational goals.

10.2 OBJECTIVES

After having gone through this unit, you will be able to:-

- ✓ To acquaint the students with the concept and Nature of Motivation.
- ✓ To enable the students to understand the importance of Motivation in Learning Process.
- ✓ To help the students in understand various Theories of Motivation.
- ✓ To acquaint the students with the significance of achievement motivation theory and self actualization theory of motivation

10.3 ETYMOLOGICAL MEANING OF MOTIVATION

The word "motivation" is derived from the verb "movere," which means movement. By changing the energy within an organism's tissues, it is a mechanism that starts an action, keeps it going, directs & controls an activity pattern.. The ability to inspire and ignite passion for education and associated endeavors is an art. Encouragement, intention, impulse, want, drive, determination, need, urge, wish, want, will , longing appetite, attitude, bias, prejudice, set, readiness, purpose, and synonyms that highlight distinct aspects of motivation are a few phrases that highlight these aspects. The term "motivation" comes from the verb "movere," which implies to move. It is the process of igniting action, maintaining ongoing activity, controlling and guiding an activity pattern by transforming energy inside an organism's tissues. It's an art to instill and pique enthusiasm in learning and related pursuits. A few terms that emphasise different facets of motivation are: incentive, intention, impulse, want, drive, determination, need, urge, wish, want, will, longing appetite, attitude, bias, prejudice,

set, readiness, purpose, and similar synonyms.

10.3.1 MEANING AND NATURE OF MOTIVATION

Motivation is a psychological phenomenon that originates inwardly. One feels driven to exert greater effort in order to satisfy their desires when they perceive that they are not being met. The need to appease one's ego drives someone to perform better than they often do. The verb "movere," which meaning to move, is the root of the word "motivation." Through energy transformations in the organism's tissues, it is the process of igniting action, maintaining activity in progress, regulating, and directing pattern of activity. It's an art form for igniting and stoking curiosity about learning and related pursuits. "It is the essence of management that demonstrates that every human being gives him a sense of worth in face-to-face groups that are most important to him," claims Likert. A manager ought to make an effort to treat people with respect & acknowledge their value as individuals. One feels driven to exert greater effort in order to satisfy their desires when they perceive that they are not being met. The need to appeas one's ego drives someone to perform better than they often do. It's an art form for igniting & stoking curiosity about learning & related pursuits Terms like incentive, intention, impulse, desire, drive, determination, need, urge, wish, want, will, longing hunger, attitude, bias, prejudice, set, ready, purpose, the like emphasise some aspects of motivation. An individual experiences motivation, which is a psychological phenomena. A person feels as though they are lacking in some wants, which makes them feel as though they must work harder to meet.

DEFINITIONS

(1) According to **Thompson**, "Motivation covers any and every factor of the spring of human action from the beginning to the end i.e., attitudes, bias, urge, impulse, cravings, incentive, desire, wish, interest, will, intention, longing, aim."

(2) According to **Guilford**, "Motivation is an internal factor or condition that tends to initiate and sustain activity."

(3) According to **Johnson**, "Motivation is the influence of general pattern of activities indicating and directing behaviour of the organism.

(4) According to **McDonald**, "Motivation is an energy change within the person characterised by effective arousal and anticipatory goal reactions.

(5) Definition by **Skinner**, "Motivation in school learning involves arousing, persisting, sustaining and directing desirable behaviour."

NATURE

- **Extrinsic and Intrinsic Motivation:** People can be driven by a combination of extrinsic (external rewards) and intrinsic (internal drives) elements. Thus, motivation to strive harder comes from within.
- **GoalOriented:** Individuals may be motivated by the pursuit of particular goals or objectives, which are frequently the subject of motivational discussions.
- **The process of motivating**, energising, decreasing, and activating a person to a greater degree of performance is called motivation.. This process begins with unmet needs, proceeds through tension, drives, and goal accomplishment, and concludes with the release of tension that was first sparked by unmet needs.
- **Self-Determination:** An individual's sense of autonomy and control affects motivation, and self-determined motivation usually results in higher levels of engagement and perseverance. A person is motivated to perform a specific task by their feelings or wants.
- **Emotions and cognition:** Emotions, attitudes, beliefs, and perceptions, as well as cognitive functions like problem solving and decision making, all have an impact on motivation.
- **Social support**, organisational culture, and environmental factors are only a few examples of the social and environmental influences that can have a big impact on motivation.
- **Dynamic Nature:** based on evolving conditions, past experiences, and internal variables, motivation is a dynamic concept that varies over time.
- **Becoming Motivated is an Ongoing Process:** Unlike an isolated event, becoming motivated is a continuous and ongoing process. since a person's needs and desires are boundless. It takes a lifetime to get motivated. One cannot satiate every need at once because they are numerous.

10.4 FUNCTIONS OF MOTIVATION

- ✓ **Activating Behavior:** Motivation is the process by which an individual focuses their attention and efforts on achieving particular objectives or results.
- ✓ **Goal-directed behavior that is guided by motivation:** Motivation gives people direction and a sense of purpose in their actions, which aids in goal-setting and decision-making.
- ✓ **Sustaining and Guidance of Efforts:** Perseverance is essential for maintaining efforts throughout time, even in the face of difficulties or setbacks. Motivation also aids in helping people prioritise their tasks in order to achieve their objectives.
- ✓ **Affecting Persistence:** An individual's motivation determines whether or not they will persevere in the face of failures or problems, which affects their resilience and will to overcome hurdles.
- ✓ **Decision-Making Process Shaping:** People's decision-making process is influenced by their motivation as they consider the possible benefits and dangers of various
- ✓ **Impacting Persistence:** A person's motivation determines how ready they are to keep going after encountering hurdles, which affects their resilience and will to overcome them. The process of making decisions is shaped by motivation, as people evaluate the possible benefits and hazards of various options in light of their own motivational needs.
- ✓ **Impacting Emotional State:** An individual's emotional state can be influenced by motivation, which can produce emotions such as excitement, contentment, or annoyance depending on how well they are doing in achieving their goals.
- ✓ **Improving Performance:** People are more likely to perform at greater levels and take actions that will help them reach their goals when they are driven.
- ✓ **Shaping Decision Making process :-** Motivation influences decision making process, as individuals weigh the potential risks and rewards associated with different course of action based on their motivational drives.

- ✓ **Influencing Emotional State :-** Motivation can impact an individual's emotional state , generating feelings of enthusiasm, satisfaction or frustration based on their progress towards or achievement of desired goals.
- ✓ **Enhancing Performance :-** when individuals are motivated they are more likely to demonstrate higher levels of performance and engage in behaviors that are conducive to achieving their objectives.

10.5 MASLOW SELF -ACTUALIZATION THEORY OF MOTIVATION

Abraham Maslow is a psychologist who developed the Maslow theory of self-actualization. As per this view, the ultimate stage of psychological growth that people aim to attain is self-actualization. Realising one's actual self & reaching one's potential are symbolised by it. Maslow thought that needs are arranged in a hierarchy, with social & esteem requirements coming in second and fundamental physiological & safety needs at the bottom. After meeting these basic requirements, people can concentrate on achieving self-actualization, which entails developing oneself being creative & pursuing worthwhile objectives. Characteristics like sincerity, independence & a clear sense of purpose define self-actualized people. Their positive view on life , self-awareness, and preference for internal improvement above outward rewards all stem from their deep understanding of who they are .It's crucial to remember that not everyone achieves this degree of growth and that self-actualization is a lifetime process. Nonetheless, pursuing self-actualization can result in increased sense of fulfillment and wellbeing. Maslow's Hierarchy of Needs is a hierarchical pyramid that is frequently used to illustrate this principle. The physiological needs-such as those for food, water, & shelter are at the base of the pyramid, followed by the demands for safety-such as stability and personal security. Social wants, like a sense of love and belonging, and esteem needs , like earning respect & acknowledgment from others, make up the next level. After these basic requirements are satisfied, people may concentrate on becoming their best selves. Self-actualization. It entails self-improvement, self-discovery, and the pursuit of worthwhile objectives. There are traits and attributes that self-actualized people have. They possess a keen sense of self-awareness & are in tune with their own feelings, ideas, morals. They embrace their flaws, strengths and are genuine, true to whom they are. Self-actualized people participate in activities that are consistent with their interests & personal beliefs & are driven by internal

considerations rather than external rewards. Self-actualized people have a high degree of freedom & autonomy. They are resistant to being influenced by peer pressure or cultural norms. Rather, their own values & beliefs guide their decision-making, their strong sense of meaning & purpose in life is frequently fueled by a desire to change the world or further the common good. The process of self-actualization is never-ending and constant. It is not a place that can be arrived at & then abandoned. Rather, through out their life, people make a consistent effort to better themselves. This idea has influenced many fields, including counseling, education, and organizational development. It has had a major impact on the psychological community.

10.6 MURRAY THEORY OF MOTIVATION

The psychological theory put out by Henry Murray is known as the Murray hypothesis of motivation. Murray's theory places a strong emphasis on how wants & motives influence behavior in people. Murray contends that people are driven by a complicated web of needs and motivations. Psychogenic wants are internal states that shape behaviour & affect people's decisions. Murray identified a broad spectrum of these demands. These demands can be divided into several realms, including autonomy, power, achievement & affiliation. Every individual has a different level of intensity for these requirements, which influence their drives & actions. Murray also popularized the term "press," which describes the outside or contextual elements that interact with a person's needs to shape their behaviour. These presses can vary in strength and relevance to various individuals, and they can either help or hinder the satisfying of demands. The theory focuses on how to comprehend a person's demands and the pressures they face in their circumstances in order to get insight into their intentions and actions. People can feel more fulfilled and in better health by attending to and meeting these needs. The personology hypothesis, which is another name for Murray's theory of motivation, focuses on comprehending the intricate interactions that influence behaviour between a person's wants and surroundings. This theory focuses on internal conditions that compel people to act in particular ways-had an impact on human behaviour. Murray claims that these psychogenic demands fall under a number of different domains, such as autonomy, power, achievement, affiliation, and many more.

