Directorate of Distance Education

M.Sc. (Psychology)
II - Semester
363 231

ELECTIVE I:
EDUCATIONAL PSYCHOLOGY
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Elective I: Educational Psychology

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It is a well-known fact that the study of educational psychology has influenced the educative process in many ways. Keeping this into consideration, the teaching of educational psychology has been made compulsory in teachers training programme to equip the prospective teacher with the necessary skills and competencies to enable him to deal effectively with teaching-learning problems of the class. A person is always learning, from the environment, from experiences, and from people, including family and friends, and even children. How does the human brain absorb and organize information? Do human beings apply everything that they have learned to real life? The field of educational psychology answers these and many more similar questions.

Educational psychology is dedicated to identifying the ways in which children perceive and use education as well as the best possible ways and techniques for teaching and transfer of learning. Furthermore, since each student is different and learns at a different pace, teaching methodologies and curricula have to be researched, well-planned and practically implementable. This book, Educational Psychology, deals with the different aspects of the human mind and the various related factors that affect learning. Aspects concerning intelligence and creativity, personality and individual differences along with the theories of learning have been covered at great length in this book.

This book is divided into fourteen units that follow the self-instruction mode with each unit beginning with an Introduction to the unit, followed by an outline of the Objectives. The detailed content is then presented in a simple but structured manner interspersed with Check Your Progress Questions to test the student’s understanding of the topic. A Summary along with a list of Key Words and a set of Self-Assessment Questions and Exercises is also provided at the end of each unit for recapitulation.
1.0 INTRODUCTION

Psychology is important as it is concerned with the scientific study of behaviour and mental processes; at the same time, it is also applied to many different aspects of human life. Everything we do is related to psychology. Psychology primarily studies who and what we are, why we are like that, why we act and think in a particular manner and what we could be as a person. In other words, psychology is the combination of three important terms, viz., science, behaviour and mental process. This unit will discuss the meaning, history and branches of psychology. It will also discuss research methods in psychology as well as psychology of learning and education.

1.1 OBJECTIVES

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

- Discuss the meaning of psychology and its origin
- Describe the various branches of psychology
- Explain the psychology of learning and education
1.2 MEANING AND BRANCHES OF PSYCHOLOGY

With the passage of time, psychology has seen several changes in its meaning. In its first phase, it was dealt with as science of soul; in the second phase as science of mind; in the third phase as science of consciousness, and finally as science of behaviour.

**Psychology as the science of soul:** The word psychology comes from two Greek words: psyche meaning soul and logos meaning science. Thus, psychology means the science of soul. Philosophers like Democritus (about 460 BC), Plato (427–347 BC) and Aristotle (384–322 BC) interpreted psychology as the science of soul. Aristotle defined soul as ‘an entity which realizes an idea—not separable from body—and its abode in the human heart.’ According to McDougall (1871–1938), soul is ‘a vital principle inhabiting and animating each human body and somehow the ground of each individual’s experience.’ The nature of soul could not be defined. Therefore, the meaning of psychology in terms of soul was rejected.

**Psychology as the science of mind:** A German philosopher, Kant (1724–1804) criticized the idea of psychology as a science of soul, and instead laid stress on the mind aspect of science. Other philosophers in the Middle Ages also considered psychology as the science of mind. However, they failed to give the exact nature and form of the mind of an individual. According to Descartes (1596–1650), mind is a kind of matter located in the brain. In modern times, E B Titchener (1867–1927) divided mind into three elements: sensations, images and affections. Some thinkers consider mind as nothing but an assemblage of ideas in the human brain, gathered by experience. Thus, opinions differ as to the location of mind in the human body. Charak (First century AD), the court physician of King Kanishka, considered the human heart to be the seat of the human mind. Thus, the concept of mind was also not clear and psychology as the science of mind could not earn much acceptance.

**Psychology as the science of consciousness:** Psychologists like William Wundt (1832–1920), William James (1842–1910) and others considered psychology as the science of consciousness or immediate experiences. By consciousness, these scholars meant awareness of wakefulness. But there were several interpretations of consciousness and this concept was rejected. Freud (1856–1939) criticized this approach and laid stress on the unconscious.

**Psychology as the science of behaviour:** The latest and most modern concept of psychology is in terms of behaviour. The term behaviour was popularized by J B Watson (1878–1958). According to him, ‘psychology is the positive science of behaviour.’

In the words of Charles F Skinner (1938), ‘Psychology deals with responses to any and every kind of situation that life presents. By responses or
behaviour is meant all forms of processes, adjustments, activities and experiences of the organism.

The term ‘behaviour’ is used in a very broad sense. It expresses the entire life of an individual. As RS Woodworth (1869–1962) puts it, ‘Any manifestation of life is activity, and behaviour is a collected name for all such manifestations.’ Behaviour includes all activities of the individual. It includes motor activities like walking, playing, digging or building. It includes activities that give us knowledge; for example perceiving, imagining, remembering, thinking or reasoning. It includes emotional activities like feeling happy, sad, angry or frightened. Whatever an individual does from the most passive state of sitting still and looking at the wall to the most active striving after a goal, like meeting a deadline to submit an article or catching a thief, is included in behaviour. Behaviour is both mental and bodily. Educational psychology helps in understanding and predicting the behaviour of the learner.

Behaviour of the learner is understood in the environment or the situation. The influence that the environment exercises on the organism and rouses it to activity is called stimulus and the activity so aroused is called response. A pin-prick makes us jump. Here, pin-prick is the stimulus and jumping is the response.

James Drever considers that ‘behaviour is the total response which a man or an animal makes.’ Thus, behaviour includes the behaviour of animals as well as of human being and the behaviour of normal as well as abnormal human being.

From being the science of soul, the meaning of psychology in modern times has metamorphosed to ‘science of mind’, ‘science of consciousness’ and ‘science of behaviour’.

Other Modern Definitions of Psychology

1. ‘Psychology is the study of human nature.’—Boring and Langfield
2. ‘Psychology is the study of human behaviour and human relationships.’—Crow and Crow
3. ‘Psychology is the science of the facts or phenomena of self.’—John Dewey
4. ‘Psychology is the scientific study of behaviour of living creatures in their contact with the outer world.’—Kurt Koffka
5. ‘Psychology is the science which aims to give us better understanding; and control of the behaviour of the organism as a whole.’—William McDougall
6. ‘Psychology today concerns itself with the scientific investigation of behaviour.’—N.L. Munn
7. ‘Psychology is the science of behaviour and experience.’—Frederic B Skinner
8. ‘Psychology undertakes a scientific study of the individual considered as a unit as he really is in his dealings with other individuals and with the world.’—R.S. Woodworth
Psychology: An Overview

To sum up in the words of R S Woodworth, 'First, psychology lost its soul. Then it lost its mind. Then it lost its consciousness. It still has behaviour of a sort.'

Branches of Psychology

In modern times, psychology is being used in almost all aspects of human life as it is very helpful to understand and improve prevailing conditions. For a focused study of psychology of various kinds of beings, fields and situations, the subject has branched as follows:

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<td>17. Social (or Group) psychology</td>
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1. **Abnormal Psychology**: The scope of abnormal psychology is limited to the study of abnormal individuals only.

2. **Adult Psychology**: It studies the behaviour of adult humans. An adult is a mature person; his emotional, social and intellectual behaviour is very different from that of a child.

3. **Animal Psychology, or Comparative Psychology**: It is the comparative study of the behaviour of man and various animals. Animals cannot express themselves. Therefore, we study their behaviour indirectly, with the help of experiments. The results of experiments in animal psychology have been further applied to humans successfully. This avoids direct experimentation on humans due to practical difficulties and risks of human life and psyche involved. Laws of learning, now applied with much success to pupils in schools, were evolved using this method.

4. **Child Psychology**: It deals with the development of behaviour of the child. Children differ from adults in very many ways. Their lives’ urges, emotions, sentiments, intelligence and aspirations— all differ from those of adults. Therefore, child psychology is a full-fledged science in itself.

5. **Clinical Psychology**: It primarily deals with children who have problems relating to development, behaviour, learning or interacting with others.

6. **Developmental Psychology**: It deals with the development of a human being right from the time he is conceived, through various stages, and till his death. Development covers various aspects, including emotional, language, motor, physical and social.
7. Educational Psychology: The most important branch of applied psychology, this is the study of psychological aspects of educational situations and a study of educational problems with reference to psychological facts. Psychology is the science of behaviour and education aimed at modifying the behaviour in the most desirable way. But modification of behaviour depends on some fundamental psychological laws and limitations. Educational psychology studies these facts and limitations. It covers the development of the child from early childhood to maturity—general facts of psychology that may have some relation with the modification of the behaviour of the child, psychologized methods of learning, measurement of abilities, attitudes and interests and other problems of applied psychology related to education.

8. Experimental Psychology: It studies mental processes and behaviour in laboratories with the help of experiments.

9. General Psychology: It studies the behaviour of human organism in general. Its scope is vast, but, generally, it studies normal organisms. It is the mother of all other branches of psychology.

10. Genetic Psychology: It is concerned with the development stages of an individual and the evolution of behaviour and its relation to different types of mental activities.

11. Individual Psychology: It deals with variations in human beings. No two persons are alike. They differ in their behaviour according to their intelligence, race, gender and other factors. They also differ in terms of factors such as interests, philosophy and education.

12. Industrial Psychology: This is also a branch of applied psychology. It is in fact social psychology with reference to work, both individual as well as collective. Industrial work can be made more attractive and interesting and output of industry can be increased and improved if we exploit the findings of industrial psychology.

13. Military Psychology: It is concerned with various aspects of military personnel and techniques.

14. Mathematical Psychology: It is the technique of mathematical modelling of perceptual, cognitive and motor processes to establish relationships between quantifiable stimulus characteristics and quantifiable behaviour. This approach is used in establishing rules to yield empirical validations.

15. Para Psychology: This is the latest development in the field of psychology. It deals with the problems of what happens to an individual after his death.

16. Physiological Psychology: It deals with the physical functioning of glands and various parts of the body in different situations.

17. Social, or Group, Psychology: This branch of psychology deals with the behaviour of an individual as a member of a group. A mob does not act in the same way as a majority of its members would act individually.
1.2.1 History of Psychology

Psychology grew out of the philosophical tradition of thinking about the mind and body (refer Figure 1.1).

Psychology did not only emerge from philosophy. It has roots in natural sciences of biology and physiology as well (Benjamin, 1999). Psychology as a science emerged in the late 19th century with the work of Charles Darwin (1809-82).

Darwin proposed the principle of natural selection in his book On the Origin of Species in which he described the evolutionary process as favouring an organism's traits or characteristics that are best adapted to reproduce and survive. In the 19th century, physiologist also gave a boost to the new field of psychology.

Johannes Muller (1801-58), a German psychologist, proposed that an important role is to associate incoming sensory information with appropriate motor response.

In the late 19th century, psychology had emerged as a scientific discipline. However, modern psychology was born in December 1879 at the University of Leipzig, Germany, with the work of Wilhelm Wundt. In his experiments he mentioned that every mental process has a particular structure and could be studied qualitatively, i.e., the mental process could be measured. Gradually, the study of psychology was organized around different schools of thought that are as follows:

- **Structuralism**: Edward Titchener (1867–1927) was the pioneer contributor in the field of structuralism. He mainly focussed on the study of consciousness and its components, i.e., sensations, images and affects.

- **Functionalism**: It was proposed by William James (1842–1910), who studied the functions of mind and behaviour in adapting to the environment. James and his followers were looking at what goes on in a persons' interaction with the outside world. James considered the mind as flexible and fluid, characterized by constant change.

- **Behaviourism**: It was developed by J.B. Watson (1878–1958), who proposed an objective study of observable behaviour. It is a purely
objective experimental branch of natural science. Its theoretical goal is the prediction and control of behaviour.

- **Gestalt:** It was developed by Max Wertheimer, Wolfgang Kohler and Kurt Koffka (1886–1941). It referred to how a thing had been ‘put together’ (gestalt) and often translated as ‘pattern’ or ‘configuration’ in psychology.

  Its precepts, formulated as a reaction against the atomic orientation of previous theories, emphasized that the whole of anything is different from the sum of its parts; organisms tend to perceive entire patterns or configurations rather than bits and pieces. This school focussed on a holistic view and consciousness. Perception was the main area of study.

- **Psychoanalysis:** Sigmund Freud (1856–1939) founded the psychoanalytic school that mainly emphasized on the unconscious mind, defence mechanism of repression, conflict, anxiety, psychopathology, etc.

  Although these schools provided great opportunities for the diversification of psychology, they were unable to explain the psychological processes in totality. Recent movements emphasized vigorously on cognitive revolution, the neural processes, role of cultural processes, etc.

  In modern India, psychology started at Calcutta University headed by Dr N.N. Sengupta (1961). Gradually, psychology departments were opened in various universities like Patna, Lucknow, and Mysore. The Indian Psychological Association was first founded in 1924.

### Check Your Progress

1. What is the scope of abnormal psychology?
2. What is the most important branch of applied psychology?

### 1.3 RESEARCH METHODS IN PSYCHOLOGY

The year 1879 is a great landmark as it was in this year that the first effort of conducting systematic experimental studies in psychology was made in Germany. The credit for establishing the first laboratory of psychology goes to W Wundt. It was set up in Leipzig. Wundt used introspection as the sole method of collecting data. Sigmund Freud, who emphasized the importance of the unconscious in understanding human behaviour, used the method of psychoanalysis.

In the second decade of the 20th century, psychology developed as an objective science of behaviour, thanks to the pioneering efforts of Pavlov, Watson, Guthrie and a band of other enthusiastic behaviourists. They discarded introspection and psychoanalysis as methods of psychology. Observation and experimental...
methods were developed to collect data in order to study behaviour. Simultaneously, other methods emerged as a result of the growing interest in developmental studies. The testing method became popular with some research workers. Statistics began to be used in educational psychology.

In recent years, with the development of technology, researchers have started using new methods of collecting and analysing data. In this context, the use of computers has become a common feature in developed countries. In our country, the use of computers in educational psychology is at its initial stage. We will be discussing research methods in psychology in detail later on in the book.

1.4 PSYCHOLOGY OF LEARNING AND EDUCATION

Educational psychology is a compound word which consists of two words: education and psychology. The meaning and definition of the word psychology has already been given in the previous unit. Let us explain the meaning of the word education.

Meaning of Education

The child at birth is born with certain biological inheritance. Biological heredity alone is not enough to enable him to develop harmoniously in a social culture. To equip him with necessary skills, and information, concepts and attitudes, and to enable him to adjust properly in his environment, society has created a separate agency-school, where he can develop all the qualities and abilities required for successful social adjustment. Education has been defined in different ways according to the social needs of the society. Education is in a way development of desirable habits, skills and attitudes which make an individual a good citizen. In the process of education we try to shape the behaviour of young children in accordance with aims and goals of national life. Briefly, we can define education as shaping of behaviour or modification of behaviour of the individual for adequate adjustment in the society.

Relationship between Education and Psychology

Psychology is the science of behaviour. Behaviour means the activities of animate creatures which can be observed and measured in an objective way.

Education in a narrow sense is the modification of behaviour of children in a controlled environment. To shape the behaviour or to bring about some changes it is necessary to study the science of behaviour. The developmental stages and characteristics of children are very essential factors which the teacher must know in order to be a successful teacher. If the teacher does not know the science of behaviour, how can we expect him to bring about desirable changes in children.

We can understand it with the help of an analogy. To be a successful doctor, one must have the required professional knowledge and skills as well as the knowledge
about the nature of the patient whom he wants to treat. In the same way, if one wants to be a successful teacher, he must know about the science of behaviour and nature of the learner.

**Meaning of Educational Psychology**

Educational psychology is the application of psychological findings in the field of education.

It is the systematic study of the development of the individual within the educational settings. It helps the teacher to foster harmonious development of the student into a responsible and participating citizen, and a sensitive and reflective human being, and a productive and creative person.

Caroll (1965) defined educational psychology as, ‘the study of school learning in all its aspects’. Klousmier et al. (1975) suggest that it is the science that studies student behaviour in educational settings. Student behaviour and the educational process sets the boundaries of its content and methodology. Gage (1967) opined that educational psychology should deal with the psychology of different methods of teaching and the characteristics of learners and the conduct of teachers.

Educational psychology is an applied discipline which combines the two different fields of education and psychology. It is the scientific study of human behaviour by which it can be understood, predicted and directed by education to achieve the goals of life.

Judd describes educational psychology as, 'a scientific study of the life stages in the development of an individual from the time he is born until he becomes an adult'.

**A Brief History of Educational Psychology**

History of educational psychology is as old as the process of education on earth. A large number of eminent scholars and scientists have contributed to the development of educational psychology from time to time. We will mention the names of only those scholars whose contribution has direct relevance to the development of educational psychology as a major applied field within the context of psychology.

The development of educational psychology can be traced back from the time of Greek philosophers in the West. Democritus was the first philosopher who emphasized the influence of the home on the developing personality of the child.

In 4th century BC, Plato and Aristotle developed a system of education and its relation to psychological principles. They wrote on various aspects of education such as types of education for different kinds of people, education of character, the profession of teaching and methods of teaching, nature of learning, the influence of home in education, etc. Aristotle presented his psychological views more systematically and comprehensively in his writings. He believed in faculty theory of the mind and emphasized the intellectual process. His psychological doctrines were
The doctrines of Aristotle were modified by scholars. Aquines in 13th century attempted to modify Aristotelian teaching to suit the needs of his time.

Descartes also supported the ideas of Aristotle regarding the nature of true knowledge. Rousseau attempted to base education on the principles of human development. He prepared a detailed scheme of education in his famous book *Emile*.

John Locke, an empiricist, critically examined the doctrine of faculty psychology current in his time. Though he did not completely discard the faculties but argued that faculties were not real things in the soul that performed the actions indicated by their various names. He insisted that at birth, the human mind was not prepared and ready to function, but potentially sensitive to impressions from the external world through the senses. Learning through experiences came to be known as empiricism.

Then another important development was the doctrine of faculty psychology. According to the doctrine of faculties, mind was considered as three interdependent sets of powers or capacities: (i) reasoning, understanding; (ii) feeling, desires, emotions and appetites; and (iii) the will.

Pestalozzi, though continued believing in faculty theory, is said to be the first educator who tried to psychologize education and revolutionized teacher training programme by placing an emphasis upon education as a process of drawing out of the individual. He evolved the method of learning and developed laws of human development. His main contribution is the impetus and direction which he gave to teacher training programmes.

Faculty psychology had a great influence upon education in USA. It gave birth to a theory of education popularly known as formal discipline theory of education. It emphasized the form of subject matter and its disciplining value of the mind.

The pioneer work in the development of educational psychology was done by Herbart and Froebel, German professors. They developed an approach to education based on the principles of psychology. They rejected the doctrines of faculty psychology. Herbart stressed the importance of interest and apperception. He considered human personality as dynamic and individually structured system of forces. Froebel developed new methods of teaching for infants popularly known as ‘Kindergarten’ which emphasizes the importance of early experiences in education. Till now we have been talking about the development of educational psychology in terms of contributions made by philosopher-educators. The beginning of scientific educational psychology starts from the latter half of 18th century when Galton, G. Stanley Hall and Ebbinghaus published their studies on different aspects of human behaviour. William James published *Principles of Psychology* in 1890, in which he advocated a functional approach to psychology.
J.M. Cattell made great contribution in the area of individual differences and mental testing.

Alfred Binet was the first psychologist who contributed by devising the first widely used individual intelligence scale.

Scientific educational psychology, in the beginning of the present century, drew the attention of a number of psychologists who devoted their researches to special areas within psychology which had impact on education E.L. Thorndike, G.H. Judd, I.M. Terman, Weschler, Hull, and B.F. Skinner, etc., worked in specific areas of educational psychology.

The Systems of Psychology Behaviourism, Psychoanalysis and Gestalt Psychology were developed in the beginning of the present century. These systems explained human behaviour and learning from different angles and had influenced theory and practice of education.

Educational psychology is a continuously growing discipline adding new dimensions to its field of study. The field of educational psychology is becoming more complex in modern days encompassing the total behaviour of human beings in educational situations.

Scope of Educational Psychology

Educational psychology is applied to the educative process from birth to death of an individual. Lindgren (1976) has pointed out that there are three elements or focal areas in education that concern educational psychologists and teachers. These are as follows:

1. The Learner: The learner is the most important of the three elements, not only because people are more important than processes or situations, but primarily because without the learner, there is no learning. A great deal of what happens in the classroom (or is expected to happen) can be explained in terms of the personalities of students, individual differences, developmental characteristics, mental health, intelligence and psychological problems of students. Educational psychologists can help the teacher by telling him something about the patterns of behaviour that commonly occur whenever individuals interact with one another in a group setting.

2. The Learning Process. By learning process we mean whatever people do when they learn. What they ‘do’ includes behaviour that is not directly observable such as perceiving, thinking, remembering and identifying as well as the behaviour that can be directly observed as writing, computing, attending and talking. In learning process we include psychology of learning, factors affecting learning, motivation for learning, diagnosis of learning problems and remediation. Educational psychology should discover appropriate and efficient ways of organizing and directing learning towards specific goals. It also includes evaluation of learning.
3. **The Learning Situation.** It refers to the environment in which the learner finds himself and in which the learning process takes place. It includes factors or conditions that affect the learner and the learning process. The teacher is one element and another is the classroom setting (ventilation, light, noise and arrangement of seats). The most significant factors involve people, the attitude and behaviour of the teacher, the morale of the class, and the emotional climate of the school. General attitude of the community toward education also affects the learning situation.

**Latest Trends in Educational Psychology**

Today in modern era, education psychology is the foundation of education. Psychology effect education in every field of teaching learning process modern educators cannot plan an educational method without psychology. There are many factors which can enhance the development and the democratization process in society. Communication education is one such factor. There is a crucial link between communication, development and the democratization of society. The question of communication education is one of manpower training and development. This problem exists at all levels in all sectors of society.

Communication education has to include more details and lot of information and desk-research of existing information, interviews, questionnaires, web surveys, focus groups and expert interviews for modern age. Often a combination of methods is used Scientists and educators tell that pupils absolutely need high technology and well-designed classrooms due to student psychology to learn in modern age. Modern age is based on capital and consumption but all sectors target human psychology due to contemporary conditions.

Peer education, support groups, counselling and interpersonal communication are important components of a reproductive health programme. Peer education allows for dissemination of information and discussion about specific topics by members of a person’s own age or social group. It often provides the most comfortable atmosphere for dialogue around sensitive issues. In peer education situations, the lead peer educator has been trained not only in interpersonal skills but also in the content area upon which the education focuses.

One of the requirements of modern education is psychological factor and to regard psychology in education. All styles of education need psychological factor, but communication education especially need psychology. Because communication is a spiritual need and psychological factor has absolutely to be regarded because of productivity of education.

**1.4.1 Learning**

Learning occupies an important place in the school programme. In fact, schools are set up for making children learn. All efforts of teachers and parents are devoted to help children learn. Learning is an enriching experience as there is an interaction with the environment. Without learning, all efforts of children as well as of teachers
have little meaning. It is generally observed that in the determination of a child’s behaviour, there is no process more important than learning. However, psychologists differ on the concept of learning. Several attempts have been made to define learning. The following definitions give a comprehensive view of learning.

1. According to R S Woodworth (1945), ‘Any activity can be called learning so far as it develops the individual (in any respect, good or bad) and makes his behaviour and experiences different from what that would otherwise have been.’

2. H L Kingsley and R Garry, (1946) said, ‘Learning is the process by which behaviour (in the broader sense) originates or changes through practice and training.’

3. Gates and Others (1946) observed, ‘Learning is the modification in behaviour to meet environmental requirements.’

4. F S Freeman (1958) defined, ‘Learning is the process of developing the ability to respond adequately to a situation which may or may not have been properly encountered.’

5. B L Hilgard (1958) was of the view, ‘Learning is the process by which an activity originates or is changed through reacting to an encountered situation, provided that the characteristics of the change in activity cannot be explained on the basis of native responses, tendencies, maturation or temporary states of the organism (e.g., fatigue or drugs, etc.)’

It may be stated that learning should enable us to make the best use of the things around us. If a man has not learnt the art of living harmoniously with others, he would be beset with difficulties than the person who has learnt to establish social relations with his fellows. So the acquisition of abilities, which enable us to adjust ourselves in an effective manner in an environment and to control it successfully, is said to be the aim of learning.

Principles and Factors Affecting Learning

Learning is a process rather than a product. Learning involves a learner whose behaviour is changed or modified because of learning and the type of experience and training available for modifying the behaviour.

Therefore, there are two types of factors that influence the process of learning: (i) Learner-related factors, and (ii) Environment-related factors.

Learner-related factors are explained as follows:

- **Health of the learner:** The health of the learner has a powerful effect on the learning process. Health includes both physical health and mental health. For example, if the individual is having a headache then it is very difficult for him to learn. Similarly, if a person is emotionally disturbed, then he can never concentrate and ultimately he cannot learn.
Motivation of the learner: The amount of motivation the individual has will decide the learning outcome. If the individual does not have high aspirations, then he will not be motivated to learn.

Learner’s objectives: The objectives of the learner also affect the learning process. If he has a definite aim, then the learner will work hard in a particular direction and so learning will be more in that particular area.

Readiness of the learner: There will be no learning if the learner is not ready to receive it mentally and physically. Thus, if the learner has a strong will to learn something, then the learning will be very effective.

Environment-related factors are: Trainer-related factors; Content-related factors; and Process-related factors.

Trainer-related factors: These factors are as follows:

- Personality of the trainer: The trainer sometimes becomes the ideal role model for the learners. How well the trainer communicates the matter, which has to be learned in order that the learner achieves the goal, depends upon the personality of the trainer.
- Knowledge of the subject: The teachers must know the subject really well. They must be able to handle all types of queries.
- Health of the trainer: If the trainer is not in sound mental or physical health, it becomes difficult for him to convince and influence the learners.
- Presentation skills of the trainer: Presentation is at the heart of training. A good presentation makes it easy for students to learn.

Content-related factors: These factors are as follows:

- Nature of content: Learning is affected by factors like whether the content is direct or indirect, formal or informal or whether the content is organized or unstructured.
- Selection of content: The selection of content should depend upon the needs of the learners.
- Organization of the content: In order to make the learning more effective, the content should be structured and must be organized. Selected content or learning experiences need better organization for effective sharing among the learners and teachers.

Process-related factors: These factors are as follows:

- Learning methods: Learning depends upon the methods and approaches used, like there should be linking of the new learning with the past learning. Past information helps the learner to understand the new information. For better learning, maximum senses should be used in a given situation. The learner who uses the sense of hearing, seeing, smell and touch will learn the things better. For example, if a small child wants to get information about
the computer, then if he is able to see the computer and feel its parts by touching; and this child will be able to learn it better than a child who has to learn the information without seeing.

- **Feedback**: The learning results are also dependent upon what kind of reinforcement and feedback is given to the learner. If the learner exactly knows the progress of his learning and knows how well he is doing, it may work as an immediate reinforcement. He will be motivated to perform better. Feedback can be negative also; if the learner has problems, then remedial actions can be taken to improve the process of learning.

**Resources available and environmental settings**

The learning process also depends upon the available resources like good learning material, proper illumination and appropriate learning environment like calm and peaceful settings. A good and conducive learning environment ensures that the learner is comfortable.