10.7 THEORY OF ACHIEVEMENT MOTIVATION

The American psychologist David McClelland was the main proponent of the achievement motivation theory. According to McClelland's thesis, people are primarily motivated by their desire for achievement. In line with his hypothesis, people who have a high demand for achievement are motivated by the need to succeed, take on difficult tasks & be acknowledged for their achievements. This theory highlights the importance of personal accomplishment, goal setting, feedback & the willingness to take risks in driving individuals' motivation to achieve their goals. McClelland emphasizes that socialization, cultural influences & one's own experiences all play a role in influencing one's drive for achievement. Furthermore, he made the argument that people who have a strong drive for success typically establish goals that are only slightly difficult, take measured risks & look for feedback on their work. The theory of motivation has played a significant role in helping us to understand what motivates people to pursue excellence and achievement in a variety of contexts, including business, sports, and academia. It has also been used in workplace settings to evaluate and improve workers' performance and motivation. Achievement motivation, sometimes referred to as the achievement goal theory, is a psychological framework that aims to clarify why people pursue success and how they go about tasks associated to it. The notion states that people have various aspirations for their lives, which affect their drive and conduct. Performance objectives and mastery goals are the two primary categories into which these goals fall. Competency development, learning new skills, and ability enhancement are the main objectives of mastery. However, the focus of performance goals is on surpassing others & proving one's own competency. When faced with obstacles, those who mastery objectives are more inclined to persevere & see them as chances for growth. The external validation of praise & prizes is what drives people who have performance goals. Performance goals are concentrated on proving one's abilities and surpassing others. Hence Performance-oriented people are driven by prizes or other forms of external validation. They typically look for circumstances in which people with high self-efficacy are more likely to set difficult objectives & persevere in the face of difficulties. Motivation enables one to better understand how people approach tasks associated to achievement, the objectives they pursue & the variables that affect their motivation. It emphasizes how crucial it is to develop intrinsic drive & a mastery-oriented attitude in order to achieve long-term success & personal

fulfillment. They may be more focused on avoiding failing or seeming competent to others than they are on showcasing their skills in situations where they can't fail. Beliefs about one's own abilities play a significant role in the notion of achievement motivation. Theory focuses on the psychological need for achievement as a primary motivator for individuals. Here are some key points of this theory. Motivation theory:

1. **Need for Achievement:** The theory suggests that individuals have a need for achievement, which is the desire to excel, accomplish challenging goals & attain success. This need varies in intensity among individuals.
2. **Achievement Orientation:** People with a high need for achievement tend to be driven by personal accomplishment and take on challenging tasks. They are motivated by the intrinsic satisfaction of success rather than external rewards.
3. **Goal Setting:** Achievement-motivated individuals set specific and challenging goals for themselves. These goals provide a clear direction and serve as a source of motivation and focus.
4. **Feedback and Performance:** Feedback plays a crucial role in achievement motivation theory. Individuals with a high need for achievement seek feedback on their performance to assess their progress and make necessary adjustments.
5. **Risk and Fear of Failure:** Achievement-motivated individuals are willing to take calculated risks and are not overly deterred by the fear of failure. They see failure as an opportunity for learning and improvement.
6. **Culture and Environment:** The theory acknowledges that cultural and environmental factors can influence the development and expression of achievement motivation. Factors such as upbringing, societal expectations, and educational systems can shape an individual's need for achievement.
7. **Achievement Motivation Assessment:** McClelland developed the Thematic Apperception Test (TAT) as a tool to measure an individual's need for achievement. This test uses ambiguous pictures to elicit stories that reflect an individual's achievement-oriented motives.

10.8 LET US SUM UP

Human behavior and goal achievement are greatly influenced by motivation. It is the innate power that propels, directs, and maintains our acts. Work, relationships, education, personal development, and the workplace are just a few areas in life where motivation is crucial. The frameworks offered by theories of motivation enable us to comprehend what motivates people to act in certain ways and why. The internal and external variables that underlie motivation. We can learn more about human behavior, boost motivation, and achieve better results by researching and putting these theories to use. Motivation. According to motivation theories, needs, wants, objectives, and incentives all play a significant role in determining conduct. They offer methods and approaches to boost motivation, include producing a supportive atmosphere, giving meaningful rewards, establishing explicit objectives, & Understanding motivation and its theories is valuable in various fields, including education, management, counseling, and personal development. It helps educators design effective learning environments, managers motivate their teams, counselors support individuals in achieving their goals, and individuals enhance their own motivation and well-being. In summary, motivation and its theories are essential for understanding and influencing human behavior. They provide valuable insights and practical strategies for enhancing motivation, achieving goals, and promoting personal growth and success.

10.9 LESSON END EXERCISES

Q1 Explain the Term Motivation?

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Q2 Write down the nature and Functions of Motivation?

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Q3 Explain Maslow theory of Self Actualization ?

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Q4 Explain Achievement theory of Motivation?

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Q5 Define Murray's Theory of Motivation ?

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PERSONALITY: CONCEPT, TYPES & TRAIT THEORIES

STRUCTURE

- 1.1 Concept
- 1.2 Personality Types
- 1.3 Trait Theories
 - 1.3.1 Allport's trait theory
 - 1.3.2 Cattell's trait theory
 - 1.3.3 Eysenck's Trait Theory
- 1.4 Conclusion
- 1.5 Suggested Readings
- 1.6 Check Your Progress

OBJECTIVES

After reading this unit, the learners will be able to:

- Define personality
- Elucidate the concept of personality
- Describe the types of personality
- Describe Allport's trait theory approach;

- Describe Cattell's trait theory to understanding personality
- Elucidate Eysenck's theory of trait

1.1 CONCEPT

Personality is frequently interpreted in terms of social attraction. A person with a good personality is regarded as someone who can easily get along with others and who makes an impression on others by exhibiting qualities like attractiveness and excellent looks. People who lack these skills are considered to have comparatively weak personalities. People would think that someone has a nice personality if they were attractive and also had the ability to communicate and engage with others in a pleasant way. Individuals with terrible personalities are those who lack decent appearance, are poorly dressed, or do not interact with others in a suitable way.

However, this is not a scientifically valid idea of personality. In fact, psychologists believe that any attempt to describe personality in terms of social attractiveness is inadequate for two reasons. First, it limits the quantity and types of behavior that are regarded relevant and worthy of inclusion in the study of personality. Second, such a view implies the ludicrous suggestion that some persons with distinctive abilities and temperament qualities lack a personality.

However, personality actually relates to individual variations in defining thought, feeling, and behavior patterns.

- **“Thinking”**: Personality encompasses variances in how people think on a regular basis.
- **“Feeling”**: Variations in an individual's typical emotional state are part of their personality.
- **“Behaving”**: Variations in an individual's usual behavior are a part of their personality.
- **In short, physical attributes, cognitive capacities, or transient states are not included in personality.**

- Personality does not refer to physical or biological distinctions (e.g., age or height) rather to variances in psychological traits among individuals.
- Personality does not comprise many skills or abilities. People's personalities are shaped by their general tendencies rather than their greatest abilities.

Personality refers to an individual's overall quality. The Latin term persona, which refers to the mask that theater performers wear, is where the word personality originates. Personality is made up of observable behaviors. It is described as a person's normal, regular, or unique adjustment to his surroundings. The characteristics that distinguish one individual from another in their behavior are referred to as the elements of personality, or features of personality.

1.2 PERSONALITY TYPES

Jung defined this introversion - extraversion personality type. When faced with difficult circumstances, introverts will respond badly and withdraw selectively and inward from society.

The introvert becomes less involved in the outer world and more preoccupied with his own inner fantasies and thoughts. He will not be able to interact freely with others. He is unwilling to communicate his innermost thoughts and feelings. In addition to being easily offended, he tends to focus on himself and exaggerates his mistakes.

On the other side of introverts is the extrovert. Extroverts are overtly expressive and react enthusiastically. Being an extrovert means having a thick skin, being sensitive to criticism in his emotional expression, being impersonal when arguing, and not being overly bothered by self-criticism or severely impacted by failure.

Sheldon's classification (types)

Sheldon classifies the people into 3 types. (1) Endomorphy (2) Mesomorphy and (3) Ectomorphy. In addition to this Sheldon also classified people into 3 types according to their temperaments. They are (1) Viscerotonia, (2) Somatotonia and (3) Cerebrotonia.

S.No	Body types	Temperamental types
1.	Endomorphy Large Viscera Soft body contours	Viscerotonia Love of comfort affection Sociability
2.	Mesomorphy Heavy muscular development Ambitious Hard body contours	Somatotonia Vigorous, self -assertive
3.	Ectomorphy Long, slender inbuilt Extremities, poor muscular development	Cerebrotonia Restrained Social withdrawal thoughtful

1.3 TRAIT THEORIES

According to trait theory, personality is made up of several qualities. The fundamental components of human behaviour are known as characteristics, and these traits allow for the description of human behaviour. Generally speaking, a characteristic is a description of behaviour; qualities that characterize human behaviour include assertiveness, friendliness, and social skills. Now, the question is whether these labels accurately characterize behaviour. No, since for something to be labelled a characteristic, it must be consistent.

According to trait theory, personality is made up of several qualities. The fundamental components of human behaviour are known as characteristics, and these traits allow for the description of human behaviour. Generally speaking, a characteristic is a description of behaviour; qualities that characterize human behaviour include assertiveness, friendliness, and social skills. Now, the question is whether these labels accurately characterize behaviour. No, since for something to be labelled a characteristic, it must be consistent.

The work of Allport, Cattell, and Eysenck has provided the most impetus for the trait approach. All of these theories are summed up here.

1.3.1 Allport's Trait Theory

Allport mentioned two types of traits; common traits and personal traits.

Common Traits - Common traits are those shared by a great number of people in a group or culture. As a result, persons from the same community or culture can be compared based on that characteristic. As an illustration. In the event that X demonstrates a cooperative behavior feature in a variety of contexts and that many individuals from that group or culture exhibit comparable behaviors, this trait will be deemed common. Thus, common features are those that are evident in the majority of people's behaviors within a society, community, or culture.

Personal Traits - This refers to a person's distinctive features that are not shared by other members of society, community, or culture. Such a personal characteristic is not comparable to that of others in that society. These attributes are instilled in a person during the socialization process, and as a result, many of the dos and don'ts of parents or caregivers become part of the personality, and these features are unique to this individual. Something more to consider is that this person's characteristics are quite constant and evident in nearly every behavior, regardless of the circumstance.

For instance, a person who possesses the quality of parsimony will demonstrate it in practically every area of his behavior, whether he is at work, school, or home. He will, for example, turn off the lights to save money on power, whether at work or home. In the same way, he would utilize one side page for preliminary work both at home and in the workplace, being extremely cautious not to waste paper. Cardinal dispositions, core dispositions, and secondary dispositions are the three classes into which Allport further categorized personality qualities.

a) Cardinal dispositions: These qualities have a dominant and overpowering impact on a person's behavior since they manifest in all a person does and direct that person's behavior. Mahatma Gandhi, for example, believed strongly in peace and nonviolence. Whatever Mahatma Gandhi accomplished during his life-at home or abroad-he conveyed a message of peace and nonviolence.

b) Central dispositions: This is present in all individuals, and one might have 5 to 10 core dispositions. They are not interchangeable with cardinal qualities, but they may be used to evaluate a person's personality. The personality of an individual is defined by these attributes. Consider the following individual as an example: they are truthful, reliable, frugal, tidy, and giving.

Such a person will always arrive at work on time, keep scheduled meetings on time, never waste anyone's time, be straightforward and deal directly with his employer and employees, ensure that nothing is wasted, and ensure that others do not waste anything, and be generous enough to offer help and solve the problem whenever someone asks for it.

c) Secondary dispositions: These characteristics are referred to as secondary since they are less evident, consistent, and significant to the individual. These characteristics don't really assist to understand the personality. For instance, one's eating habits, fashion sense, hairstyle, and preferences, etc.

1.3.2 Cattell's Trait Theory

After Allport, major contribution to trait theory was made by R.B. Cattell. He divided traits into two categories, viz., surface traits, and source traits.

Surface Traits- As the name implies, they are located on the peripheral of personality, meaning they are reflected in the person's day-to-day interactions. There is no question regarding their existence in the personality because of how clearly, they express themselves.