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**Check Your Progress**

1. Who established the first laboratory of psychology?
2. What is educational psychology?
3. How did F.S. Freeman define learning?

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**1.5 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS**

1. The scope of abnormal psychology is limited to the study of abnormal individuals only.
2. Educational psychology is the most important branch of applied psychology.
3. The credit for establishing the first laboratory of psychology goes to W Wundt. It was set up in Leipzig.
4. Educational psychology is the systematic study of the development of the individual within the educational settings.
5. According to F S Freeman, learning is the process of developing the ability to respond adequately to a situation which may or may not have been properly encountered.

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**1.6 SUMMARY**

- The word psychology comes from two Greek words: psyche meaning soul and logos meaning science. Thus, psychology means the science of soul.
The latest and most modern concept of psychology is in terms of behaviour. The term behaviour was popularized by J B Watson (1878–1958). According to him, ‘psychology is the positive science of behaviour.’

In the late 19th century, psychology had emerged as a scientific discipline. However, modern psychology was born in December 1879 at the University Of Leipzig, Germany, with the work of Wilhelm Wundt.

In modern India, psychology started at Calcutta University headed by Dr N.N. Sengupta (1961). Gradually, psychology departments were opened in various universities like Patna, Lucknow, and Mysore. The Indian Psychological Association was first founded in 1924.

The pioneer work in the development of educational psychology was done by Herbart and Froebel, German professors. They developed an approach to education based on the principles of psychology.

Caroll (1965) defined educational psychology as, ‘the study of school learning in all its aspects’.

Today in modern era, education psychology is the foundation of education. Psychology effect education in every field of teaching learning process modern educators cannot plan an educational method without psychology.

One of the requirements of modern education is psychological factor and to regard psychology in education. All styles of education need psychological factor, but communication education especially need psychology.

Learning occupies an important place in the school programme. In fact, schools are set up for making children learn. All efforts of teachers and parents are devoted to help children learn.

Learning is the process by which behaviour (in the broader sense) originates or changes through practice and training.

The learning process also depends upon the available resources like good learning material, proper illumination and appropriate learning environment like calm and peaceful settings.

1.7 KEY WORDS

- **Heredity**: It is the passing on of traits from parents to their offspring, either through asexual reproduction or sexual reproduction, the offspring cells or organisms acquire the genetic information of their parents.
- **Education Psychology**: It is the branch of psychology concerned with the scientific study of human learning.
- **Feedback**: It refers to information about reactions to a product, a person’s performance of a task, etc. which is used as a basis for improvement.
Focus Groups: It means a group of people assembled to participate in a discussion about a product before it is launched, or to provide feedback on a political campaign, television series, etc.

1.8 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions
1. Define psychology.
2. List the various branches of psychology.
3. Write a short-note on the research methods in psychology.

Long Answer Questions
1. Discuss the history of psychology.
2. Examine the scope of educational psychology.
3. Describe the principles and factors that affect learning.

1.9 FURTHER READINGS

UNIT 2 BEHAVIOURAL LEARNING THEORIES

Structure
2.0 Introduction
2.1 Objectives
2.2 Classical Conditioning by Ivan Pavlov: Classical Conditioning in Daily Life
2.3 Behaviourism: Watson’s Experiment with Little Albert
2.4 Thorndike’s Theory of Learning: Connectionism
2.5 Operant Condition by B.F. Skinner
2.6 Answers to Check Your Progress Questions
2.7 Summary
2.8 Key Words
2.9 Self Assessment Questions and Exercises
2.10 Further Readings

2.0 INTRODUCTION
Classical conditioning can be defined as a reflexive or automatic type of learning. In this type of learning, a stimulus acquires the capacity to evoke a response that was originally evoked by another stimulus. It is fairly evident and researched that several types of learning exist. Associative learning is defined as making a new association between events in the environment. It is the most basic form of learning. Associative learning can be further divided into two types which are classical conditioning (made famous by Ivan Pavlov’s experiments with dogs) and operant conditioning. In this unit, you will study about these forms of learning in detail. The unit will also discuss Thorndike’s theory of learning as well as Watson’s experiment with little Albert.

2.1 OBJECTIVES
After going through this unit, you will be able to:
- Discuss Ivan Pavlov’s classical conditioning and its application in the classroom
- Examine the implications of Thorndike’s theories in the classroom setting
- Explain operant conditioning theory and its application
2.2 CLASSICAL CONDITIONING BY IVAN PAVLOV: CLASSICAL CONDITIONING IN DAILY LIFE

Ivan P Pavlov (1849–1936), a Russian psychologist, was the originator of the classical conditioning theory of learning. He won the Nobel Prize in 1904 for his research on the digestive process. He was interested in studying the process of gastric secretion in dogs. His findings brought about a revolutionary change in the field of learning.

Conditioning is the modification of the natural response. By conditioning, Pavlov modified the behaviour of the dog on which he experimented. According to him, the behaviour of learners can also be modified in such a way, as the response originally connected with a particular stimulus comes to be aroused by a different stimulus. The classical experiment conducted by Pavlov made clear the process of conditioning.

Pavlov’s Experiment: In one of his experiments, Pavlov kept a dog hungry during night and then tied him on the experimental table which was fitted with certain mechanically controlled devices. The dog was made comfortable and distractions were excluded as far as possible. The observer (Pavlov) kept himself hidden from the dog’s view but was able to view all the movements of it by means of a set of mirrors.

Arrangement was made to give food to the dog through automatic devices. With this act of offering food to the dog, a bell was rung simultaneously. It was natural for the dog to secrete saliva at the sight of food. The saliva went into the tube and it was measured. The experiment went on for some days. One day, the bell was rung but no food was given. The dog secreted saliva even then. It was observed that the saliva secreted was of the same quantity even when no food was given and just the bell was rung for some days. The actual stimulus to bring forth the response, i.e., the secretion of saliva, was the sight of the food but it was conditioned in such a way that another stimulus, which ordinarily had nothing to do with secretion of saliva, began to stimulate it.

Food was the ‘natural stimulus’ as it motivated the dog to respond. Its response was secretion of saliva. Ringing of the bell was an ‘artificial stimulus’, also called ‘conditioned stimulus’. The response of the dog when the bell was rung is called a ‘conditioned response’. Conditioning is thus the modification of the natural response. The abbreviations used are: NS for Natural Stimulus, CS for Conditioned Stimulus, NR for Natural Response and CR for Conditioned Response.
In this experiment, the dog learnt to secrete saliva at the sound of the bell. This kind of learning was named as learning by conditioning.

The experiment was conducted in a windowless soundproof room in order to minimize the effects of extraneous stimuli on the subject.

An apparatus was used to measure the number of drops of the saliva secreted as well as the total amount in cubic centimetres.

**Principles of Conditioning**

For explaining his theory, Pavlov gave some principles of conditioning.

1. **Principle of Reinforcement:** The term reinforcement refers to the following of the Conditioned Stimulus by the unconditioned stimulus, i.e., food following the bell. Pavlov stated that it was only reinforcement that led to the conditioning. Without reinforcing the bell with meat, no conditioning could be developed—this was reinforcement. This principle is applicable to children also. Children’s learning becomes effective when they are rewarded immediately after a good performance. Thus, their behaviour is conditioned with reinforcement.

Quite often, the unconditioned stimulus reduces a drive or tension. Thus, the term reinforcement has also come to mean reduction in drives or tensions.

2. **Principle of Sequence and Time Intervals:** There is an optimal time between the presentation of the conditioned stimuli and the unconditioned stimuli. If there is any variation, i.e., increase or decrease in the optimal time, then there is no conditioning and a bond cannot be formed.

3. **Principle of Stimulus Generalization:** According to this principle, if we are conditioned to one thing, i.e., the bell, then we would be conditioned, more or less, to all sorts of bells. In the earlier stages of learning by conditioning, the animal responded to a number of stimuli which accompanied the exact conditioned stimulus. The response was the greatest to the conditioned stimulus and went on decreasing to other stimuli which were less similar to the original one.

4. **Principle of Differentiation:** When two stimuli are sufficiently distinguishable, a living being can be conditioned to respond to one of them. This is done by regularly reinforcing one stimulus and non-reinforcing the other. The individual can be conditioned to react differently to the two stimuli, which at first make nearly the same response. This is how one learns to
differentiate between different brands of tea or coffee. But in case, the organism is pressed too far, it causes experimental neurosis. In the laboratory, when the dog was made to discriminate between two very thin ellipses it started howling at the experiments. It is clear that response to a particular stimulus can be achieved only through selective reward.

5. **Principle of Extinction**: If the sound of the bell was not followed by food, it implied that there was no reinforcement. A stage was reached when the dog stopped secreting saliva. This process is called as extinction. Pavlov noted in his experiments that when the spacing of test trials was increased, the response extinguished rapidly.

6. **Principle of Spontaneous Recovery**: The principle of spontaneous recovery explains that there is no complete extinction on account of the time interval but there is inhibition of CR. When the dog was brought out of the experimental set-up and again put in the set-up after a lapse of time, the dog responded to Conditioned Stimulus (CS) by gastric secretion. This process is called spontaneous recovery.

7. **Principle of Inhibition**: Inhibition may be defined as a process in which a stimulus inhibits a response that would otherwise occur. Pavlov mentioned two types of inhibition.

   (i) **External Inhibition**: Even when the dog was conditioned, it did not react to Conditioned Response (CR) in the presence of some stranger. Often we come across cases when pupil-teachers fail to deliver a well-prepared lesson in the presence of their supervisors.

   (ii) **Internal Inhibition**: Pavlov observed that complete extinction of CR was obtained by not providing food to the dog. But when it was given after a period of 24 hours, there was spontaneous recovery of CR when the dog is tested again. Thus, the extinction did not permanently weaken the CR. It was argued by Pavlov that spontaneous recovery proved that CR in extinction did not represent dying of the reflex or any real weakening of the learnt SR connections. It was blocked by some internal inhibitory process. For example, physical health of an organism or pre-occupation with some other activity, could block the response.

8. **Principle of Higher Order Conditioning**: When conditioning is done to a new stimulus on the basis of a previous conditioned stimulus, it is designated as higher order conditioning. By this process, conditioning can be done by associating one stimulus with another. The process of conditioning becomes difficult if the process is carried too far.

9. **Principle of Secondary Reinforcement**: Conditioned Response (CR) is established to some stimulus other than the primary one, e.g., food elicited salivation. By repeated presentation it was found that sight of food led to salivation or a part response. It is called secondary reinforcement.
reinforcement plays an important role in later learning, especially in the case of children, when the reward may be no more than a kind word or some other gesture or some token reward.

10. **Principle of Age and Conditioning:** The process of conditioning is valuable at all ages but especially in early childhood.

**Classical Conditioning in the Classroom**

Pavlov’s work on the laws of conditioning is considered as a landmark contribution to educational psychology. No learning theorist can ignore the technical and theoretical discoveries of Pavlov. Pavlov’s work influenced the thought process of behaviourists psychologists, especially those of Watson, Guthrie, Hull and Skinner. Pavlov explained learning in terms of physiological changes by adopting an objective method of study. Conditioning was accepted as theoretical framework and practical technique for solving a variety of applied problems. Most of the terminology used in learning was developed by Pavlov.

The principles of classical conditioning can be used in various areas of teaching-learning in the classroom also.

A child learns through conditioning. A child who fears a particular object or subject can be made to love it through conditioning, thereby dispelling fear and hatred for the same. A teacher with his defective methods of teaching or improper behaviour, may be disliked by a particular student or a group of students. He may develop the habit of rebuking children while returning the checked assignment or listening to their answers. Gradually, the students develop hatred for the subject as well as for the teacher. On the other hand, a friendly and sympathetic teacher will have a positive impact on the students through the process of conditioning. The students develop positive attitude both for the subject as well as the teacher.

The use of audio-visual aids in the teaching-learning process involves the conditioning theory. For instance, the teacher shows the picture of a cow, along with the written word ‘cow’. The teacher speaks out the word ‘cow’ and asks the student to say ‘cow’, every time the picture is presented. After some time, the picture of cow is not presented. Only the written word cow is shown. But the child responds to it by saying cow. He associates the written word cow with the picture of the cow and the sound of the word.

Principles of classical conditioning are help in developing good habits in children—habits of cleanliness, punctuality, respect for others, etc. Bad habits, too, can be eliminated through conditioning. As most of the learning is acquired in social environment, principles of classical conditioning can be used to remove bad habits like fear and anxiety in children.

Classical conditioning can be used for developing favourable attitude towards subjects, teachers and above all, the school. The concept of reinforcement in classical conditions points out the need for immediate rewards.
Pavlov’s theory of conditioning is criticized on two grounds. (i) All learning is not conditioning and on the other hand, it is an active process. (ii) Learning needs intelligence and understanding but conditioning ignores it by and large.

2.3 BEHAVIOURISM: WATSON’S EXPERIMENT WITH LITTLE ALBERT

J B Watson (1878–1958) was the founder of American behaviourism and accepted conditioning as the only objective method. He stressed the importance of environment in learning. He observed, “Give me a dozen healthy infants, well informed and my own specified world to bring them in and I will guarantee to take anyone at random and train him to become any type of specialist might select—doctor, lawyer, artist, merchant, chief and yes, beggar and thief regardless of his talents, penchant, tendencies, abilities, vocation and race of his ancestors.”

According to Watson, when a stimulus and response occur at the same time in close contiguity, the connection between them (SR) is strengthened and this depends upon the frequency of SR repetitions.

Watson conducted his experiment in 1919 on an 11 month-old baby named Albert. A rabbit was given to baby Albert to play with. Little Albert liked it very much and was pleased to touch the rabbit’s fur. After some time, during the course of the experiment, a loud noise was produced as soon as Albert touched the rabbit. The baby was frightened. Each time Albert tried to touch the rabbit, the loud noise was produced and the baby gave fear responses. After some time, the baby began to fear the rabbit even if no loud noise accompanied it. In this way, the little Albert learnt to fear the rabbit through conditioning.