Surface Traits-The components of the personality structure are represented by the source traits. They are found in fewer numbers than surface features. These characteristics cannot be observed in the individual's day-to-day interactions. When certain surface characteristics are combined, source attributes become apparent. For instance, sociability, selflessness, and humour are surface attributes that combine to form the underlying feature known as friendliness.

Cattell identified two categories of source qualities: constitutional traits and environmental mold traits. Certain features that originate from the environment are known as environmental mold traits because environmental influences have a greater influence on their development than genetic elements. Constitutional qualities are source traits that are influenced by hereditary variables.

Cattell also classified qualities based on the behavior to which they are connected, which included dynamic and ability traits.

Dynamic Trait-The traits that steer an individual's behavior in a specific direction are known as dynamic traits. Attitudes and emotions are examples of dynamic characteristics.

An individual who firmly believes in the need of women's and girls' education, for instance, can decide to become involved with an organization or non-governmental group that promotes and provides education for these groups of people. This quality will be evident in all he does, including penning pieces for newspapers and other media that support the education of women and girls.

Ability Trait-are those that play a key role in achieving a particular objective. For example, musical skill is required for becoming a musician.

Temperamental traits- are the results of a person's attempts to achieve a goal and are related to the person's emotional state and energy.

1.3.3 Eysenck's Trait Theory

According to H.J. Eysenck, personality may be divided into two main categories. These are the extraversion-introversion and neuroticism dimensions.

According to Eysenck, they are physiologically and genetically rooted, with each dimension including a variety of unique features. He sketched a scale, with the neuroticism dimension at one extreme and the normal dimension at the other. Individuals may exhibit many features that fall under these categories to differing degrees in between. Let's start with neuroticism as the primary dimension and examine the characteristics that fall under it.

Neuroticism

Eysenck used the term "neuroticism" to describe a dimension in which people are particularly "nervous." This dimension got its name since these persons tend to have a higher frequency of various "nervous disorders." However, this does not imply that those with high neuroticism scores have neurotic illnesses per se; rather, it only indicates that these individuals are comparatively more likely than normal people to experience neurotic issues.

According to Eysenck, these aspects of normalcy, neuroticism, etc., were real temperaments that were sustained both physically and genetically. He attempted to identify probable explanations in the field of physiological research. According to Eysenck's theory, certain individuals possess a sympathetic nervous system that is more receptive than others. While some people experience significant anxiety or other emotions during emergencies, others maintain a relatively composed demeanor. Some people are afraid of even little incidents,

but others are unconcerned with severe calamities. According to Eysenck, the former group was predisposed to developing neurotic diseases because they suffered from a problem of sympathetic hyperactivity. A panic episode might be considered the most "classic" neurotic symptom.

According to Eysenck, the positive feedback you receive by placing a microphone too close to a speaker is analogous to panic episodes. The little noises that enter the microphone are magnified and come out of the speaker, then go back into the microphone, be amplified again, and come out of the speaker again, and so on, until you get the iconic shriek that we all loved to make as kids. (This is also how lead guitarists prefer to produce some of their lengthy, mournful tones.)

The pattern of a panic episode is the same, though: you are somewhat afraid of anything, like crossing a bridge. This activates your sympathetic nervous system, which makes you more tense and prone to stimulation. This, in turn, causes your system to become even more agitated, which further heightens your anxiety and susceptibility. One may argue that the neurotic is reacting less to the initial source of dread and more to his or her own worry!

Extraversion-Introversion

His second dimension is extraversion-introversion. By this, he implies something quite close to what Jung meant by the same phrases, as well as our common sense interpretation of them: shy, quiet individuals "versus" outgoing, loud ones. All people possess this dimension as well, but the physiological reason for this is a little more intricate. Eysenck defines extraversion-introversion as the balance of "inhibition" and "excitation" in the brain. The brain awakens to an attentive, learning state when it experiences excitement.

Inhibition is the brain calming itself down, either in the usual sense of relaxing and going to sleep, or in the sense of protecting itself in the case of overwhelming stimulation.

Consequently, he postulated that an extravert had strong, excellent inhibition. The extravert's brain blocks itself in response to stressful stimuli, like a car collision, so it goes "numb," as it were, to the trauma and retains very little memory of the event. When the vehicle collision occurs, the extravert may ask people to explain what happened to him since he feels like he "blacked out." They could be prepared to resume driving the very following day if they haven't fully recovered psychologically from the collision.

Conversely, introverts have low or weak inhibition. When they experience trauma, like a car catastrophe, their brains don't protect them quickly enough or shut down at all. Rather, they are extremely perceptive and have excellent memory, so they retain all of the information that was presented. They could even claim to have witnessed the entire collision "in slow motion." They could even decide to give up driving entirely, as it is quite doubtful that they will wish to do so anytime soon after the collision.

Neuroticism and Extraversion-Introversion

Eysenck also investigated the relationship between the two dimensions and its implications for a range of psychological issues. For instance, he discovered that those suffering from phobias and OCD tended to be very introverted, whereas those suffering from dissociative disorders (like amnesia) or conversion disorders (like hysterical paralysis) tended to be more extraverted. This is how he explained it: Extremely neurotic persons overreact to frightening stimuli; if they are introverts, they will learn to swiftly and fully avoid circumstances that make them feel panicked, even to the point where they are frightened by minor symbols of those events - they will acquire phobias.

Some introverts will pick up (fast and fully) specific behaviors that help them delay panic attacks, including repeatedly inspecting objects or washing their hands.

On the other hand, highly neurotic extraverts excel at blocking out and forgetting the things that consume them. They use traditional defensive strategies like suppression and denial. People are able to willfully forget unpleasant experiences like a painful weekend or even the inability to feel or use their legs.

Psychoticism

Eysenck identified a third component, which he classified as psychotic. Comparable to neuroticism, having a high psychotic characteristic does not always indicate that an individual is psychotic; rather, it indicates that they share some traits with psychotics and are at a higher risk of developing psychotic traits. Some degree of improper emotional outpouring, along with a certain recklessness and disdain for traditions and common sense, are characteristics of psychotic persons. It is the feature that distinguishes the people who wind up in institutions from the others.

1.4 CONCLUSION

This unit included personality education. We made note of how social attractiveness is frequently used to interpret the concept of personality. The scientific method of studying personality development, which explains personality in terms of uniqueness and consistency, was highlighted. In other words, personality refers to all of the generally permanent features, inclinations, or characteristics within a person that contribute to the consistency of the individual's behavior. Although these characteristics will vary from person to person, they may be unique, shared by certain groups, or present throughout the entire species.

1. We also looked at personality types and attribute approaches. We learned about Sheldon and Jung's typology in the type approach. After that, we discussed the idea of characteristics and looked at many trait-based methods to personality analysis. whereby the trait method of Allport, Cattell, and Eysenck was examined.

1.5 SUGGESTED READING

- Hall, Calvin S. and Lindzey, A (1978). Theories of Personality. John Wiley and Sons,
- New Jersey Dan, P. McAdams (2008). The Person: An Introduction to the Science of Personality Psychology. John Wiley and Sons, New Jersey

1.6 CHECK YOUR PROGRESS

1. Which of the following is a criterion for a trait?
a) Unstable b) Inconsistent c) Varies from person-to-person
d) All of the above
2. Who proposed the first trait theory of personality?
a) Sigmund Freud b) Gordon Allport
c) Raymond Cattell d) Hans Eysenck

3. According to Eysenck's model of personality, which dimension relates to a person's tendency to remain emotionally constant?
- a) Introversion/Extraversion
 - b) Agreeableness
 - c) Neuroticism/Emotional Stability
 - d) Openness

DOLLARD AND MILLER THEORY OF PERSONALITY

STRUCTURE

- 12.1 Introduction
- 12.2 Main Principles of Dollard and Miller Theory
- 12.3 Applications of Dollard and Miller Theory
- 12.4 Critiques And Limitations of Dollard and Miller Theory
- 12.5 Significance And Legacy of Dollard and Miller Theory
- 12.6 The Life of Albert Bandura
- 12.7 Social Learning Theory
- 12.8 Applications of Bandura's Approach in Education
- 12.9 Critiques of the Behavioural Approach
- 12.10 Assess Your Knowledge
- 12.11 Suggested Readings

Objectives

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

- Discuss Dollard and Miller's theory in psychology;
- Discuss the main principles of Dollard and Miller's theory;
- Explain the applications of Dollard and Miller's theory;

- Discuss the critiques and limitations of Dollard and Miller's theory;
- Critically analyze the significance and legacy of Dollard and Miller's theory
- Discuss the life of Albert Bandura;
- Explain the social learning theory;
- Discuss the applications of Bandura's approach in Education;
- Critically Analyse the behavioural approach of Bandura's theory;

12.1 INTRODUCTION

The Dollard and Miller theory of personality originated from the work of psychologists John Dollard and Neal Miller. Dollard and Miller's theory of personality is a comprehensive framework that sheds light on human behavior. By exploring concepts such as learning and reinforcement, conflict and frustration, habits and conditioning, and motivation and needs, this theory provides valuable insights into the complexities of personality. Dollard and Miller's theory of personality is a psychodynamic learning perspective that combines elements from Freud's and Hull's drive theories, unifying psychoanalysis and behaviorism. Their model posits that personality is based on an individual's most recent learning experiences, and that it is composed of the behaviors learned as a result of the associations between drives, proper cues, and responses. This theory explores the underlying factors that shape an individual's behavior and personality. By examining the role of learning, conflict, habits, and motivation, this theory provides a holistic understanding of human personality.

Dollard and Miller's theory of personality is a psychodynamic learning perspective that combines elements from Freud's and Hull's drive theories, unifying psychoanalysis and behaviorism. Their model posits that personality is based on an individual's most recent learning experiences, and that it is composed of the behaviors learned as a result of the associations between drives, proper cues, and responses.

According to Dollard and Miller,

- Drives are internal forces that motivate behavior. They are similar to Freud's pleasure principle, but they are more objective and measurable. Drives can be either primary

or secondary. Primary drives are innate and universal, such as hunger, thirst, or sex. Secondary drives are acquired through social learning and reinforcement.

- Cues are stimuli that trigger a response. They can be either internal or external. Internal cues are signals from the body or the mind that indicate the presence or absence of a drive. External cues are environmental factors that influence the occurrence or intensity of a drive.
- Responses are observable actions that result from a drive-cue combination. They can be either adaptive or maladaptive. Adaptive responses are those that satisfy the drive and reduce its level. Maladaptive responses are those that fail to satisfy the drive and increase its level.
- Reinforcement is any consequence that increases the likelihood of a response in the future. It can be either positive or negative. Positive reinforcement involves adding something pleasant after a response, such as food or praise. Negative reinforcement involves removing something unpleasant after a response, such as pain or fear.

Dollard and Miller's theory of personality suggests that personality development is influenced by both biological factors and environmental factors. They argue that personality consists of habits, which are stable patterns of responses to cues triggered by drives. Habits can be modified by reinforcement or punishment, but they cannot be eliminated. Dollard and Miller also emphasize the role of social factors in shaping personality, such as imitation, modeling, reinforcement schedules, conflict resolution strategies, etc.