2.4 THORNDIKE’S THEORY OF LEARNING: CONNECTIONISM

E L Thorndike (1874–1949) was the chief exponent of the theory of connectionism or trial and error. The basis of learning, accepted by Thorndike, was an association between the sense impressions and impulses to action. This association came to be known as a ‘bond’ or a ‘connection’. Since it is these bonds or connections which become strengthened or weakened in the making and breaking of habits, Thorndike’s system is sometimes called a ‘bond’ psychology or simply ‘connectionism.’ As it believed in stimulus and response type of learning, it was also called SR Psychology of Learning. Thorndike called it learning by selecting and connecting. It is also known as trial and error theory as learning takes place through random repetitions.

Thorndike propounded his theory on the basis of experiments conducted on cats, chickens, dogs, fish, monkeys and rats. He placed them under different learning situations and studied them carefully. With the help of these experiments,
he tried to evolve certain laws and evolved his theory of connectionism or trial and error. It is interesting to know the type of experiments he carried out with these animals. One such experiment is mentioned below.

He put a hungry cat in a puzzle box. There was only one exit door which could be opened by correctly manipulating a latch. A fish was placed outside the box. The smell of the fish worked as a strong 'motive' for the hungry cat to come out of the box. Consequently, the cat made every possible effort to come out. Thorndike observed, the cat tries to squeeze through every opening; it claws and bites at the bars or wires, it thrusts its paws through any opening and claws at everything it could reach.” In this way, it made a number of random movements. In one of such movements, by 'chance', the latch was manipulated, the cat came out and got its ‘reward’.

For another trial, the process was repeated. The cat was kept hungry and placed in the same puzzle box. The fish and its smell again worked as 'motive' for getting out of the box. It again made random movements and frantic efforts. But this time, it took less time in coming out. On subsequent trials, incorrect responses—biting, clawing and dashing gradually diminished and the cat took less time on every succeeding trial. In due course, it was in a position to manipulate the latch as soon as it was put in the box. In this way, gradually, the cat learnt the art of opening the door.

An analysis of the trial and learning indicated the following characteristics:

1. Where there is drive or motive, there is learning. In the experiment, the cat was hungry, so its motive was to get food by learning to come out of the cage.
2. An organism makes a number of varied types of responses. The cat made these responses—clawing, scratching, walking around, pawing, pulling, etc.
3. When some responses lead to the goal, they are known as satisfying responses. The response of pulling the strings, etc., by the cat was satisfying. Some do not lead to the goal and they are known as annoying responses. The responses of clawing, pawing, scratching, and walking were annoying for the cat.
4. Satisfying responses are better learnt as they lead to the attainment of the goal.
5. Annoying responses tend to be eliminated gradually as they do not lead to the goal.

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

1. **Drive:** In the present experiment, drive was hunger and was intensified with the sight of the food.
2. **Goal:** The goal was to get the food by getting out of the box.
3. **Block**: The cat was confined in the box with a closed door, which was the main blockage.

4. **Random Movements**: The cat, persistently made random movements, by trying to get out of the box.

5. **Chance Success**: As a result of this striving and random movement, the cat, by chance, succeeded in opening the door.

6. **Selection of Proper Movement**: Gradually, the cat selected the proper way of manipulating the latch out of its random movements.

7. **Fixation**: At last, the cat learnt the proper way of opening the door by eliminating all the incorrect responses and fixing the only right responses. Now it was able to open the door without any error or in other words, it learnt the way of opening the door.

Thorndike named the learning of his experimental cat as ‘Trial and Error Learning’. He maintained that learning is nothing but the stamping in of the correct responses and stamping out of the incorrect responses through trial and error. In trying for the correct solution, the cat made so many vain attempts. It committed errors and errors before getting success. On subsequent trials, it tried to avoid the erroneous ways and repeat the correct way of manipulating the latch. Thorndike called it, “Learning by selecting and connecting” as it provided an opportunity for the selection of the proper responses and corrected or associated them with adequate stimuli. In this context, Thorndike wrote, “Learning is connecting. The mind is man’s connection system.” Learning is, thus, caused by the formation of connection in the nervous system between stimuli and response.

The following summary description of the behaviour of 12 cats ranging from 3 to 19 months of age in the puzzle box is quoted from Thorndike’s book entitled, *Animal Intelligence* (1901). “When put into the box the cat would show evident signs of discomfort and an impulse to escape from confinement. It tries to squeeze through any opening; it claws and bites at the bars or wire; it thrusts its paws out through any opening and claws at everything it reaches; it continues its efforts when it strikes anything loose and shaky; it may claw at things within the box. It does not pay very much attention to the food outside, but seems simply to strive instinctively to escape from confinement. The vigour with which it struggles is extraordinary. For eight or 10 minutes it will claw and bite and squeeze incessantly. The cat that is clawing all over the box in her impulsive struggle to open the door, will probably chance upon the string or loop or button. And gradually all the other non-successful impulses will be stamped out by the resulting pleasure, until, after many trials, the cat will, when put in the box, immediately claw the button or loop in a definite way.” (Fig. 2.1 and 2.2)

**Laws Propounded by Thorndike**

On the basis of his experiments, Thorndike propounded the following laws of learning:
1. **Law of Readiness**: The law stated, “When any conduction unit is ready to conduct, for it to do so is satisfying. When any conduction unit is not in readiness to conduct, for it to conduct is annoying. When any conduction unit is in readiness to conduct, for it not to do so is annoying.”

The law is indicative of learner’s state to participate in the learning process. According to Thorndike, readiness is preparation for action. Readiness does not come automatically with maturation. It is a law of preparatory adjustment, not a law about growth. Thorndike termed the neurons and synapses involved in establishment of a specific bond or connection, a conduction unit. According to this law, for a conduction unit ready to conduct, to do, is satisfying and for it not to do so is annoying.

![Fig. 2.1 Thorndike’s Cat Trying to Come Out](image1)

![Fig. 2.2 The Cat is Successful in Coming Out](image2)

**Educational Implications**: Teachers should prepare the minds of students to be ready to accept knowledge, skills and aptitudes. For this, he should provide opportunities of experiences in which students can spontaneously
participate. In other words, he should arouse their capacity to link the experiences with their everyday life. ‘Simple to complex’ is an important maxim. Aptitude tests may be given to students to find out their readiness to learn.

2. **Law of Effect:** The law stated, “Of several responses made to the same situation, those which are accompanied or closely followed by satisfaction to the animal will, other things being equal, be more firmly connected with the situation, so that, when it recurs, they will be more likely to recur; those which are accompanied or closely followed by discomfort to the animal, will, other things being equal, have ‘their’ connections with that situation weakened, so that, when it recurs, they will be less likely to occur. The greater the satisfaction or discomfort, the greater is the strengthening or weakening of the bond.”

Thorndike explained the meaning of **satisfaction** and **discomfort** as: “By a satisfying state of affairs is meant one which the animal does nothing to avoid, often doing such things as attain and preserve it. By a discomforting or annoying state of affairs is meant one which the animal commonly avoids and abandons.”

**Educational Implications:** A pleasing environment should be created in the classroom. The teacher should be sympathetic but firm and should enjoy his work. Experiences provided to the students should be satisfying and meaningful. They should be organized in the order of increasing difficulty. Material should be provided in a number of interesting ways including the use of audio-visual aids.

In simple words, the law of effect means that learning takes place properly when it results in satisfaction and the learner derives pleasure out of it. In the situation when the child meets a failure or is dissatisfied, the progress in learning is blocked. All the pleasant experiences have a lasting influence and are remembered for a long time, while the unpleasant ones are soon forgotten. Therefore, the satisfaction or dissatisfaction, pleasure or displeasure obtained as a result of some learning ensures the degree of effectiveness of that learning.

3. **Law of Exercise or Repetition:** It stated, "Any response to a situation will, other things being equal, be more strongly connected with the situation in proportion to the number of times it has been connected with that situation and to the average vigour and duration of the connection.”

According to this law, the more a stimulus-induced response is repeated, the longer it will be retained. The law states, other things being equal, exercise strengthens the bond between situation and response. Conversely, a bond is weakened through failure to exercise it. Thus, the law has two subparts, (i) law of use, and (ii) law of disuse.
(i) **Law of Use**: “When a modifiable connection is made between a situation and response, that connection's strength is, other things being equal, increased.”

(ii) **Law of Disuse**: “When a modifiable connection is not made between a situation and response, during a length of time, that connection’s strength is decreased.

**Educational Implications**: More and more opportunities should be provided to the students to use and repeat the experiences they do in the classroom. Drill strengthens the bonds of SR. Review of the lesson helps to maintain connections.

### Subordinate Laws

Apart from the three laws explained above, Thorndike gave the following subordinate laws:

1. **Multiple Response**—Confronted with a new situation, the learner responds in a variety of ways before arriving at the correct response.
2. **Attitude**—The learner performs the task well if he has his attitude set in the task.
3. **Prepotency of Elements**—The learner reacts to the learning situation in a selective manner. He uses his insight, selects the prepotent elements in a situation and bases his responses upon those elements.
4. **Analogy**—The organism responds to a new situation on the basis of the responses made by him in a similar situation in the past. He makes responses by comparison or analogy.
5. **Associative Shifting**—According to it, we can get from the learner any response of which he is capable, and response associated with any situation to which he is sensitive.
6. **Principle of Polarity**—It states that connections act more easily in the direction in which they were first formed than in opposite directions.

### Thorndike's Five Aids to Improve Learning

The five aids given by Thorndike to improve learning are:

(a) Interest in the work.
(b) Interest in improvement.
(c) Significance of the work.
(d) Problem-attitude.
(e) Attentiveness.
Change in Thorndike’s Stand

As a result of his further research, Thorndike modified his laws in the early 1930’s. His growing interest in educational psychology eventually led him to carry out research in the field of human learning.

The law of exercise was disproved by Thorndike in an experiment in which exercise was made the independent variable while other factors were held constant. He experimented on a college student who was asked to draw a three-inch line blindfolded. Mere repetition did not bring any change or improvement. Some subjects were given more than a thousand trials. However, on an average, there was no improvement from the first to the final trial. Practice without knowledge of results failed to produce any result.

As regards the law of exercise, Thorndike began to realize that rewards and punishment were not equal and opposite in effect. While reward strengthened the connection considerably, punishment did not weaken the connection to the same degree. The intensity and speed of reward in casting influence upon learning was greater than that of punishment. It also brought healthy and desirable improvement in the personality of the child. In this way, he began to give more importance to rewards and praise in place of punishment and blame.

Implications of Thorndike’s Theory of Learning and Laws

Thorndike’s theory of trial and error and laws of learning have great educational significance. Thorndike’s findings made the learning purposeful and goal-directed. There is no doubt that many discoveries and inventions in various fields of knowledge are the results of trial and error. But at the same time it must be remembered that in the case of human beings, trial and error is not always devoid of thinking and understanding. Thus, trial and error, coupled with insight can make the process of learning more effective. Some of the important educational implications of Thorndike’s theory are:

1. Readiness is preparation for action and is very essential for learning. If a child is ready to learn, he learns more quickly, effectively and with greater satisfaction than if he is not ready to learn. Thorndike was of the view that a child should not be made to learn till he is ready to learn and any opportunity of providing learning experiences to the child should not be missed if the child is, already prepared to learn. The right movements concerning the learning situation and the learner’s state of mind should be very well recognized and maximum use of this knowledge should be made by the teacher. He should also make an attempt to motivate his students by arousing their attention, interest and curiosity.

2. Thorndike’s law of effect emphasized the role of rewards and punishment in the process of learning. Getting a reward as a result of some learning, motivates and encourages a child to proceed on the same path with more...
intensity and enthusiasm, while punishment of any sort discourages him and creates disinterest towards that learning.

3. The main task of a teacher in the teaching-learning process is to see what generalizations, principles and theories, etc., should be remembered by the students. Consequently he must try to strengthen the bonds or connections between the stimuli and the responses of those things which are to be remembered. This could be done through drill, repetition and reward.

4. Other implications of Thorndike’s theory and laws are:
   (a) Mere repetition is of no use. Repetition becomes useful only when the response is rewarded. In that case, repetition strengthens the connections.
   (b) Understanding grows out of previous experience. The best way to develop understanding is to develop a body of connections appropriate to that understanding.
   (c) Transfer in learning takes place because of identical elements in the two situations.
   (d) Rewards have more strengthening effect than the corresponding weakening effect of punishment.
   (e) Forgetting takes place because of the law of disuse.
   (f) The child should be encouraged to do his work independently.

Evaluation of Thorndike’s Theory of Learning and Laws

In the words of J P Chaplin and TS Krawie (1960), “Thorndike’s pioneer efforts rank among the greatest in the history of psychology... whatever the ultimate status of Thorndike’s basic laws and principles, there is general agreement among psychologists that his theory of learning heralded the rise of modern learning to the position of pre-eminence in modern psychology.”

R A Roback (1962) was of the view, “Thorndike is known in psychology for his theory of effect, according to which the satisfaction gained by an act tends to stamp it in, so that it will re-occur.”

W F Hill (1972) pointed out the significance of the work of Thorndike as “Thorndike was no less a pioneer of objective psychology than Watson, indeed his original contributions were quite likely more important than Watson’s. However, our concern here is that he incorporated within his objective psychology of learning, the law of effect and thus became the first real reinforcement theorist.”