Behavioural approach by Bandura is a theory of social learning that explains how people learn from observing, imitating, and modeling the behaviours, attitudes, and emotional reactions of others. Bandura proposed that learning occurs through a process of observational learning, which involves four mediational processes: attention, retention, reproduction, and motivation. Bandura also suggested that people can learn new information and behaviors by watching other people through media or social interactions. Bandura's theory is considered to be a bridge between traditional behaviorism and cognitive psychology, as it incorporates both environmental and cognitive factors in human learning and behavior.

12.2 MAIN PRINCIPLES OF DOLLARD AND MILLER THEORY

1. Learning and Reinforcement

Dollard and Miller emphasize the role of learning through reinforcement in shaping an individual's behavior and personality.

2. Conflict and Frustration

This principle highlights how internal and external conflicts, as well as frustration, can influence an individual's actions and attitudes.

3. Habits and Conditioning

The theory explains how habits and conditioning contribute to automatic responses and patterns of behavior.

4. Motivation and Needs

Understanding an individual's motivation and needs helps to explain their behaviours and drives.

These principles suggest that personality development is influenced by both biological factors and environmental factors, and that personality consists of habits, which are stable patterns of responses to cues triggered by drives. Habits can be modified by reinforcement or punishment, but they cannot be completely eliminated. Dollard and Miller also emphasize the role of social factors in shaping personality, such as imitation, modelling, reinforcement schedules, conflict resolution strategies, etc.

12.3 APPLICATIONS OF DOLLARD AND MILLER THEORY

• Understanding of Human Behaviour

The Dollard and Miller theory provides a valuable framework to comprehend the complexities of human behaviour in various social and psychological contexts.

• Therapeutic Interventions

This theory offers guidance in designing effective therapeutic interventions to address psychological issues and promote personal growth and well-being.

- **Personality Assessment**

By considering the principles of Dollard and Miller theory, mental health professionals can assess and evaluate an individual's personality traits and characteristics. Dollard and Miller's theory provides a framework for understanding how personality is shaped by learning experiences, especially those involving drives, cues, responses, and reinforcement. Personality assessment tools can use this framework to measure the frequency and intensity of different types of responses to different types of cues and to identify the habits that form the basis of personality.

- **Personality change:** Dollard and Miller's theory suggests that personality can be modified by reinforcement or punishment, but not eliminated. Therefore, personality change is possible through modifying the habits that are associated with certain responses to certain cues. For example, a person who wants to quit smoking can use reinforcement strategies to increase the likelihood of not smoking in certain situations.
- **Personality development:** Dollard and Miller's theory emphasizes the role of social factors in shaping personality, such as imitation, modeling, reinforcement schedules, conflict resolution strategies, etc. Therefore, personality development is influenced by both biological factors and environmental factors. For example, a child who observes their parents' positive behaviors can learn to adopt similar habits and develop a more adaptive personality.
- **Personality disorders:** Dollard and Miller's theory can help explain some aspects of personality disorders, such as aggression, impulsivity, anxiety, depression, etc. These disorders are characterized by maladaptive responses to maladaptive cues that result from unbalanced drives or faulty reinforcement schedules. For example, a person with aggression disorder may respond aggressively to provocation due to an unbalanced drive for dominance or an ineffective conflict resolution strategy.

12.4 CRITIQUES AND LIMITATIONS OF DOLLARD AND MILLER THEORY

Dollard and Miller's theory of personality has been criticized and challenged by various scholars and researchers for several reasons. Some of the critiques and limitations of their theory are:

- **Theoretical inconsistency:** Dollard and Miller's theory attempts to combine elements from Freud's psychoanalysis and Hull's behaviorism, but this creates some theoretical inconsistencies. For example, they equate Freud's concept of displacement to the behavioral concept of generalization, but they do not explain how these concepts are related or how they affect personality development. They also ignore the role of unconscious processes, such as defense mechanisms, in shaping personality.
- **Empirical evidence:** Dollard and Miller's theory relies heavily on classical conditioning and operant conditioning experiments, but these methods have some limitations in studying personality. For example, classical conditioning experiments cannot account for the complexity and variability of human behavior, such as emotions, motivations, values, etc. Operant conditioning experiments cannot capture the dynamic and reciprocal nature of human relationships, such as attachment, love, etc.
- **Simplification:** Dollard and Miller's theory simplifies the concept of personality by reducing it to a set of learned habits that are triggered by drives. However, this ignores the role of biological factors, such as genes, hormones, brain structures, etc., in influencing personality. It also overlooks the role of environmental factors, such as culture, society, history, etc., in shaping personality.
- **Ethical issues:** Dollard and Miller's theory has been accused of being ethically problematic for several reasons. For example, it implies that aggression is always a result of frustration or that frustration is always a result of aggression. It also suggests that personality can be modified by reinforcement or punishment without considering the moral implications or the potential harm to oneself or others.

12.5 SIGNIFICANCE AND LEGACY OF DOLLARD AND MILLER THEORY

This theory of personality is a significant and influential contribution to the field of psychology. It has several aspects that make it relevant and valuable, such as:

- It integrates psychoanalysis and behaviourism, two seemingly contradictory approaches to understanding human behaviour. It shows how the unconscious

mind and the conscious mind interact in shaping personality.

- It proposes a stimulus-response model of learning, which explains how habits are formed through associations between drives, cues, and responses. It also introduces the concepts of reinforcement, classical conditioning, and operant conditioning.
- It emphasizes the role of social factors in personality development, such as imitation, modeling, reinforcement schedules, conflict resolution strategies, etc. It also recognizes the influence of biological factors, such as genes, hormones, brain structures, etc., on personality.
- It provides a theoretical basis for understanding behavior in conflict situations, such as aggression, frustration-aggression hypothesis, social learning theory, etc. These theories have important applications in various domains of psychology and society.

The Dollard and Miller theory of personality has had a lasting legacy in psychology and beyond. It has inspired many other theorists and researchers to develop their own models and perspectives on personality. Some examples are:

- The social learning theory of Bandura (1961), Rotter (1966), Mischel (1974), etc., which extended the stimulus-response model to include observational learning and cognitive processes.
- The cognitive-affective personality theory of Kelly (1955), Weiner (1965), Lippitt (1968), etc., which integrated psychoanalysis with cognitive psychology to explain how personality is influenced by both internal factors (cognitive appraisals) and external factors (environmental stimuli).
- The attachment theory of Bowlby (1988), Ainsworth (1978), Wallerstein (1980), etc., which proposed that personality is shaped by early childhood experiences with caregivers that affect one's emotional bonds and coping strategies.

12.6 THE LIFE OF ALBERT BANDURA

Albert Bandura was a Canadian-born American psychologist who is widely regarded as one of the most influential psychologists of the twentieth century. He is best known for his social cognitive theory, which explains how people learn from observing,

imitating, and modeling the behaviors, attitudes, and emotional reactions of others. He also conducted the famous Bobo doll experiment, which demonstrated that children can learn aggressive behaviors through the observation of adults.

Bandura was born on December 4, 1925, in Mundare, Alberta, Canada. He was the youngest of six children and had a difficult childhood due to the deaths of two of his siblings. His parents were immigrants from Poland and Ukraine who worked hard to provide for their family. Bandura developed an interest in psychology after taking a filler course at the University of British Columbia and later earned his bachelor's degree in psychology with the Bolocan Award in 1949.

Bandura then pursued his graduate studies at the University of Iowa, where he received his master's degree in psychology (1951) and his doctorate in clinical psychology (1952). He joined Stanford University as an instructor in 1953 and became a professor there in 1974. He remained at Stanford until his retirement in 2010 as professor emeritus. He also served as the president of the American Psychological Association from 1987 to 1988.

Bandura made significant contributions to various fields of psychology, such as developmental psychology, educational psychology, social psychology, cognitive psychology, and media psychology. He proposed several influential concepts and theories, such as self-efficacy (the belief in one's ability to perform a task), observational learning (the process of learning by watching others), reciprocal determinism (the interplay between personal factors and environmental factors), self-regulation (the ability to control one's own behavior), self-monitoring (the ability to observe one's own behavior), self-reinforcement (the use of positive or negative feedback to maintain or change behavior), self-modeling (the use of others as models for behavior), self-verification (the tendency to seek out information that confirms one's beliefs), self-enhancement (the tendency to present oneself in a favorable light), self-presentation (the process of managing how others perceive oneself), self-concept (the overall evaluation of oneself), self-esteem (the evaluation of oneself based on social standards), attribution errors (the tendency to overestimate or underestimate the causes of one's successes or failures), locus of control (the belief that one has control over or is influenced by external events or internal factors), outcome expectations (the beliefs about what will happen if one performs a certain behavior), goal setting theory (a theory that explains how setting specific and challenging goals can enhance motivation and performance),

expectancy-value theory (a theory that explains how people choose between different options based on their expected value or utility), planned behavior model (a model that predicts human behavior based on attitudes toward performing an action, subjective norms regarding performing an action, perceived behavioral control over performing an action).

Bandura also conducted many research studies on various topics related to human learning and behavior. Some of his notable studies include:

- **The Bobo doll experiment:** In this study, Bandura exposed preschool-age children to physical and verbal abuse by adults while they watched them play with a clown-faced inflatable toy called Bobo. The children were then observed while they played with Bobo themselves. The results showed that the children imitated the aggressive behaviors they had seen adults perform on Bobo.
- **The diffusion of innovation:** In this study, Bandura examined how new ideas spread among individuals or groups over time. He identified four factors that influence the adoption rate of new ideas: relative advantage (how useful an idea is compared to existing ones), compatibility normative pressure (how much others approve or disapprove an idea), complexity trialability cost-benefit analysis effort expectancy persistence.
- **The media violence effects:** In this study, Bandura investigated how exposure to violent media affects children's aggression levels. He found that watching violent media increased aggressive thoughts, feelings, and behaviors among children, especially when they lacked parental guidance and supervision.
- **The social identity theory:** In this study, Bandura explored how people form their sense of identity and group membership based on their social categories such as race, gender, religion, nationality, etc. He proposed that people tend to favor their own group over other groups and seek out information that confirms their group identity. He also suggested that people may experience intergroup conflict or prejudice when they perceive other groups as threatening or inferior.

12.7 SOCIAL LEARNING THEORY

Albert Bandura's social learning theory is a psychological approach that explains how people learn through observation, imitation, and modeling. It accounts for the influence

of environmental and cognitive factors on learning and behavior. It was proposed by Albert Bandura, a psychologist who studied the role of mental states, attention, motivation, and reinforcement in learning.

According to Bandura's theory, people can learn new information and behaviors by watching other people perform them. This process is called observational learning, and it involves four mediational processes: attention, retention, reproduction, and motivation. These processes determine whether a person will pay attention to a model's behavior, remember it in their mind, reproduce it in their own actions, and be motivated to do so.

Bandura's theory is considered to be a bridge between traditional behaviorism and cognitive psychology, as it incorporates both environmental and cognitive factors in human learning and behavior. Bandura's theory has been applied to various fields of psychology, such as developmental psychology, educational psychology, social psychology, cognitive psychology, and media psychology. Some examples of how Bandura's theory can be used are:

- To understand how children learn aggression from observing adults or peers.
- To design effective interventions to prevent or reduce violence in schools or communities.
- To evaluate the impact of media violence on children's attitudes and behaviors.
- To enhance self-regulation skills through modelling positive behaviors.
- To foster social identity formation through exposure to diverse groups.

Bandura theory of social learning can be explained under the following three headings:

1) Reciprocal determinism

Reciprocal determinism is the idea that human behavior is influenced by and influences the individual, the environment, and the behavior itself. Bandura proposed that people are not passive recipients of environmental forces, but have the power to change their situation and circumstances through their own choices and behaviors.

2) Self-system

Self-system is the concept of how a person's self-image or identity is formed by

the experiences of social approval and disapproval from others, especially during early childhood. Bandura suggested that the self-system consists of three personifications: the "good me", the "bad me", and the "non-me". These personifications reflect how a person evaluates themselves based on the feedback they receive from their caregivers and significant others.

3) **Principles of observational learning**

Principles of observational learning are the rules that explain how people learn by watching, imitating, and modeling the behaviors, attitudes, and emotional reactions of others. Bandura identified four mediational processes that are involved in observational learning: attention, retention, reproduction, and motivation. These processes determine whether a person will pay attention to a model's behavior, remember it, reproduce it, and be motivated to do so.

12.8 **APPLICATIONS OF BANDURA'S APPROACH IN EDUCATION**

Bandura's social learning theory is a psychological theory that explains how people learn from observing, imitating, and modelling the behaviours, attitudes, and emotional reactions of others. Bandura's theory has been applied to various fields of education, such as:

- **Observational learning and modelling:** Bandura's theory suggests that teachers can use modelling techniques to demonstrate desired skills, behaviours, and attitudes to their students. Students can then observe and imitate the teacher's actions and receive feedback and reinforcement. Modelling can also be used to expose students to diverse perspectives, cultures, and experiences.
- **Self-efficacy:** Bandura's theory proposes that self-efficacy is the belief in one's ability to perform a task or achieve a goal. Self-efficacy influences how students approach learning, how much effort they put in, how they cope with challenges, and how they evaluate their performance. Teachers can enhance students' self-efficacy by providing them with clear instructions, positive feedback, encouragement, and opportunities to practice and master skills.
- **Outcome expectations:** Bandura's theory states that outcome expectations are the beliefs about what will happen if one performs a certain behaviour. Outcome

expectations affect how students choose and pursue their goals, how motivated they are, and how satisfied they are with their results. Teachers can influence students' outcome expectations by setting realistic and challenging goals, providing rewards and incentives, and highlighting the benefits and consequences of different actions.

- **Self-regulation:** Bandura's theory defines self-regulation as the ability to control one's own behaviour, emotions, and thoughts. Self-regulation involves setting goals, monitoring progress, evaluating performance, and adjusting strategies. Self-regulation is essential for academic success, as it helps students manage their time, resources, and learning processes. Teachers can foster students' self-regulation by teaching them metacognitive skills, providing them with tools and resources, and creating a supportive and structured learning environment.
- **Moral agency and disengagement:** Bandura's theory explains that moral agency is the capacity to act in accordance with one's moral standards and values. Moral agency involves self-monitoring, self-judgment, and self-sanction. Moral disengagement is the process of rationalizing, minimizing, or ignoring the moral implications of one's actions. Moral disengagement can lead to unethical, aggressive, or antisocial behaviours. Teachers can promote students' moral agency by modelling ethical conduct, teaching moral reasoning, and creating a moral climate in the classroom.

12.9 CRITIQUES OF THE BEHAVIOURAL APPROACH

The behavioural approach is a psychological perspective that focuses on observable behaviour and how it is influenced by environmental stimuli. The behavioural approach has been applied to various fields of psychology, such as learning, motivation, personality, and therapy. However, the behavioural approach has also faced many criticisms from other perspectives. Some of the main critiques are:

- The behavioural approach is too simplistic and ignores the role of internal factors, such as thoughts, feelings, beliefs, and intentions, in human behaviour. Critics argue that behaviour is not only determined by external stimuli, but also by cognitive processes, such as perception, memory, reasoning, and decision-making.

- The behavioural approach is too mechanistic and treats humans as passive and reactive, rather than active and creative. Critics contend that humans have free will and agency, and can initiate and control their own behaviour, rather than being controlled by the environment. They also suggest that humans have the capacity to create and innovate, rather than just imitate and repeat.
- The behavioural approach is too reductionist and generalizes from animal studies to human behavior. Critics point out that humans are more complex and unique than animals, and have different biological, social, and cultural factors that influence their behavior. They also question the validity and ethics of using animals as models for human behavior.
- The behavioural approach is too deterministic and pessimistic, and does not account for human potential and growth. Critics propose that humans have intrinsic motivation and self-actualization needs, and can change and improve their behavior through self-awareness and reflection. They also emphasize the importance of positive and humanistic values, such as empathy, compassion, and dignity, in human behavior.

12.10 ASSESS YOUR KNOWLEDGE

- How did Dollard and Miller integrate psychoanalysis and behaviorism in their theory of personality?
- What are some social factors that influence personality development according to Dollard and Miller?
- Discuss some critiques and limitations of Dollard and Miller's theory of personality.
- Explain some applications of Dollard and Miller's theory of personality in various fields of psychology.
- List some of the theories that were inspired by Dollard and Miller's theory of personality

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ASSESSMENT OF PERSONALITY

STRUCTURE

- 13.1 Introduction
- 13.2 Objectives
- 13.3 Personality Assessment
 - 13.3.1 Meaning of Personality Assessment
 - 13.3.2 Types of Personality Assessment
- 13.4 Advantages
- 13.5 Limitations
- 13.6 Letus Sum Up
- 13.7 Check Yourself
- 13.8 Suggested Readings and 0References

13.1 INTRODUCTION

When we talk about assessment, we mean the quantification of various personality traits. This gives us the knowledge of the degree to which a particular trait is present as well as the opportunity to compare the traits of different people. The extent to which a person's various personality traits are organized or harmoniously coexist with one another can also be determined through personality assessment.

The Latin word *persona* is where we get the word *personality*. In ancient times, the theatrical mask worn by performers was referred to as a *persona*. The theatrical mask's original purpose was to represent or signify a specific aspect of a character's personality, even though most people associate masks with hiding one's identity. Personality is described as an individual's consistent characteristics. It influences a person's behavior, motivations, and preferences, among other things. Before employing someone, their personality tells you all you need to know about them: their beliefs, their capacity to work well with others, whether they will flourish as an individual contributor or as a member of a team, and more. These specific insights emphasize the significance of analyzing personality for organizations.

Definitions of Personality:

1. Gordon Allport:

Defines "Personality" as "the dynamic organization within the individual of those psychophysical systems that determine his unique adjustment to his environment".

2. RS Woodworth:

"Personality is the total quality of the individual's behaviour".

3. Cattell:

"Personality is that which permits a prediction of what a person will do in a given situation".

13.2 OBJECTIVES

After finishing this unit, you ought to be able to:

- Discuss the meaning of personality assessment;
- Answer the purpose of personality assessment;
- Describe projective techniques; and
- Elaborate the advantages and limitations of personality assessment

13.3 PERSONALITY ASSESSMENT

A personality assessment is a tool used to evaluate people's personalities. Personality assessments are used to comprehend the frequent occurrences of emotions,

ideas, and actions that people exhibit in different contexts. The results of these tests can be used to predict how people will act and respond in various circumstances. Personality tests are useful tools for assessing personality, aiding in the selection of candidates for employment and academic purposes.

The assessment process is based on the idea that each person has unique personality traits. Even when two people have similar features, their experiences in different situations will lead to different behaviors. A personality assessment will reveal exactly what makes a person different and what is typical of that individual. One of the distinctive features of personality evaluation is the scientific approach of measuring personalities. Human quantitative and qualitative qualities are described in this manner.

13.3.1 Meaning of Personality Assessment

Personality assessment is measuring how much a person exhibits certain psychological states, traits, values, interests, attitudes, worldviews, cognitive styles, and so on. To improve the accuracy of behavior prediction in a variety of situations and environments (e.g., clinical, forensic, organizational, and educational), personality assessment involves the administration, scoring, and interpretation of empirically supported measures of personality traits and styles.

Both theoretical and practical goals are served by personality assessment.

- Theoretically, personality evaluation uncovers information about the nature of the process as well as the numerous aspects and dimensions of personality development.
- But one of the more practical uses of personality testing is to identify a person's strengths and weaknesses. It reveals the characteristics that a person lacks and what that means for his capacity to adapt to his environment. For people who require assistance in creating an intervention program to help them get over some of their personality-based challenges, it offers assistance.

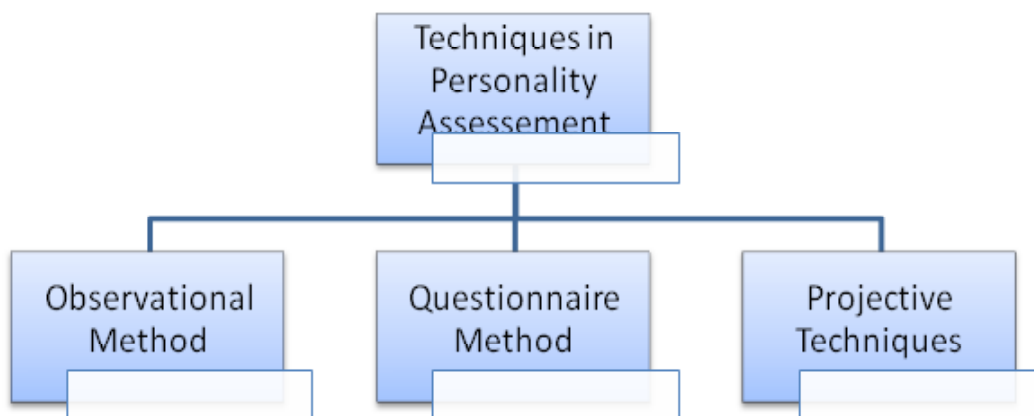
13.3.2 Types of Personality Assessments

Depending on the theory of personality that was used to develop these approaches, different methods for measuring or assessing personality exist. The objectives for which personality tests are used can also differ.

School of Thought	Type of Assessment
Psychoanalysis, Humanistic	Interview
Psychoanalysis	Projective Tests
Behavioral, Social-cognitive	Behavioral Assessments
Trait Theories	Personality Inventories

A personality assessment may include case studies, interviews, inventories, rating scales, and projective tests, among other methods. A person's typical behavior pattern is one of their personality traits. The goal of a personality test is to determine an individual's usual behavior. We can learn more about the nature of personality through personality tests. The majority of personality tests aim to identify external expressions of a person's social stimulus value. Others are meant to highlight the more subtle facets of personality, like conflicts and unconscious motivations.