Check Your Progress

1. List two criticisms of Pavlov’s theory of conditioning.
2. Who was the founder of American behaviourism?
3. List the five aids given by Thorndike to improve learning.
2.5 OPERANT CONDITION BY B.F. SKINNER

Prof. B F Skinner started his research work on behaviour while he was a graduate in the Department of Psychology at Harvard University. In 1931, he wrote his thesis entitled, *The Concept of the Reflex in the Description of the Behaviour*: Thereafter, in the middle of forties, Skinner conducted a good deal of research at the Minnesota and Indiana Universities, on the theory of operant conditioning. Skinner was a practical psychologist who conducted several experiments on rats and pigeons. He popularized 'teaching machines' in learning in 1954. His important publications are: *The Behaviour of Organism* (1938); *Science and Human Behaviour* (1953); *Verbal Behaviour* (1957); *Cumulative Record* (1959); *Beyond Freedom and Dignity* (1971) and *About Behaviourism* (1974).

Meaning of Operant Conditioning: Skinner called his theory as operant conditioning, as it is based on certain 'operations or actions' which an organism has to carry out. The term 'operant' stresses that behaviour is carried out in the environment to generate its own consequences. An operant is a set of acts which conditions an organism in doing something. In the process of operant conditioning, operant responses are modified or changed by reinforcement. Reinforcement is a special kind or aspect of conditioning within which the tendency for a stimulus to evoke a response on subsequent occasions is increased by reduction of a need.

Most SR theorists have assumed the existence of a stimulus as a prerequisite for evoking a response. In the absence of any external stimulus, they have assumed some internal stimuli for evoking the response. Skinner was against this 'No stimulus—no response' theory and believed that most of the responses could not be attributed to the known stimuli. He defined two kinds of responses—the one elicited by the known stimuli, which he called as respondent or reflexive behaviour, and the other emitted by the unknown stimuli, which he called as operant behaviour. Respondent behaviour is learnt according to Pavlovian model of conditioning. Since it is concerned with the stimuli, it is known as S-type conditioning. Skinner attached greater importance to operant behaviour which is primarily concerned with response rather than stimuli, it is known as R-type conditioning. Out of many responses which an organism is capable of giving, the problem with the experimenter is to evoke only the appropriate responses and fix them properly. Thus Skinner changed the usual SR formula into an RS formula.

Operations Involved in Operant Conditioning

Several operations are involved in the process of operant conditioning. Some of the important operations briefly described are as follows:

1. Shaping (generalization, chaining and habit competition)
2. Extinction.
3. Spontaneous recovery.
4. Concept of reinforcement.
1. Shaping

Shaping is the most important mechanism used in operant conditioning. It refers to the judicious use of selective reinforcement to bring certain desirable changes in the behaviour of the organism. The basic process in shaping is successive approximation to the desired behaviour. The experimenter shapes or moulds the behaviour of the organism just as clay is molded by a potter in a definite form of a pot.

**Principles involved in shaping:** There are three important psychological principles which are involved in the process of successful shaping of behaviour. They are as follows:

(a) Generalization,
(b) Habit competition,
(c) Each segment in the chain must be linked to the other.

2. Extinction

It is permitting a behaviour to die out by not reinforcing it. This is known as external approach to motivation.

3. Spontaneous Recovery

Extinction of a response may take place due to non-reinforcement or interference by incompatible responses but there can be a spontaneous recovery of the responses.

4. Schedule of Reinforcement

A reinforcer is the stimulus whose presentation or removal increases the probability of a response. Skinner thought of two kinds of reinforcements—positive and negative. A positive reinforcement is any stimulus the presentation of which strengthens the probability of a response. A negative reinforcement is any stimulus the withdrawal of which weakens the probability of response. Any electric shock, a loud voice are negative reinforcements while food, water, etc., are positive reinforcements.

Skinner did not attribute motivation to internal processes within a living being. He stressed that the reinforcement of conditions was a common way for motivation. He pointed out that just as food was reinforcement to a parrot or pigeon, correct knowledge was to a learner in school. According to him, reward strengthens the behaviour which preceded it but punishment does not permanently reduce a tendency to respond. Extinction—permitting a behaviour to die out by not reinforcing it—and not punishment, according to him, was the appropriate process for breaking habits. This was, in Skinner’s view, the external approach to motivation.
**Schedules for Reinforcement:** As a result of the external approach, Skinner worked out the following effective schedules of reinforcement:

1. **Fixed Internal Reinforcement**—According to him, when reinforcement is given after a fixed interval of time, it should be called fixed internal reinforcement.

2. **Fixed Ratio Reinforcement**—When reinforcement is given after a fixed number of responses, it is called fixed ratio reinforcement.

3. **Variable-Interval Ratio Reinforcement**—When reinforcement is given on varying intervals of time or after a varying number of responses, it is called variable reinforcement.

Skinner was of the view that learning of a response takes place quickly if every correct response is reinforced, but is forgotten easily when the reinforcement is stopped. If reinforcement is given after varying number of correct responses or at varying interval of time, the response is remarkably resistant to extinction.

**Two Types of Operant Reinforcements:** There are two types of operant reinforcements—stimulus discrimination and response discrimination. Stimulus discrimination occurs when a given response is made to one member of a pair of stimuli and not to the other member of the pair. Differentiation of a response occurs when the response form is adjusted or attested approximately to the situation.

**Typical Problems in Learning Explained by Skinner’s Theory**

1. **Capacity:** Differences in capacity have been attributed to the empirical constants which are formed in Skinner’s laws, because the value of these constants varies from species to species.

2. **Practice:** Skinner accepted something like a law of exercise for ‘Type-S’ conditioning and for ‘Type-R’ conditioning he favours repeated reinforcement. He emphasized intermittent reinforcement as protection against extinction.

3. **Motivation:** Reward increases the operant strength, while punishment has no corresponding weakening influence. Drive level also affects the role of responding.

4. **Understanding:** Rapid learning, which has been identified with “insight” by Keller and Schoenfeld, depends upon (a) similarity of the problem to one solved earlier, and (b) simplicity of the problem. Problem solving is the process of manipulating variables to correct response. It does not involve originality.

5. **Transfer:** Generalization, which Skinner called induction, is the basis of transfer.

6. **Forgetting:** There is no special theory proposed by Skinner for forgetting. Extinction of a response may take place due to non-reinforcement or...
interference by incompatible responses, but there can be spontaneous recovery of the response also, which means that extinction is not forgetting. True forgetting is a slow process of decay with time.

**Skinner’s Experiments**

The early experimental work by Skinner was carried out with rats with pressing levers for food packets in a box, constructed by him. Figure 2.3 depicts the initial form of the box constructed by Skinner to experiment with rats, and Figure 2.4 shows the modified box as adapted for pigeons.

![Fig 2.3 Initial Form of Skinner’s Box for Rats](image1)

![Fig 2.4 Skinner’s Box as Adapted for the Pigeon](image2)

The experimental base of the analysis was gradually extended to other animals, to humans and to situations and behaviours differing increasingly from the original base, i.e., to teaching machines. The entire Programmed Learning is based on Skinner’s learning theory.
Skinner constructed a box and equipped it with a lever and a food tray. The lever could be pressed. Skinner placed a hungry rat in the box and the rat would wander over the bar from time to time and push the bar down. The moment it happened, a food pellet would fall into the tray. The rat learnt this task of pressing the lever more frequently in order to get the food pellet and this reinforced the behaviour. Skinner modified the procedure; food pellets would be supplied under certain conditions—when the lever was pushed down and a tone was sounded but not under other conditions. The rat pushed the lever when tone was sounded.

Skinner used pigeons also as subjects where the operant investigation was pecking at a spot that acted as a key to trigger the reinforcement. He also conducted experiments on human beings where the operant was problem-solving. For pigeons, food was the reinforcement just as it was for the rat in the box. For human subjects, it could be getting the right answer or a verbal expression of approval.

The first few reinforcements were relatively ineffective but later, the rate of response was extremely rapid.

**Applying Operant Conditioning in the Classroom**

1. Learning objectives should be defined very specifically in terms of behaviour.
2. Objectives should be arranged in order from simple to complex.
3. For developing motivation in students for classroom work or activity, reinforcements like praise, blame, grades, etc., should be used.
4. Proper use of positive and negative gestures also serves as reinforcements.
5. Reinforcement should be used periodically so that the possibility of extinction of the desired behaviour is resisted.
6. In the classroom, the principle of immediate reinforcement is very important. Praise for a job done well given immediately can be a stronger motivator than a grade given much later.
7. Skinner’s principles of learning focus attention on the individual’s pace of learning. Various teaching mechanisms and learning programme systems have been devised on the basis of the theory of learning, founded by Skinner.

**Limitations of Operant Conditioning**

1. It is doubtful if live results derived from controlled experimental studies on animals, would yield the same results on human beings in social learning situations.
2. It is argued that Skinner had ignored the structural and hereditary factors which are very important in the development of psychological process of language.
3. The operant reinforcement system did not adequately take into account the elements of creativity, curiosity and spontaneity in human beings.
4. Skinner argued that all human behaviour is acquired during the lifetime of an individual. Thus, the importance of genetic inheritance was not given due consideration.

5. Skinner’s theory of learning dehumanized the learning process on account of its emphasis on the mechanization of the mental process.

6. Operant theory of learning did not deal with the depth of mind and, thus, is artificial in nature.

Table 2.1 Comparison between Classical and Operant Conditioning

<table>
<thead>
<tr>
<th>Classical Conditioning</th>
<th>Operant Conditioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It was formulated by a Russian psychologist, Pavlov.</td>
<td>1. It was formulated by an American psychologist, Skinner.</td>
</tr>
<tr>
<td>2. Pavlov conducted experiments on dogs.</td>
<td>2. Conducted experiments on rats and pigeons.</td>
</tr>
<tr>
<td>3. It is called Pavlovian or type-1 learning (respondent)</td>
<td>3. It is called Skinnerian or type-2 learning (operant)</td>
</tr>
<tr>
<td>4. The occurrence of conditioned response is forced reflectively by unconditioned stimulus</td>
<td>4. Response is more spontaneous and voluntary in operant conditioning.</td>
</tr>
<tr>
<td>5. The unconditioned stimulus occurs irrespective of the subject’s behaviour.</td>
<td>5. The reward is contingent upon the occurrence of response.</td>
</tr>
<tr>
<td>6. Classical conditioning is preparatory or anticipatory response. It is also called signal learning.</td>
<td>6. Operant conditioning serves mainly to stress or guide the learner who already has certain responses available.</td>
</tr>
<tr>
<td>7. The law of contiguity is the basis of association between Stimulus Response (SR).</td>
<td>7. The law of effect is the basis of association between Stimulus Response (SR).</td>
</tr>
<tr>
<td>8. Automatic nervous system in the organism is the controlling authority</td>
<td>8. Central nervous system in the organism is the controlling authority.</td>
</tr>
<tr>
<td>9. There is pairing of unconditioned stimulus and conditioned stimulus.</td>
<td>9. Pairing is of a response and the reinforcing stimulus which follows. No pairing of unconditioned stimulus and conditioned stimulus.</td>
</tr>
<tr>
<td>10. Bondage between specific unconditioned stimulus and Conditioned Stimulus is established.</td>
<td>10. Tendency to respond in a specific manner is developed.</td>
</tr>
<tr>
<td>11. Reinforcement takes the first place as food is presented first to elicit the response.</td>
<td>11. Reinforcement comes after the response is made by the organism.</td>
</tr>
<tr>
<td>12. Conditioned stimulus and unconditioned stimulus can be placed in different temporal sequences. Close contiguity is followed.</td>
<td>12. Close contiguity is followed and response stimulus chain is formed.</td>
</tr>
<tr>
<td>13. In classical conditioning, focus is on the single stimulus response bondage.</td>
<td>13. Operant conditioning is concerned with the sequences of responses. A chain of responses is formed leading to the desired goal.</td>
</tr>
<tr>
<td>14. Regardless of the occurrence of conditioned response, we present the unconditioned stimulus.</td>
<td>14. Stimulus is presented only if the organism makes the desired response.</td>
</tr>
</tbody>
</table>
### Classical conditioning presents different pictures of behaviour and learning in which an arbitrary stimulus is associated with a specific elicitable response.

### Classical conditioning lays stress on time control.

### Stimulus substitution is the essence in learning.

### Initially, the classically conditioned reflexes may have zero strength.

### Respondent behaviour is internal.

### The operant conditioning deals with the differentiation and discrimination of a sequence out of a mass behaviour emitted in response to a complex stimulus field.

### Operant conditioning lays stress on motivation and reward.

### Response-modification is the essence in learning.

### The operant conditioning cannot have zero strength as it has to occur once at least before it can be reinforced.

### Operational behaviour is external. The organism operates on the environment.

### Check Your Progress

4. List the operations in the process of operant conditioning.

5. What are the two types of operant reinforcements?

### 2.6 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Pavlov’s theory of conditioning is criticized on two grounds. (i) All learning is not conditioning and on the other hand, it is an active process. (ii) Learning needs intelligence and understanding but conditioning ignores it by and large.

2. J B Watson was the founder of American behaviourism and accepted conditioning as the only objective method.

3. The five aids given by Thorndike to improve learning are:
   (a) Interest in the work.
   (b) Interest in improvement.
   (c) Significance of the work.
   (d) Problem-attitude.
   (e) Attentiveness.

4. Some of the important operations briefly described are as follows:
   - Shaping (generalization, chaining and habit competition)
   - Extinction.
   - Spontaneous recovery.
   - Concept of reinforcement.