The following categories apply to frequently used assessment techniques:



A. Observational technique:

In general, it is used to assess personality based on its outward expression. Rating scales, interviews, and behavioral techniques are the three primary techniques.

i. Behavioral or Situational tests:

The most accurate technique to predict an individual's conduct in a natural circumstance is to place them in a test scenario that closely mimics a real-world scenario. When a person is put through a behavioral test, the examiner watches them while they act normally and they are not aware that they are being watched. For instance, to test a person's honesty, a situation may be constructed and the subject's response assessed for authenticity or dishonesty.

ii. Interviews:

This method involves asking the subject personally, in person, about his personality in order to get information about it. It makes it possible for the subject and the psychologist to communicate mentally. In the interview, there are two different kinds of face-to-face contacts.

a) Structured Interviews:

This strategy follows a planned and rigorous procedure. In this instance, the interviewer is aware of the behaviors or personality qualities he must assess and makes plans appropriately.

After confiding in the subject, the psychologist usually prepares a list of questions and asks them, then tries to find the answers. He is worried not only with the content of the responses, but also with inappropriate behavior and other similar favors.

This approach has several drawbacks, including time and cost constraints and the need for a trained interviewer. The fact that the person might hide his emotions or give arbitrary answers is another drawback.

b) Unstructured interview:

It's an open-ended inquiry. As a result, the interviewer is free to ask the interviewee whatever questions he or she wants concerning the scenario. The interviewer is not restricted to a list of predefined questions. Regarding the subject of the interview, he is allowed to ask as many and any questions he wishes.

B. Questionnaire:

It describes an effort to gather data by having respondents fill out a form in order to receive answers to questions. To get information from the subject about his personality traits, a form with a series of written or printed questions is employed. The subject answers the questions by filling in the Yes, No, or Cannot say columns, for example.

1. Do you like being alone yourself? Yes, no, I'm not sure.
2. Do you find it enjoyable when others succeed? I'm not sure, but yes or no.

C. The Projective techniques:

Projective indicators of personality are often used in personality assessments. In contrast to self-report measures, which ask the subject to answer to organized test stimuli, projective tests ask the subject to answer to unclear or unstructured stimuli. The essential premise of projective testing that uses unstructured test stimuli is that the subject projects latent or unconscious wants, sentiments, motivations, and so forth onto the ambiguous stimulus. The projection of each person's response reveals something about their personality. Projective tactics are grounded in the psychoanalytic theory of personality, which maintains that personality is essentially unconscious and hidden. As a result, responses to questions in inventories or interviews may not adequately reflect the genuine personality.

In these procedures or tactics, the examiner does not witness the subject's overt behavior as in small life scenarios, nor does he ask the subject to voice his view of his own behavior or sentiments regarding certain experiences. Instead, the individual is urged to act imaginatively, such as making up a story, interpreting ink blots, or constructing various objects out of plastic material and sketching anything he wants. As a result, the subject is urged to 'project,' or freely hurl his thoughts, feelings, wishes, and other reactions into some offered settings. Therefore, the goal of these techniques is to provide light on the underlying characteristics, feelings, attitudes, and imaginations that influence a person's conduct in everyday settings.

The projective method's underlying premise is that a person's fundamental traits or personality are revealed through his observations of his unstructured and undefined surroundings and his comments about them.

The following characteristics are shared by projective techniques:

- (1) The stimulus material is generally neutral, ambiguous, or undefined, allowing the subject to easily imprint his personality on it.
- (2) It is more important to consider the subject's psychological reality than his physical reality - his desires, attitudes, beliefs, ideals, conflicts, and fantasies.
- (3) These techniques reveal implicit or unconscious aspects of the personality, and psycho-dynamic principles thus play an important role in the interpretations.
- (4) An untrained interpreter is likely to project his or her own biases and fantasies over the subject's productions.

Some widely used projective techniques are discussed below:

a) The Rorschach Inkblot Test (Rorschach, 1921) is made up of ten inkblots depicting ambiguous visual stimuli. These are shown to the client one by one, and they are simply asked to say whatever comes to mind. The scoring is based on various elements of the response, such as the content, reference to shape, color, part or entire image, and so on. The scoring and interpretation of the responses is extensive and detailed; administering and scoring the Rorschach test requires extensive training. There are Total 10 cards (Black and white-5, black and red-2, and Multi-coloured-3). One card at one time in same order must be administered by a trained psychologist.

b) Thematic Apperception Test (TAT) developed by Murray and Morgan's (1930) is made up of 20 black and white picture cards. The client is asked to look at each Individual Differences 47 picture, which is structured and meaningful unlike the ink-blots in Rorschach, and then tell a story about it. The test aims to assess the individual's motivational traits as reflected in the stories.

Uma Choudhary created the Indian adaptation of TAT in 1960. It is made up of 14 cards that have been adapted for the Indian population.

c) C.A.T. (Children's Apperception Test):

Bellack constructed this test in 1948. Children between the ages of six and twelve have their personalities evaluated using this method. Young children are fascinated by animal stories and enjoy interacting with animals. The psychologist builds a relationship with the

chief in advance of the exam to get his cooperation. The child's buried desires are awakened by CAT.

d) Word Association Test:

The word-association method is another widely used technique wherein the subject is given a list of words one at a time and asked to answer with the first word that comes to mind. The examiner records both the time it takes to forgive each response and the responses themselves. A person's unique answers and deviations from the norm can help identify particular attitudes, fears, or feelings.

e) Picture Association Test:

The picture-association method, which substitutes images of social situations for words as stimulus material, is a recent projective technique. Rosensweig's picture-frustration study is a well-known example of this type of technique. It was recently adapted in India by Dr. Udaya Parik. It is made up of 24 cartoon-style drawings depicting everyday situations of frustration or stress involving his characters, one of whom is usually shown frustrating the other. The subject is asked to write or say the first appropriate association that comes to mind in the blank caption box above the frustrated individual's head. The associations then reveal areas of conflict, anxiety, and stress in the individual's life.

f) Sentence Completion Test:

Ebbinghaus originally created this test to assess intellectual ability. The tests consist of a list of incomplete sentences that are generally open-ended and require the subject to complete in one or more words, e.g.

I'm concerned about _____

Because the subject can respond in more than one word, sentence completion tests are thought to be superior to word association tests. It becomes possible to respond with great flexibility and variety, revealing a broader range of personality and experiences.

13.4 ADVANTAGES:

The hidden aspects of one's personality, such as unconscious motives, desires, and conflicts, are revealed. As a result, it can reveal the true nature of one's personality.

- Recognize the behavior of a specific individual.
- Facilitates the process of reaching a decision regarding a potential future course of action.
- Aids in making forecasts about a person's distinctive future behavior.
- Predicts people's behavior;
- Accurately identify the type and existence of a psychological issue in an individual.

13.5 LIMITATIONS

- Although predetermined categories are used for scoring and details are specified for interpreting, projective techniques are subjective in nature. Exner's (1986) scoring method provides a more standardized method for scoring responses.
- Time consuming
- Requires skill and expertise in projective test administration, scoring, and interpretation
- A person's response may be influenced by the examiner or the test conditions.
- Test dependability is an issue when consistent results are not obtained.
- Testing's low ability to forecast behavior in the future (validity problem)

13.6 LET US SUM UP

In this Unit, we learned about different methods of assessing personality as well as some examples of tests that fall under these methods. Personality assessment cannot be based on a single technique because it is not a unidimensional characteristic. If we want to have a comprehensive, better, and more accurate understanding of an individual's personality, we must combine the various methods of assessing personality. Different approaches to personality guide the various methods of personality assessment discussed above. Trait theories, for example, have an impact on personality inventories. The behavioral and social learning approach to personality guides the behavioral assessments, which include direct observation, interviews, and rating scales.

The underlying factor for projective techniques of personality assessment is a

psychoanalytic approach. However, in the practical context of assessing personality, approaches are fluid and various methods are used depending on the situation.

13.7 CHECK YOURSELF

1. Discuss the characteristics of projective techniques of personality assessment.
2. How structured interviews differ from unstructured interviews.
3. Briefly explain Thematic Apperception Test.

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13.8 ANSWERS TO CHECK YOUR PROGRESS

1. Following are the characteristics of projective techniques:
 - (1) The stimulus material is generally neutral, ambiguous, or undefined, allowing the subject to easily imprint his personality on it.
 - (2) It is more important to consider the subject's psychological reality than his physical reality - his desires, attitudes, beliefs, ideals, conflicts, and fantasies.
 - (3) These techniques reveal implicit or unconscious aspects of the personality, and psycho-dynamic principles thus play an important role in the interpretations.
 - (4) An untrained interpreter is likely to project his or her own biases and fantasies over the subject's productions.
2. Structured interview follows a planned and rigorous procedure. In this instance, the interviewer is aware of the behaviors or personality qualities he must assess and makes plans appropriately. On the other hand unstructured interview is an open-ended inquiry. As a result, the interviewer is free to ask the interviewee whatever questions he or she wants concerning the scenario.
3. Thematic Apperception (TAT) definition to a psychological personality test that focuses on the subconscious dynamics of a person's personality. TAT utilizes open-ended questions to reveal aspects of a person's personality.

THEORIES OF INTELLIGENCE

STRUCTURE

- 14.1 Introduction
- 14.2 Objectives
- 14.3 Spearman's two factor theory of Intelligence
 - The general intelligence factor or the g factor
 - Examples of spearman's theory of Intelligence
- 14.4 Thurstone's theory of Intelligence
 - Advantages of Thurstone's theory of intelligence
 - Disadvantages of Thurstone's theory of intelligence
- 14.5 Thorndike's multifactor theory of Intelligence.
- 14.6 Guilford's model of Intelligence
- 14.7 Let's sum up
- 14.8 Answers to check progress
- 14.9 Suggested Readings and References.

14.1 INTRODUCTION

Despite widespread interest in the topic, there is still no agreement among psychologists regarding the elements of intelligence or if it is even possible to assess intelligence precisely.

Experts generally concur that intelligence involves mental skills like logic, reasoning, problem-solving, and planning, despite the fact that contemporary definitions of intelligence vary significantly. Current definitions tend to argue that intelligence is specifically the capacity for:

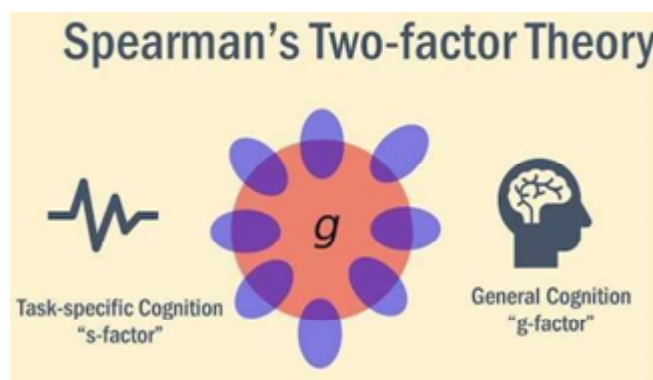
- **Learn from experience:** Knowledge acquisition, retention, and application are crucial aspects of intelligence.
- **Recognize problems:** To use knowledge, people first must identify the problems it might address.
- **Solve problems:** People must then use what they have learned to come up with solutions to problems.