5. There are two types of operant reinforcements—stimulus discrimination and response discrimination.
2.7 SUMMARY

- Ivan P Pavlov (1849–1936), a Russian psychologist, was the originator of the classical conditioning theory of learning.
- Conditioning is the modification of the natural response. By conditioning, Pavlov modified the behaviour of the dog on which he experimented.
- Pavlov’s work on the laws of conditioning is considered as a landmark contribution to educational psychology. No learning theorist can ignore the technical and theoretical discoveries of Pavlov.
- Principles of classical conditioning are helpful in developing good habits in children—habits of cleanliness, punctuality, respect for others, etc.
- J B Watson (1878–1958) was the founder of American behaviourism and accepted conditioning as the only objective method.
- According to Watson, when a stimulus and response occur at the same time in close contiguity, the connection between them (SR) is strengthened and this depends upon the frequency of SR repetitions.
- E L Thorndike was the chief exponent of the theory of connectionism or trial and error. The basis of learning, accepted by Thorndike, was an association between the sense impressions and impulses to action.
- Thorndike propounded his theory on the basis of experiments conducted on cats, chickens, dogs, fish, monkeys and rats.
- Thorndike’s theory of trial and error and laws of learning have great educational significance. Thorndike’s findings made the learning purposeful and goal-directed.
- Skinner called his theory as operant conditioning, as it is based on certain ‘operations or actions’ which an organism has to carry out. The term ‘operant’ stresses that behaviour is carried out in the environment to generate its own consequences.
- The early experimental work by Skinner was carried out with rats with pressing levers for food packets in a box, constructed by him.
- The experimental base of the analysis was gradually extended to other animals, to humans and to situations and behaviours differing increasingly from the original base, i.e., to teaching machines.

2.8 KEY WORDS

- **Stimulus:** It refers to a thing or event that evokes a specific functional reaction in an organ or tissue.
- **Habit:** It refers to a settled or regular tendency or practice, especially one that is hard to give up.
- **Conditioning**: It is the process of training or accustoming a person or animal to behave in a certain way or to accept certain circumstances.
- **Motivation**: It refers to internal and external factors that stimulate desire and energy in people to be continually interested and committed to a job, role or any other activity.

### 2.9 SELF ASSESSMENT QUESTIONS AND EXERCISES

**Short Answer Questions**
1. Describe briefly Pavlov’s experiment of classical conditioning.
2. Write a short-note on Watson’s experiment with little Albert.
3. List the laws propounded by Thorndike.

**Long Answer Questions**
1. Discuss the principles of conditioning. What are the implications of Pavlov’s ideas on the classroom?
2. Explain Thorndike’s trial and error theory of learning.
3. Examine the operations involved in operant conditioning.

### 2.10 FURTHER READINGS

UNIT 3 COGNITIVE LEARNING THEORIES

Structure
3.0 Introduction
3.1 Objectives
3.2 Gestalt Theories of Learning
3.3 Piaget’s Theory of Learning: Application in Classroom
3.4 Social Learning Theory: Albert Bandura
3.4.1 Application of Social Learning Theory
3.5 Theory and Application of Meaningful Learning: David Ausubel
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3.0 INTRODUCTION

In the previous unit, you learnt about behavioural learning theories such as Pavlov’s classical conditioning and Skinner’s operant conditioning. In this unit, the discussion will turn towards cognitive learning theories such as Gestalt theories, Piaget’s theory of learning, Albert Bandura’s social learning theory, and others. Cognitive theories broadly explain the mental processes and how they are influenced by both internal and external factors in order to produce learning in an individual.

3.1 OBJECTIVES

After going through this unit, you will be able to:
- Discuss Gestalt theories of learning
- Examine the application of social learning theory in the classroom
- Explain Ausubel’s learning theory

3.2 GESTALT THEORIES OF LEARNING

Gestalt is a German word whose equivalent in English is ‘form’ or ‘pattern’ or ‘configuration’. Max Wertheimer has explained the term Gestalt as the whole is being greater than the parts, for example, a flower is just not a total of sepals, petals, calyx, corolla, colour, honey and fragrance. However, the total of the part
is not equal to the whole. This is known as a *Gestalt* viewpoint. According to this view, learning is the organization and reorganization of behaviour that arises from the interaction of a maturing organism and its environment. It is the development through this interaction of new forms of perception, imagination, motor coordination and other organic behaviour. The sudden appearance of a solution is an essential characteristic of insight learning. A sudden coherent pattern of a solution appears at once. The individual does not perform random activities, but preserves the situation as a whole, and intuitionally reaches the goal through an awakened insight by continuous, definite and seemingly purposive reactions. Insight is the perception of relationship between at least three factors, an agent, goal and intervening conditions or obstacles. An insight is often termed as the AHA experience, a flash of understanding that comes to us all of sudden. Insight, when it occurs, is characteristically accompanied by statements like ‘I got it’.

**Problem Solving By Insight**

The *Gestaltians* tend to place great emphasis on the intrinsic organizing capacity in the brain of the individual and emphasize on the dynamic interaction of the elements in the entire perceptual feel. The *Gestalt* theory of learning essentially consists of problem-solving by understanding the relative position of the elements in the entire perspective or situation. When a problem arises, it tends to disturb the equilibrium of the organism who seeks the balance and the organism. We are all now well aware that a moving picture, as in cartoons, is not moving but, a series of still pictures. The focal point of this theory is the fact that when two optical stimuli are perceived by the human eye in quick succession, the reaction is one of simultaneous patterning.

**Principles of *Gestalt* theory**

The *Gestaltians* have mentioned some laws involved in learning. The age at which memory develops is determined chiefly by the growth of a sufficient number of association fibers to bring about recall. There are different modes of connection or association among percepts and ideas. Suggestive force works according to certain laws that are as follows:

(i) **Law of similarity**—This makes the individual grasp things that are similar. These similar things are selected from the total context. Thus, similar ideas and experiences get associated together. An object receives another object that resembles it, for example, seeing a man and remembering an intimate friend by some resemblance in his personal appearance. A photo reminds us of the person who it represents.

(ii) **Law of proximity**—According to this law, proximate or things lying close to each other are perceived as together. In other words, perceptual groups are favoured according to the nearness of their respective parts. Items tend to form groups if they are spaced together. For instance, the example of a triangle and a circle is enough to illustrate this point.
(iii) **Law of closure** – The law of closure implies that closed areas are more stable and satisfying than unclosed ones. Closed areas more readily formed in groups. This law also means that when the perception of the situation is incomplete, the individual is not able to solve the problem. The problem is solved when he is able to bring separate parts of the situation together into a closed perceptual figure, consisting of the goal, and the means of achieving the goal.

(iv) **Law of continuity** – This law makes the individual grasp things that are joined together in a string or a line as opposed to objects that are disconnected, disjoined or scattered. In other words, experiences which occur together either simultaneously or in close succession, tend towards reviving one another, for example, the perception of a ripe mango suggests the idea of its sweet taste and flavour because they are perceived together in the past or the idea of an inkpot suggests the idea of a pen.

(v) **Law of contrast** – A perception or an idea tends to suggest its contrary opposite. For instance, adversity reminds a person of his days of prosperity. Similarly, the heat of the summer suggests the cold of winter. These laws of learning highlight Gestalt’s viewpoint that the organizational capacity of the brain grasps the whole in priority to the parts.

Keeping in view these principles for learning, the teacher should present all curricular material to students in the form of simple, concrete and patterned units of experience that constitute a whole. Children should be taught a tune or a melody rather than separate notes, whole dance patterns rather than separate steps and simple meaningful sentences, rather than discreet words and meaningful words than separate letters for alphabets.

**Educational significance**

Gestalt psychology’s contribution to education lies in its concepts of the organization of stimuli and of insight. The world of the classroom in which the child is living and learning is not just a body of discrete stimuli nor is his responses to it those of trial and error adoptions. The world is organized; it has meaning. The child can react with understanding, he has insight. Arithmetic is not isolated fact but a system of numbers. History is not names and dates but a sweep of events through time, with one thing leading to or following another. The child can respond to 3 and 4 because he can add three and four. Learning is meaningful. So say the educators and so says Gestalt psychology.

Gestalt psychologists suggest educators to conceive the problem of learning in more comprehensive terms. The teacher should organize the learning situations so that significant relations emerge resulting in advanced levels of understanding. The learning experiences should be so arranged that the learner discovers and generalizes the relationship for himself. The subject matter should be organized into larger units or in meaningful wholes. The concept of unit planning is based on the same.
In most classrooms, the daily lesson plan is fragmentary. It may encourage mere accumulation of facts, principles, concepts and skills and the student fails to get a clear picture of the whole. A lesson of prose may be taught in four or five steps or periods. However, if the matter taught on the first day and the last day fail to connect in the mind of students they tend to get confused. It is thus said that the whole is not equal to its parts. Whenever students appreciate the beauty of a poem, the sip of a soft drink or the beauty of a song or picture, they appreciate as a whole. A flower is not merely equal to its various parts. Similarly, the taste of lemonade cannot be analysed based on coldness, yellowness and taste. Thus, it has been seen that for a more complete aesthetic appreciation, poetry should not be taught in the same manner as prose. It should be taught, as far as possible, as a whole, not merely as an amalgamation of meaning, grammar or translation. There is no clarity of connection between an activity and a goal, when the parts are offered one at a time, so that a view of the whole is not possible, when the level of performance is not in congruence with a student’s equipment and experience, blunders occur and consume a lot of time and effort. However, the use of proper and graded steps and sufficient preparing of expectancy from one stage to another can reduce this to a bare minimum. The presence of blundering is thus a barometer that measures the intelligence of the teacher and not merely of the performer.

There are two important stresses with regard to the presentation of material. Firstly, where possible, visual presentations, outlines, maps, charts and graphs may be used. In short, devices that permit a survey of the whole problem, which bring out configurational and relational factors—simultaneously presenting what otherwise would remain discrete—have special value. A child who is learning about colours finds it difficult to dissociate the colour from the object itself. To overcome this difficulty, the teacher will have to discover the gaps that exist between the student’s perceptual tendencies and that which appears to be clear and definite experienced and intelligent. Secondly, there is an obvious difference between a ‘psychological’ and a ‘logical’ way of presenting. The logical process will begin from the smallest unit and from there the whole frame work of the object has to be elaborated, for example, in teaching ‘matter’ one will proceed as, sub electronic particles—electrons—atoms molecules—matter. However, satisfying this might look to an expert, who can appreciate the significance of each step of the process, the Gestaltists insist that it is not pedagogically sound.

The abstract conceptual items that govern the working of science are really the last items to result in knowledge. If this is correct, one should begin with the living totality and reach the last of all abstract formulations, the unitary process. We can further make this point clear by taking an example from geography. A teacher begins teaching geography by comparing the world map with an orange and explaining the relation between the sun and the earth. Now, on one hand, this represents one way where the whole is considered before its parts, on the other hand, it represents the worst possible use of the method. An orange has some meaning, but it fails to have the remotest connection with the problems of geography.
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It would sound more meaningful to consider the world of the child, for instance, his own house and the houses around him or his school, home and surrounding area of the locality. These are complete units too and make sense to the child. These can be used to establish a basic foundation of geography.

A major point in this learning is that initial insight is only instinctive and automatic. This insight can be brought about through maturation, experience and good arrangement of the environmental forces. The teacher must postpone the task until circumstances are more propitious. If, for example, a child is unable to appreciate a poem, no amount of analysis into rhymes, schemes, grammatical constructions and similes will supply the want. Details must always follow general grasp or vague emotional insight. Further, since it is required for perceptual fields to take shape and relationships to appear, motivation is very critical. However, in this case, motivation is more important than just interest more than some impelling stimulation. It is more of the nature of expectancy, a goal orientation, an awareness of all but complete relationships.

Briefly speaking, this type of learning is very important in education because it discards the memorizer type of learning, it does not consume much time and emphasizes upon meaningfulness, organization and interpretation of the lesson. Here, the individual is engaged in a problem-solving environment that encourages reasoning, develops thinking and trains imagination and creative activity of the child. Learning by insight can be cultivated. Thus, the teacher should emphasize it by encouraging, helping and guiding the child. This aspect of teaching is also called the Dalton plan or the project method by John Dewey and those who advocate creative activity.

3.3 PIAGET’S THEORY OF LEARNING: APPLICATION IN CLASSROOM

Let us discuss Piaget’s view on various aspects of learning.

1. **Meaning of Learning:** Learning includes the wide range of activities. Rigid distinctions like classroom for instruction, laboratory for practicals, recess for amusement, mathematics for developing computational ability, athletics for strengthening the body muscles, etc., are unnecessary. Piaget’s approach helps to tie together what have been treated as separate subjects earlier.

2. **Role of Learner’s Actions:** Piaget explains that action stresses the role of active exploration. A child is active when he stares at objects. A child is active when he stares at an organism. A child is active when he studies his body parts. A child is active when he lifts something. A child is active when he carries things. A child is active when he arranges things. In this way, children are usually active for most of their time. There is no doubt that some of these activities may be rather aimless or unnecessary. However, most of these activities are purposeful.
3. **Role of Practice**: An important part of the Piagetian model is repetition of an act by a child. The role of practice varies with the development. Concepts are the products of a long history of action. A child may take three or more days to complete a puzzle. Each day he appears to go through the same sequence. The child’s actions upon the environment are repeated again and again with slight modifications each time. Piaget depicts the child as somewhat slower and methodical and systematic in acquisition of new ideas.

4. **Motivation**: According to Piaget, a learner desires to reduce his internal conflicts by keeping his thoughts harmonious and in equilibrium. It is only through playing, imitating, exploring and questioning that a child gradually comes to distinguish the achievable from non-achievable, and logical from the illogical. To Piaget, the progress towards this end is inherent, a property of cognitive style as are eating, drinking and breathing in the physiological field.

5. **Memory**: Memory is a symbolic representation of how the child has schematized what he saw. Experiments conducted by Piaget revealed that after six months, 61 per cent of the children from four to eight years of age regressed in their memory ability if tested by recall or evocation. A reconstruction test involving the child with some material showed regression in four to five year olds but 48 per cent progression among six to seven year olds. Piaget holds that recognition is perceptual and reconstruction is internalized imitation. Each experiment reveals that the pattern of accuracy, improvement and regression (gradual loss of memory) is determined by initial conceptual understanding and is altered by new understandings.

6. **Interest**: According to Piaget, the interest of the child at any given movement depends upon the system of ideas he has acquired in addition to his affective perception. A child tends to fulfil his interests in the direction of greater equilibrium. Equilibrium according to Piaget is development and the ability to think in a logical and natural manner.

We will be discussing Piaget’s theories in detail later on in the book.

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### Check Your Progress

1. What is gestalt viewpoint?
2. According to Piaget, what is memory for a child?

### 3.4 SOCIAL LEARNING THEORY: ALBERT BANDURA

Bandura and Walters developed an observational learning theory known as social learning theory. Their theory is based on the premise that behaviour is learned and personality can be explained in terms of the cumulative effects of a series of learning
Cognitive Learning Theories

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1. Dollard and Miller’s theory of personality is based on neo-Hullian approach which has been rejected by Bandura and Walters who emphasize the role of observational learning (cognition) in the development of personality in contrast to strict S-R connections.

2. Dollard and Miller borrowed basic concepts from Freudian and Neo-Freudian theories and tried to explain them in terms of S-R connections. They tried to develop a rapprochement between learning theory and psychoanalytic theory of personality. On the other hand, Bandura and Walters are anti-Freudian and rejected psychoanalytic theory as an incomplete explanation of behaviour.

3. Dollard and Miller conducted experiments on animals under controlled conditions in laboratory and developed basic principles of learning. They extrapolated them to human life situations. Their applicability to human behaviour is doubted. Bandura and Walters, in contrast to other theorists, conducted experiments on children and their extrapolation from laboratory to real life is less artificial.

4. Other learning theorists did not take into account the role of observational learning (models) in the development of personality, whereas Bandura and Walters stress the major role of observational learning in the development of personality. They provide a more balanced synthesis of cognitive psychology with the principles of behaviour modification. According to Bandura et al., man’s cognitive symbolic functioning is more important in acquiring new behaviours.

Basic Principles of Social Learning: Modelling, Imitation and Reinforcement

According to Bandura and Walters, the most fundamental and significant principle of social learning is the principle of reinforcement. Most of our behaviour in social situations is acquired through the principle of reinforcement. The scope of responses acquired through reinforcement is unlimited. We will describe how aggressive behaviour can be acquired through reinforcement by children. An experiment to this effect was conducted by Cowan and Walters (1963). The experiment was conducted on small children who were given ‘Bobo’ clown with a sign saying ‘Hit me’ painted on the clown. It was observed by the experimenters that the rate of responding (hitting) were increased as a result of reinforcement. This experiment further established the fact that partial reinforcement leads to greater resistance to extinction than continuous reinforcement.

Bandura and Walters emphasize the importance of reinforcement in situations where a person observes the actions of another person (model) who is reinforced or punished for these actions. They introduced an important type of reinforcement
that is known as vicarious reinforcement which refers to the modification of an
observer’s behaviour by reinforcement administered to a model which is being
observed. An illustration from the experimental studies conducted by Bandura
and Walters will make the concept of vicarious reinforcement more clear. Nursery
school children were exposed to films of adults or live adults behaving aggressively
to a large plastic doll. They found that children who were exposed to aggressive
models tended to behave toward the doll in the same way and exhibited a large
number of precisely matching responses. Such responses rarely occurred for
children who were not exposed to models behaving aggressively. This experiment
indicates that children acquire novel responses through vicarious reinforcement by
observing the behaviour of the model. This process of learning through imitation is
influenced by the nature of the reinforcement given to the model. If we minutely
analyse the behaviour of children, adolescents and even adults, we find that most
of the behaviour is imitated to match the behaviour of the model. Models may be
categorized into two broad categories:

(a) Real life models. Under this category we can include parents, teachers,
friends, movie stars, sports stars, most successful persons in the society
or in the immediate environment.

(b) Symbolic models. They include verbal material, pictorial and
representation (film and TV) written materials, books, magazines and
works of art. Both types of models are equally effective in learning.

It is a common experience that what children view and listen on TV and in
films they try to imitate in their real life. Hairstyle, dress, delinquency and
conversational styles have been imitated by our adolescents in recent years from
films and TV.

Bandura and Walters use another term ‘self-reinforcement’ which operates
in observational learning. In many situations the individual sets a standard for self-
reinforcement. Children and adolescents tend to adopt standards of self-
reinforcement which matches the standards of the models to which they have been
exposed.

Positive reinforcement and reward play an important role in social learning.
They strengthen our responses and develop a tendency to repeat the same
responses in future. Bandura studied a number of factors which operate in social
learning (observational learning). Few of the variables are given as:

A. Stimulus properties of the model
   1. The model’s age, sex, social and economic status relative to that
      of the subject are varied. High status models are more imitated.
   2. The model’s similarity to the subject. The more similarity is
      between the model and the subject, the more imitation occurs.

B. Type of behaviour exemplified by the model.
   1. Novel skills,
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2. Hostile or aggressive responses, and

C. Consequences of model’s behaviour. Rewarded behaviours of the model are more likely to be imitated.
   1. Motivational set given to the subject: Instructions given to the subject before he observes the model provide him with high or low motivation to pay attention to and learn the model’s behaviour.
   2. Motivating instructions may be given after the subject views the model and before he is tested. This aids in distinguishing learning from performance of imitative responses.

Mechanisms of Observational Learning

Bandura and his associates extensively studied observational learning and made an analysis of the whole process of learning. They emphasized four interrelated sub-processes in observational learning as listed below:

1. Attentional processes. Attention to the model is the first process in observational learning. The subject must attend the model in order to learn from the model. Attention is influenced by a number of variables including the past functional value of attention to the model.
2. Retention processes. The subject, in order to integrate the behaviour of the model, must retain the learning.
3. Motoric reproduction of skills. A child or adult may know ‘cognitively’ and roughly what is to be done but nonetheless be relatively unskilled at the performance itself. A considerable motor practice with feedback of results is needed to shape the motor skills. It is known that with some motor skills such as basketball, shooting, driving and dart throwing, covert cognitive rehearsal or imaginary practice can often produce significant improvement in actual performance.
4. The role of reinforcement. Bandura treats the anticipation of reinforcement as a motivational factor determining expression of cognition and behaviours learned earlier.

Principles of Social Learning and Personality

The principles of observational learning have been applied by Bandura and Walters in the development of personality. From the very beginning of his life, the child learns a number of activities through observation of other’s behaviour. The male child imitates the behaviour of his father and the female child tries to imitate the behaviour of her mother. The model which the child observes in his environment plays two important roles in social learning. The first is that the model’s behaviour may serve to elicit some responses in the observer that are already in his repertoire.

This occurs when the behaviour is socially acceptable. Secondly, when the model
is performing socially prescribed and deviant behaviour. It has been observed that children may identify with a person whom they dislike, if his behaviour is successful.

Bandura and Walters studied acquisition of different types of behaviour in children and adolescents. They advanced a new explanation of aggressive behaviour in children and adolescents. According to Miller, aggression is indirectly expressed or displaced outside the home but Bandura, in contrast to this view, points out that aggressive boys who are punished in home but are rewarded outside the home learn aggression. The tendency to be aggressive outside the home is an instance of acquisition of a discrimination based on the reinforcement history of these boys. They reject the theory of Miller on the ground that displacement may or may not occur and if it occurs the precise target for expression of tendency is chosen as a result of a specific reinforcement history in which responses directed towards that target have been directly or vicariously reinforced.

Observational learning plays an important role in personality development. We can learn acquisition of a variety of new responses like aggression, sex and dependency, etc. from a model. The strengthening or weakening of inhibitory responses such as acquiring greater or less fear by observing model’s behaviour. Bandura in an experiment demonstrated that observational technique could lessen snake phobia. Observation also stimulates already existing responses in the repertoire of the individual.

As regards the stages in development of personality they do not postulate continuities and discontinuities in the development of personality like Freudian and other theorists. They emphasize that there are marked differences between individuals in their reinforcement history. Summarizing the main concept in their theory, we can say that they have emphasized the role of observational learning through which an individual attempts to imitate the behaviour of the model whose behaviour he has observed. They have given more importance to imitation in learning and have specified the conditions under which a child will reproduce the behaviour of a model. They reported that children tended to imitate the behaviour of an adult who controlled and dispensed reinforcements rather than an adult model who competed for reinforcement. Social learning theory by Bandura and Walters appears to be quite satisfactory theory of personality development but it has been criticized on two important points: one is that the theory is an antitrait and antigenetic approach to personality. It lays emphasis on the particular learning history of the individual which leads an individual to behave in a particular way in a particular situation. This approach emphasizes the importance of each particular situation in eliciting a particular behaviour pattern for a particular situation. It makes no allowance for genotypical influences on the development of personality. Genotypical influences are those influences which exist prior to and apart from the social learning process. The theory minimizes or ignores any intra-organismic determinant of behaviour which cannot be derived from a knowledge of individual’s social learning history. Genotypical influences play an important role in the development of personality.
which have been ignored by Bandura and associates. The second criticism has been levelled by Epstein and Frenz (1967) who conducted experiments on the reactions of sport parachutists to the approach-avoidance conflict engendered by a forthcoming jump. Several evidences indicate that novice parachutists are very fearful as they approach the jump situation which is against the principles of social learning theory developed by Bandura and Walters. The social learning theory needs certain modifications in the light of recent investigations conducted by psychologists.

3.4.1 Application of Social Learning Theory

Freud’s psychoanalytic theory and bandura’s social learning theory described the concept of aggression in different ways. Freud believed that aggression was a drive whereas Bandura viewed it as a learned response.

Aggression as a drive

Freud’s psychoanalytic theory viewed that all organisms’ behaviour is guided by instinct, particularly by sex instinct. When these instincts are frustrated due to non-fulfilment of the desires, it produces an aggressive drive. Later, he proposed that whenever a person’s effort to reach a goal is blocked, an aggressive drive is induced that motivates behaviour intended to injure the obstacles (person or object) causing frustration. However, it was concluded that frustration leads to aggression and the basic drive serve as the property of it.

Aggression through observation or imitation

According, to Bandura, aggression can be learnt through observation or imitation. Also, the more often it is reinforced, the more likely it is to occur. Children are more likely to express aggressive responses when they are reinforced for such actions, than when they are punished for the action. If aggression is a drive, expression of aggression should be cathartic, resulting in a reduction in the intensity of aggressive feeling and actions. On the other hand, if aggression is a learned response, expression of aggression could result in an increase in such actions (if the aggression is reinforced).

3.5 THEORY AND APPLICATION OF MEANINGFUL LEARNING: DAVID AUSUBEL

David Paul Ausubel was an American psychologist and educator. He was greatly influenced by the Piaget’s theory of cognitive structure and learning. He brought the theory of meaningful learning, in which he explained that, learning takes place when a concept is not memorized and is linked with previous experiences, numbers or previous knowledge. Any form of learning which involves no linkage between the objects/ past experiences is not a form of learning.
According to Ausubel, meaning is created through some form of representational equivalence between language and mental process. There are majorly two processes involved in the process of learning:

1. **Reception:** Reception is the process of understanding of the verbal communication and connecting it with the mental context. Reception is therefore regarded as the first and the foremost step towards the process of learning. For example, if the child understands the concept well, that means verbal communication is clear and coherent. So, he can convey and respond accordingly. However, if the child does not understand verbal communication well then it is difficult for him to react and respond to the same person accordingly. Hence, for effective communication between two individuals reception is the first step towards learning. Reception includes the following components:
   (a) Remembering of the concept
   (b) Recalling ability of the individual
   (c) Understanding of the verbal communication
   (d) Coherence between the sentences.
   (e) Synchronicity between the past experiences and the current sentence structure.

2. **Discovery:** Discovery is regarded as the second step/ process to reach the goal of learning. It is considered as one of the prime process towards meaningful learning. It involves two major processes, concept formation and problem solving. As the process of discovery initiates in the mental process of the learner, he begins to form new sentences and learns to maintain a balance between the current situation and prior ones. The child begins to analyze the situation which leads to gain of experiences and thus the child is able to help himself and solve the problem.

   Ausubel’s work is usually compared to Bruner’s work because both of them had similar views about the hierarchical structure and nature of knowledge. Bruner however, emphasized more on the discovery process. Ausubel emphasized more on the process of speaking, comprehension, reading and writing.

   In Ausubel’s view, in order to make the process of learning meaningful, the students must be able to relate new knowledge to what they already know. He also proposed the notion of advanced organizer, as a way to link the ideas with new concepts. This theory also claims that, new concepts to be learned can be incorporated into more inclusive concepts or ideas. These more inclusive concepts are termed as the organizers. Advance organizers includes the verbal phrases or graphics. They are majorly designed to provide “mental scaffolding”.

   According to Ausubel, learning is a deductive process and it begins from top to down. Concepts maps can be used to represent meaningful learning. The maps can be used to evident the key concepts to be learned and suggest linkages.
3.5.1 Application of Ausubel’s Learning Theory

Ausubel’s theory of meaningful learning simultaneously addresses the curriculum, learning and teaching methodology:

(a) How the knowledge is organized
(b) How one processes new information
(c) How to apply these ideas in the current teaching-learning situations when presenting any learning material to the students
(d) The process of instruction given to the students.

Teaching Application

1. In classroom situations, it is essential to strengthen the cognitive structure of the children so as to enhance the retention of new information through the use of advance organizers.
2. The teachers may take the help of charts, pictures, diagrams and concept maps which can act as advance organizers.
3. Teachers may represent the information visually which would not only help the deaf students but also will definitely help in retention of the concept for a longer period of time.

Curriculum Application

1. Makes the curriculum more stable, clear and organized in general which will help the students in the understanding of the concepts in a better way.
2. Helps the students in learning the details of the new and unfamiliar concepts in an easy way through the Ausubel’s advance organizers and makes the concepts inclusive.
3. The ideas are consciously reconciled with prior knowledge of the learner which would help them in pointing out the similarities and differences between the two concepts simultaneously and will undoubtedly contribute towards the making of the cognitive structures.