14.2 OBJECTIVES

After going through the unit, you would be able to:

- Get an overview of different theories of Intelligence.
- Explain the Spearman's theory of Intelligence.
- Define Thurstone's theory of Intelligence
- Describe Thorndike's theory of intelligence
- Elucidate Guilford' theory of intelligence.

14.3 SPEARMAN'S TWO FACTOR THEORY OF INTELLIGENCE



Source : <https://studiousguy.com/spearman-two-factor-theory-of-intelligence/>

This theory was proposed by Charles Spearman, a British psychologist, in 1904, based on his statistical analysis of various cognitive tests. According to Spearman, intelligence has two components: general intelligence (g) and specific ability (s).

General intelligence (g) is the core element of intellectual ability that influences all mental tasks. It reflects a person's overall efficiency of the brain at processing information and functioning mentally. People who have a high g factor tend to perform well on different types of cognitive tests, while those who have a low g factor tend to perform poorly.

Specific ability (s) is the specific skill or talent that is required for a particular task or domain. It varies from one task to another and depends on the individual's experience, education, and interest. For example, a person may have a high s factor for verbal comprehension, but a low s factor for spatial visualization.

Spearman's theory of intelligence can be represented by the following formula:

$$I = g + s$$

Where I-is the observed score on an intelligence test, g is the general intelligence factor, and s-is the specific ability factor.

Spearman's theory of intelligence has been influential in the development of IQ tests and the measurement of intelligence. He was the first psychologist to successfully use mathematical techniques for brain analysis. Additionally, with the aid of factor analysis, He was the one who discovered general intelligence, often known as the "g factor." He declared intelligence to be a cognition that can be measured. As a result, it can be explained mathematically.

The general intelligence factor or the g factor

G is the primary component of intelligence, according to the Spearman theory of intelligence. It gives insight into how effectively a person's brain generally processes information and carries out mental tasks. High g factor thinkers are versatile, rational, and abstract in their thinking. They pick up new ideas quickly and can work out complicated issues.

The majority of relationships between various cognitive tests are explained by the g factor. Tests having a higher "loading" on g are believed to correlate with other tests more strongly. This, according to Spearman, demonstrates how much more they rely on general intelligence.

Factors in the Spearman theory of intelligence that are specific

The s variables describe variations in particular talents, whereas g accounts for commonalities in cognitive test performance.

They speak about specialized knowledge in areas like math, vocabulary, spatial perception, and memory.

- Spearman thought that s factors are at least somewhat dependent on g. High g factor individuals will probably have an edge in learning particular skills.
- But aside from general intellect, training, practise, and other contextual factors can also have an impact on s components.

According to Spearman, the interaction between g and s is hierarchical:

All specific skills (s variables) are influenced and overlapped by general intelligence (g). On assessments of particular talents, students with a high g factor will typically perform better.

- General intelligence (g) serves as a foundation for and a constraint on specific talents (s factors). Limitations will apply to how far students with low g factors can advance their specialized skills.
- However, certain abilities (s factors) can also be improved through strategies that are independent of g, such as targeted practice and training. This demonstrates that s factors are somewhat independent of general intelligence.
- Generally speaking, the Spearman theory of intelligence contends that g and s both influence intellectual ability. Neither general intelligence nor particular skills by themselves.

Example of Spearman's theory of Intelligence

Examine the test results of two students. On all three assessments, one kid performed better. This suggests that the pupil most likely possesses a greater g factor, or general mental capacity. Whatever encourages a pupil to think critically will help with any subject. But test results can vary by subject. Training might raise the math grade of the other kid without impacting g. However, because of a lower g factor, they would still have trouble on other exams.

14.4 THURSTONE THEORY OF INTELLIGENCE

In 1938, Louis Leon Thurstone formulated his theory of intelligence. According to Thurstone's conception of intelligence, intelligence consists of a variety of different mental skills. According to Thurstone, intelligence is not one thing; rather, it is a combination of various things. He had the opinion that a person's success on IQ tests is influenced by a variety of skills.

The Thurstone Theory of Intelligence is characterized by the following features:

- It rejects the idea of a single "g factor." Thurstone argued that intelligence is impossible to measure. Multiple distinct brain processes combine to make up a person's intellect. One intelligence score cannot accurately represent someone's IQ. It is easier to see intelligence in a person's skills.
- Thurstone claimed that intelligence is made up of seven fundamental brain functions. Thurstone's main mental skills include word comprehension, word formation with ease, math, mental imagery, memory retention, fast comparison, and logical reasoning. The sum of a person's seven skills determines their level of intellect.
- The skills are similar but distinct. There was little correlation between test results for various talents. This demonstrates how the abilities measure distinct facets of intelligence. The degree of the abilities' differences is up for discussion.
- Thurstone believed that a person's seven skills develop at various speeds. One ability's development impacts and is influenced by others. A person's whole intelligence is determined by how strong they are. The development of numerous skills results in overall intelligence.
- Thurstone was aware of the ways in which the brain influences the development of abilities. A person's ability to develop and utilise more is influenced by their motivation, personality, and surroundings. It has an impact on test results and brain type.
- According to the principle, each skill should be measured separately using distinct tests. This reveals the precise brain type of a person. That contains more insightful data than a single intelligence ranking. Measurement of individual skills also aids in

predicting how well a person performs activities requiring those skills.

- According to the notion, each person's brain has unique strengths and weaknesses. Every brain function is not equally good in every person. Depending on the skills they possess, various people excel in a variety of situations. This demonstrates the diversity of human minds.
- In summary, Thurstone's theory offers a view of intelligence as a collection of numerous connected but distinct primary abilities.

Advantages of the Thurstone's Theory of Intelligence

- According to theory, each skill should be measured separately using distinct tests. This reveals the precise brain type of a person. That contains more insightful data than a single intelligence ranking. Measurement of individual skills also aids in predicting how well a person performs activities requiring those skills.
- According to the theory, each person's brain has unique strengths and weaknesses. Every brain function is not equally good in every person. Depending on the skills they possess, various people excel in a variety of situations. This demonstrates the diversity of human minds.

Drawbacks of the Thurstone's Theory of Intelligence

Though the theory has good points, it also has some weaknesses.

- One problem is that the fundamental skills might not be entirely different. Thurstone discovered some correlation between test results for various abilities. This demonstrates how the skills are related and not entirely autonomous. How to truly distinguish the abilities is up for disagreement among researchers.
- The theory's inability to adequately illustrate how the abilities interact is another drawback. Thurstone acknowledged that the abilities are distinct but did not elaborate on how they interact to form total intelligence. The theory's explanation of how the components fit together and relate is unclear.
- The fact that just seven primary skills were determined is a third drawback. Some claim that in order to completely demonstrate intelligence, additional skills must

be tested. Incomplete information may result from the theory's narrow concentration on just seven major skills.

14.5 THORNDIKE MULTIFACTOR THEORY OF INTELLIGENCE

According to Thorndike's Theory of Multiple Intelligence, intelligence can be thought of as a group of skills, each of which can be assessed using a different test. This theory makes significant contributions to our knowledge of human intelligence, particularly in relation to psychology and education.

He promoted the idea that general ability does not exist. Thorndike contends that the nature of the jobs itself serves as the common element rather than the person. The degree of difficulty that each person can handle when performing any certain act varies. The variety or quantity of things they can or cannot execute also differs amongst them.

He distinguished the following four attributes of intelligence :

- (a) Level-refers to the level of difficulty of a task that can be solved.
- (b) Range-refers to a number of tasks at any given degree of difficulty.
- (c) Area-means the total number of situations at each level to which the individual is able to respond.
- (d) Speed-is the rapidity with which we can respond to the items.

Thorndike divided cognitive ability into three major categories:

- (I) Social intelligence
- (II) Concrete intelligence
- (III) Abstract intelligence

Thorndike proposed three primary laws of learning:

- The law of effect
- The law of readiness
- The law of exercise

The law of effect

It says that responses that are rewarded will be repeated, while responses that are punished will be avoided. For example, if a rat presses a lever and receives food, it will press the lever again. But if it receives an electric shock, it will stop pressing the lever. This law suggests that learning is based on the formation of associations between stimuli and responses, which are strengthened or weakened by reinforcement or punishment.

The law of readiness

It says that responses can be chained together to achieve a goal, and that learning is facilitated when the learner is ready to perform the action. For example, if a rat learns to press a lever to open a door, and then to run through the door to get food, it will perform the sequence more easily than if it had to learn each step separately. This law suggests that learning is influenced by the learner's motivation and interest in the task.

The law of exercise

It says that practice strengthens connections, while disuse weakens them. For example, if a rat presses a lever repeatedly, it will form a stronger association between the lever and the food than if it presses it only once. But if it stops pressing the lever for a long time, it will forget the association. This law suggests that learning is enhanced by repetition and review.

14.6 GUILFORD MODEL OF INTELLIGENCE

Guilford's Structure of Intellect (SI) theory, first proposed in 1955, contends that an individual's performance on intelligence tests can be linked to the underlying mental faculties or components of intelligence. Guilford proposed that the best way to understand how well a person performs on a cognitive test is to break it down into the different types of mental operations that are used, the different types of content or test materials on which they are used, and the outcomes of applying a particular operation to a particular type of test content.

Structure of Intellect

He claimed that intelligence is a composite of many intellectual skills. He first put up a theory of intelligence that had 120, then 150, and finally 180 independently operating elements.

Guilford put up a three-dimensional cubical model to clarify his idea regarding the makeup

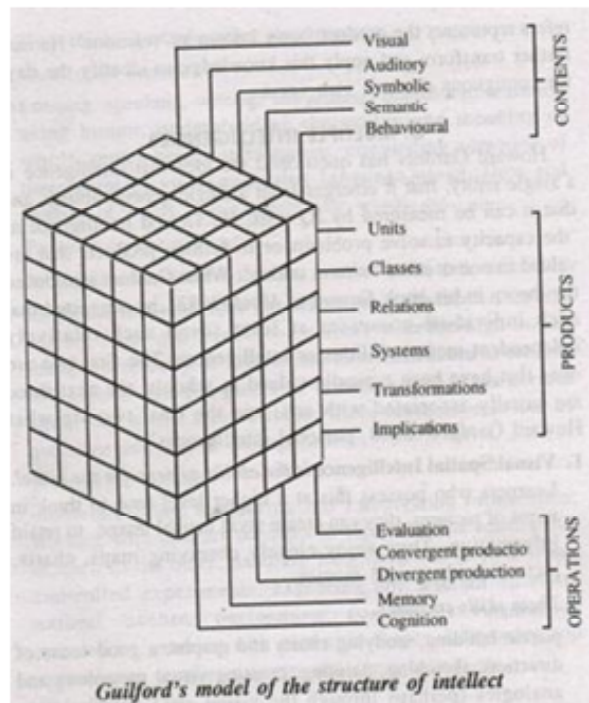
of the mind. This idea holds that the underlying mental capacities, or "factors" of intelligence, can be linked to a person's success on an intelligence test. Following that, these variables (abilities) were categorized into three categories: operations, content, and products.

The intelligence model consists of three dimensions:

Operations: The method used to process information.

Content: What information is involved?

Products : What are the results?



Source : <https://yaseeredu.blogspot.com/2015/06/guilfords-theory-of-structure-of.html>

OPERATIONS: This consists of five (later six when memory was separated into recording and retention) kinds of operations or general intellectual processes:

1. **Cognition** - The ability to understand, comprehend, discover, and become aware.
2. **Memory** - The ability to encode information and recall information. Later divided into

- **Memory Recording** - The ability to encode information.
- **Memory Retention** - The ability to recall information.
- 3. **Divergent Production** - The process of generating multiple solutions to a problem
- 4. **Convergent Production** - The process of deducing a single solution to a problem.
- 5. **Evaluation** - The process of judging whether an answer is accurate, consistent, or valid.

CONTENT: This dimension includes the broad areas of information in which operations are applied. It was divided into four categories; later five when auditory and visual were separated:

1. **Figural** - Information that is non-verbal or pictorial. Later divided into
 - Auditory - Information perceived through hearing.
 - Visual - Information perceived through seeing.
2. **Symbolic** - Information perceived as symbols or signs that have no meaning by themselves; for example, Arabic numerals or the letters of an alphabet.
3. **Semantic** - Information perceived in words or sentences, whether oral, written, or silently in one's mind.
4. **Behavioral** - Information perceived as acts of an individual or individuals. It describes how people act in relation to one another in social settings.

PRODUCTS: Six different sorts of products are involved when a specific operation is applied to a particular type of content. They could be

1. **Units:** Refers to discrete, constrained-size informational items.
2. **Classes:** Due to some shared qualities, groups of linked bits of information create one class.
3. **Relations:** Comparisons and contrasts between various units fall under these categories or relations.
4. **Systems:** Large amounts of organized information and planning lead to system

evolution.

5. **Transformations:** Result from informational change, which can be caused by new definitions and meanings.
6. **Implications:** These refer to pointing out various possibilities that exist in a situation.

These three components work together to identify 150 different skill categories. It is important to keep in mind that this model was developed as a guide for a study to look at the connections between the various categories and the ability to incorporate test findings into this framework.

Because Guilford did not divide Figural Content into separate Auditory and Visual contents or Memory into Memory Recording and Memory Retention, his original model included 120 components. He expanded his concept to $5 \times 5 \times 6 = 150$ categories when he divided Figural into Auditory and Visual elements. Guilford's model ultimately reached the final 180 factors when he separated the Memory functions .

14.7 LET US SUM UP

- According to Spearman's theory of intelligence, all mental capacities are underpinned by a general factor of intelligence (g), while particular factors (s) are responsible for the variations in task performance. High correlations between intelligence tests and data linking g to a variety of significant outcomes, including scholastic accomplishment, professional success, and health, provide support to Spearman's theory. However, Spearman's theory has drawn criticism for being overly straightforward and failing to take into account the variety and complexity of human intellect.
- According to Thurstone's theory of intelligence, there are seven major mental capacities that are mostly independent of one another, contradicting Spearman's idea of a single g factor. These skills include reasoning, associative memory, spatial visualisation, word fluency, number facility, and verbal understanding. Thurstone's theory, which emphasises the value of assessing different dimensions of intelligence, is based on his factor analysis of numerous mental ability tests. Thurstone's theory is criticised for being too limited and failing to account for higher-order components of intelligence, though.

- Thorndike suggests that there are three basic domains of intellectual development: abstract intelligence, mechanical intelligence, and social intelligence. This extends Thurstone's idea of numerous variables. The three different categories of content in Thorndike's theory are linguistic, numerical, and spatial. Thorndike's theory, which emphasises the importance of experience and environment in forming intelligence, is informed by his work on learning and education. Thorndike's theory is, however, also criticised for being overly ambiguous and failing to explain how many aspects and contents relate to one another.
- Guilford's theory of intelligence is the most comprehensive and complex among the four theories, and proposes that there are up to 150 different intellectual abilities organized along three dimensions: operations, content, and products. Guilford's theory is based on his extensive research on creativity and problem-solving, and aims to capture the diversity and richness of human intelligence.

The ideas of Spearman, Thurstone, Thorndike, and Guilford could lead to the conclusion that intelligence is a complex and comprehensive concept that cannot be boiled down to a single element or measure. Each theory gives a unique view on the nature and organisation of human cognitive talents, as well as its own advantages and disadvantages.

14.8 SELF-ASSESSMENT QUESTIONS

1. Spearman refers to elements that are unique to certain skills as..... factors.
2. According to Spearman, people differ on the basis of they possess.
3. What are the factors of Thurstone's theory of intelligence?
4. What is the educational importance of Thurstone's theory?
5. What are the three types of intelligence by Thorndike?
6. Describe Thorndike's theory.
7. Guilford's structure of Intellect consists of three dimensions such as....., , &

8. According to Guilford, what are the Categories included under the Content Dimension?

14.9 UNIT END EXERCISES

1. Discuss the factors of intelligence according to Spearman theory of intelligence?
2. List out the attributes in multifactor theory of intelligence by Thorndike.
3. What are the three dimensions of Guilford model of intelligence?

14.10 REFERENCES

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14.11 ANSWERS TO CHECK YOUR PROGRESS

1. It was developed in 1904 by an English Psychologist, Charles Spearman, who proposed that intellectual abilities were comprised of two factors : one general ability or common ability known as 'G' factor and the other a group of specific abilities known as 'S' factor. 'G' factor is universal inborn ability. Greater 'G' in an individual leads to greater success in life. 'S' factor is acquired from the environment. It varies from activity to activity in the same individual.
2. There are four attributes of intelligence according to the Thorndike's theory of intelligence described as follows:
 - (a) Level-refers to the level of difficulty of a task that can be solved.
 - (b) Range-refers to a number of tasks at any given degree of difficulty.
 - (c) Area-means the total number of situations at each level to which the individual is able to respond.

(d) Speed-is the rapidity with which we can respond to the items.

3. In Guilford Model, all the mental abilities were organized along three dimensional framework: Content, Operations, and Product. This model is represented as a 'cube' with each of the three dimensions occupying one side ($5 \times 6 \times 6 = 180$ specific abilities). Thus, there are Theories of Intelligence 8 0 three feature of intellectual task: the content dimension which includes broad areas of information; the operations dimension which includes the operations or general cognitive or mental activities, and the products dimension which contains results of applying particular operations to specific contents. Thus this model is also called 3- dimensional model represented in the form of a cube.

MASTER'S DEGREE PROGRAMME IN EDUCATION (M.A. EDUCATION)
CHOICE BASED CREDIT SYSTEM
SEMESTER - I

Syllabus for the Examination to be held in December 2023, 2024 and 2025

Course No. PSEDTC102	Title : Psychological Foundations of Education
Credits : 4	Maximum Marks : 100
	Minor Test - I : 10
	Minor Test-II : 10
	Internal Assessment Assignment 10
	Major Test : 70

Learning Outcomes :

1. Students will develop insight into the nature of psychology and psychological processes.
2. Students will gain knowledge of individual differences, motivation and factors affecting learning.
3. Students will understand various schools of psychology and how psychological knowledge can be given by various schools and analyzes their contribution to the field of education.
4. Students will understand some important learning theories and analyze their importance in transfer of learning.
5. Students will understand and analyze the intricacies of human personality and intelligence.

Course Contents :

Unit - I

Educational Psychology - Its Nature and Scope, Relationship of Education and Psychology
Main Features and Contribution of the following Schools of Psychology towards Education:
Gestalt, Psychoanalysis, Constructivism

Individual Differences -- Meaning, Determinants: Role of Heredity and Environment, Implications of Individual difference for organizing Educational Programmes

Unit - II

Concept Formation (meaning and attributes of Concepts, Development of some Concepts and Role of Teacher in Concept Building), Reasoning (meaning, steps, types of reasoning and role of teacher);

Problem Solving (meaning, approaches, phases and role of teacher)

Development of Thinking (meaning, classification, steps, tools, forms of thinking and role of teacher); and Language, Development (meaning, sequence, factors influencing language development and role of teacher.

MASTER'S DEGREE PROGRAMME IN EDUCATION (M.A. EDUCATION)
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SEMESTER - I

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	Minor Test - I : 10
	Minor Test-II : 10
	Internal Assessment Assignment 10
	Major Test : 70

Unit - IV

Personality : Concept, Type and Trait Theories

Behavioral Approach - Miller, Dollard and

Bandura Assessment of Personality - Projective

Intelligence : Concept, Theories of Intelligence- Spearman, Thurstone, Thorndike and Guilford

Mode of Transaction : Lecture-cum-discussion method

Note for paper setting :

Note for paper setting :

There shall be two tests & one Assignment as part of Minor Evaluation & one major test at the end of semester in each semester. The student shall be continuously evaluated during the conduct of each course on the basis of their performance as follows :

Theory	Syllabus to be covered in the examination	Time allotted for the examination	% weightage (marks)
Minor Test-I	Unit I & Unit II	Sixty Minutes	10 Marks
Minor Test-II	Unit I & Unit II	Sixty Minutes	10 Marks
IAA			10 mark (two questions of 5 marks each)
Major Test	Unit I to IV	Three Hours	70 marks

MASTER'S DEGREE PROGRAMME IN EDUCATION (M.A. EDUCATION)

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SEMESTER - I

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	Minor Test-II :	10
	Internal Assessment Assignment	10
	Major Test :	70

Essential Readings :

Aggarwal, J.C. (2002) Essentials of Educational Psychology, New Delhi; Vikas Publishing House Pvt. Ltd. Bhatnagar, Suresh and Saxena, A (2001) Advanced Educational Psychology, Meerut: Surya Publications, Chauhan, S.S. (2005) Advanced Educational Psychology, New Delhi: Vikas Publishing House Pvt. Ltd.

Dandapani, S.A. (2001) Text Book of Advanced Educational Psychology, Anmol Publications Pvt. Ltd. Dash, . (2006), Fundamentals of Educational Psychology, New Delhi: Atlantic Publishers and Distributors Pvt. Ltd.

Suggested Readings :

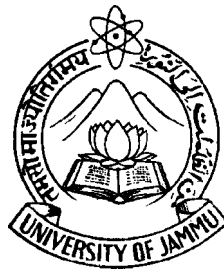
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Solso, Robert, L. (2002) Cognitive Psychology, Delhi Pearson Ed (Singapore) Pvt. Ltd.

Note for Paper Setters (Major Type)

The question paper will contain long and short answer type questions. There will be total of eight long answer type questions (two questions from each unit with internal choice) and the candidates will be required to answer one question from each unit. Each long answer type question will carry 15 marks. Question No. 1 will be compulsory and shall have 04 short answer type questions (100 words per question). Short answer type questions will be from all the units. Each short answer type question will carry 2.5 marks.

**DIRECTORATE OF DISTANCE & ONLINE EDUCATION
UNIVERSITY OF JAMMU
JAMMU**



**SELF LEARNING MATERIAL
M.A. EDUCATION
SEMESTER - I**

Subject : Psychological Foundations of Education Unit : I - IV
Course No. : 102 Lesson No. : 1 - 14

Dr. Anuradha Goswami
Course Co-ordinator

<http://www.distanceeducationju.in>

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INTRODUCTION TO EDUCATION

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