Check Your Progress

3. What is the most significant principle of social learning?
4. According to Ausubel’s theory, what is reception?
3.6 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Max Wertheimer has explained the term *Gestalt* as the whole is being greater than the parts, for example, a flower is just not a total of sepals, petals, calyx, corolla, colour, honey and fragrance. However, the total of the part is not equal to the whole. This is known as a Gestalt viewpoint.

2. According to Piaget, Memory is a symbolic representation of how the child has schematized what he saw. Experiments conducted by Piaget revealed that after six months, 61 per cent of the children from four to eight years of age regressed in their memory ability if tested by recall or evocation.

3. According to Bandura and Walters, the most fundamental and significant principle of social learning is the principle of reinforcement.

4. According to Ausubel, reception is the process of understanding of the verbal communication and connecting it with the mental context.

3.7 SUMMARY

- Max Wertheimer has explained the term *Gestalt* as the whole is being greater than the parts, for example, a flower is just not a total of sepals, petals, calyx, corolla, colour, honey and fragrance.

- The *Gestalt* theory of learning essentially consists of problem solving by understanding the relative position of the elements in the entire perspective or situation.

- *Gestalt* psychology’s contribution to education lies in its concepts of the organization of stimuli and of insight.

- Piaget explains that action stresses the role of active exploration. A child is active when he stares at objects. A child is active when he stares at an organism.

- Bandura and Walters developed an observational learning theory (Social Learning Theory) of personality which is quite different from the S-R learning theory of Dollard and Miller.

- The principles of learning are sufficient to explain development of personality. But their approach differs from other learning theorists, particularly from Dollard and Miller’s.

- Dollard and Miller’s theory of personality is based on neo-Hullian approach which has been rejected by Bandura and Walters who emphasize the role of observational learning (cognition) in the development of personality in contrast to strict S-R connections.
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- Other learning theorists did not take into account the role of observational learning (models) in the development of personality, whereas Bandura and Walters stress the major role of observational learning in the development of personality.
- Freud’s Psychoanalytic Theory and Bandura’s Social Learning Theory described the concept of aggression in different ways. Freud believed that aggression was a drive whereas Bandura viewed it as a learned response.
- Freud’s psychoanalytic theory viewed that all organisms’ behaviour is guided by instinct, particularly by sex instinct.
- According to Bandura, aggression can be learnt through observation or imitation. Also, the more often it is reinforced, the more likely it is to occur.
- David Paul Ausubel was an American psychologist and educator. He was greatly influenced by the Piaget’s theory of cognitive structure and learning.
- According to Ausubel, meaning is created through some form of representational equivalence between language and mental process.
- According to Ausubel, learning is a deductive process and it begins from top to down. Concepts maps can be used to represent meaningful learning.
- Ausubel’s theory of meaningful learning simultaneously addresses the curriculum, leaning and teaching methodology.

3.8 KEY WORDS

- **Aggression**: It refers to feelings of anger or antipathy resulting in hostile or violent behaviour; readiness to attack or confront.
- **Imitation**: It is the action of using someone or something as a model.
- **Intra-Organismie**: It is a theory developed by Bowlby that states infants have an innate desire to develop attachments to other individuals.
- **Gestalt**: It means an organized whole that is perceived as more than the sum of its parts.

3.9 SELF ASSESSMENT QUESTIONS AND EXERCISES

**Short Answer Questions**

1. Write a short-note on Piaget’s theory of learning.
2. What is the law of proximity?
3. State how Bandura’s social learning theory differs from Dollard and Miller’s theory?
4. Write a short note explaining the mechanisms of observational learning.
5. What is mental scaffolding?

Long Answer Questions

1. Examine the principles of Gestalt theory.
2. Why does Bandura and Walters emphasize the importance of reinforcement? Discuss.
3. Explain aggression as a drive and aggression through observation or imitation.
4. The principles of observational learning have been applied by Bandura and Walters in the development of personality. Comment.
5. Explain any three applications of Ausbel’s theory of learning.

3.10 FURTHER READINGS

UNIT 4 CRITICAL AND CREATIVE THINKING

4.0 INTRODUCTION

In the previous unit, you learnt about cognitive learning theories. In this unit, we will discuss critical and creative thinking. Simply speaking, critical thinking is the analysis of facts to form a judgment while creative thinking is a way of looking at problems or situations from a fresh perspective to conceive of something new or original. We will examine both these concepts in detail, with special reference to the classroom learning.

4.1 OBJECTIVES

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

- Define critical thinking and discuss its components
- Describe the creative process
- Explain what can be done to make children more creative
4.2 SOME PERSPECTIVES ABOUT TEACHING THINKING

It is vital to teach critical thinking skills to children since they are crucial for living life. Thinking critically is not just about thinking clearly or rationally, it is about thinking independently. Students should possess the skills to formulate their own opinions and draw their own conclusion irrespective of any outside influence. It is also about discipline of analysis and seeing the linkages between ideas, and being accepting about other viewpoints and opinions.

4.2.1 Definitions of Thinking

Thinking is manipulating information as when we form concept, solve problem, think critically reason and make decision. Different approaches describe thinking in different manner. They are as follows:

- **Associationist approach:** This approach suggests that thinking involves the reproduction of previously learned responses. The claim of the associationists is that human thinking follows along similar lines—that we will produce responses not through any complex internal representational processes, but as a result of associating a particular stimulus with a particular response.

- **Gestalt approach:** Gestalt believes thinking as cognitive restructuring. The Gestalt psychologists disagreed with the associationist viewpoint and considered thought to be more than simple associations. They suggested that a person could have insight into, say, a problem’s structure and in order to solve the problem they will restructure it. This suggests that thinking through something involves having some insight into the structure of what we are trying to think about and then restructuring it in order to do something about it.

Forms of Thinking: Thinking as Adaptation

This idea suggests that thinking develops through adaptation to particularly skilful ways of dealing with problems. Anderson (1985) suggests that skill acquisition is a move from the use of declarative knowledge to procedural knowledge, so thinking will differ depending on the level of a person’s skill and the demands of a particular task.

According to Hudson, there are two different styles of thinking—convergent and divergent. They are as follows:

1. **Convergent thinking:** Convergent thinking is problem-bound and is focussed on the limitations of the problem. It occurs when the individual has a tendency to work towards on a single right answer. It often involves some degree of functional fixedness where the person trying
Critical and Creative Thinking

(i) Convergent thinking: This is the way of thinking that solves a problem. The individual looks for one single right answer by using their past experiences and the knowledge they have gained. For example, if asked to think up as many uses as possible for a brick then the convergent thinker will tend to stay within the boundaries of the functions normally associated with a brick, such as building and construction.

(ii) Divergent thinking: This is the opposite of convergent thinking, it is not problem bound and does not focus on one single right answer. It is where the individual will move towards a more novel and original line of thought that might yield any number of possible solutions to a problem. For example, if a divergent thinker was asked to think up as many uses as possible for a brick they would be likely to come up with hundreds of possibilities, very few of which would conform with the usual uses (e.g., making a sandwich).

4.2.2 Attributes of Good Thinkers

Some of the attributes of good thinkers are as follows:
- Inquisitiveness with regard to a wide range of issues
- Concern to become and remain well-informed
- Attentive to opportunities to use critical thinking
- Self-confidence in one’s own abilities to reason
- Open-mindedness regarding divergent world views
- Flexibility in considering alternatives and opinions
- Alertness to likely future events in order to anticipate their consequences
- Understanding of the opinions of other people
- Fair-mindedness in appraising reasoning
- Honesty in facing one’s own biases, prejudices, stereotypes, or egocentric tendencies
- Prudence in suspending, making or altering judgments
- Willingness to reconsider and revise views where honest reflection suggests that change is warranted

4.2.3 A Programme for Teaching Thinking

There are a number of different approaches or terms within this broad heading for teacher thinking:
- Experiential learning
- Co-operative learning
- Adventure learning and
- Apprenticeship
Experiential learning

Experiential learning refers to the process of learning by doing. In this process a student learns by gaining experiences in nature. Experiences are the key roots towards the process of learning. They help retain knowledge in the mind of the child for a longer period of time. Experiences help in moulding the actions of the child in a proper way. Experiences enable the child to know the reality of nature. Without experiences, a child cannot understand and bring the knowledge into action. Therefore, in order to mould the thinking process of the teachers it is necessary for them to have a real classroom experience. Other factors which are responsible for experiential learning are as follows:

1. Family environment/family background of teachers
2. Discipline
3. Socio-economic background of the learners and teachers
4. Classroom environment
5. Classroom management style

Co-operative learning

It is an educational approach which aims to organize classroom activities into academic and social learning experiences. It aims to co-operate the students to improve the understanding of the subjects. The teachers learn to cooperate with the students and understand them in a proper way. Teachers also understand that cooperative learning helps in developing their own thinking habits and learn together with the students in a proper way.

Adventure learning

Adventure learning is an approach to instructional design that actively engages teachers and students together in an authentic, mentally and physically challenging tasks. It involves a specific learning cycle that begins with securing equipment and ends in a debriefing process through which you and your students reflect upon the experience. It helps the teacher and students to gain meaning experience. Therefore, it is a form of experiential learning.

Apprenticeship

Apprenticeship is a combination of on-the-job training and classroom training, wherein learners earn while learning the skills required for performing the specialized job. Generally, the apprenticeship training is given to the technical staff such as mechanics, electricians, craftsmen, welders, etc. who work under the experts of each field for a longer period. The apprenticeship training program lasts for 4-5 years until the worker becomes an expert in his field. This program helps in providing support to the teachers.
4.3 CREATIVE THINKING: DEFINITION AND PROCESS OF CREATIVE THINKING

In 1980, Guilford stated, “Of all the qualities that man possesses, those that contribute to his creative thinking have been most important for his well-being and his advancement.” Creativity is a very precious and unique quality in an individual that enables him to solve complicated problems in different walks of life. Newton propounded his theory of gravitation and laws of motion at a very young age. The genius of Galileo and Einstein was recognized at their young age. Therefore, the gift of creativity needs to be nurtured right from childhood and should be continued throughout adulthood.

As an eminent personality observed, “In every underdeveloped country, potential Einstein and Newton are herding cattle or breaking stones.” There is a great deal of truth in this statement as it indicates how human resources remain uncultivated in most of the developing or underdeveloped countries. The progress and prosperity of a nation depends on the development of creative potential of its people.

Torrance said, “Society is downright savage towards creative thinkers especially when they are young.” Suppression of the creativity of a child means learning disabilities, behaviour problems, dropouts and mental conflicts and above all, a loss to mankind.

Definition and Meaning of Creativity

Some of the important definitions given below illustrate the meaning of creativity:

1. According to J E Drevdahl, “Creativity is the capacity of a person to produce compositions, products or ideas which are essentially new or novel and previously unknown to the producer.”

2. According to Jung, “Creative people are either perceivers or judges. Mathematicians and scientists are most commonly judges while writers are perceivers. Perception is again either sense perception or intuitive perception. Most of the people are perceptive while very creative people are intuitive.”

3. C E Skinner wrote, “Creative thinking means that the predictions and/or inferences for the individual are new, original, ingenious and unusual. The creative thinker is one who explores new areas and makes new observation, new predictions, new inferences.”

4. R Stagner and T F Karwoski stated, “Creativity implies the production of a ‘totally or partially’ novel identity.”

5. Torrence defined creativity as “A process of becoming sensitive to problems, deficiencies, gaps of knowledge, missing elements, disharmonies and so on, identifying the difficulties, searching for solutions, making guesses or
formulating hypotheses about the deficiencies, testing and retesting hypotheses and possibly modifying and retesting them and finally communicating results.”

6. Weisberg and Springer defined the creative mind as, “One in which a problem stimulus easily evolves material from various experimental areas.”

7. R C Wilson, J P Guilford and P R Christensen defined creativity as, “The creative process is any process by which something new is produced—an idea or an object including a new form of arrangement of old elements. The new creation must contribute to the solution of some problems.”

8. According to Zbigniew Pietrasinski, a Russian psychologist, “Creativity is an activity resulting in new products of a definite social value.”

**Evaluation of Definitions of Creativity**

Definitions of creativity fall under four categories.

1. The person who creates.
2. Mental processes asserting within the person who creates.
3. Cultural and environmental factors working on the creator.
4. Products of creativity, i.e., poems, paintings, theories and inventions.

A workable definition of creativity could be: Creativity is the ability or the capacity of a person to discover and explore new areas to create or produce a new idea, or theory or object including the re-arrangement or reshaping of what already exists.

**Creativity and Divergent Thinking**

According to Guilford (1959), creative thinking means divergent thinking and uncreative thinking means convergent thinking. An example will make it clear.

Suppose the teacher is teaching about forests. He may ask the students about the various benefits that we derive from forests. Here divergent thinking will be required. The teacher is not asking about any particular advantage but a variety of advantages. The students may think about a number of benefits.

In a lesson prepared for elementary classes, a child may be asked to perform different roles at different times i.e., role of a dwarf, role of a giant, role of a king, etc. All this would provide him with a scope to enhance his creativity.

The following representation will make clear the distinction between divergent thinking and convergent thinking.
Creativity and Intelligence

J P Guilford clearly distinguished between the intellectual operations of ‘divergent thinking’ (creative process) and ‘convergent thinking’ (which represents intelligence). According to him, every intelligent person may not be creative but a very high percentage of creative people possess a great degree of intelligence.

A large number of co-relational studies undertaken indicated that intelligence and creativity go hand in hand up to a certain limit and get separated after that limit. However, it is wrong to suppose that intelligence and creativity are two independent variables or that one always develops at the cost of other.

The findings suggest that while intelligence and creativity are positively correlated, the relation between the two is not entirely linear.

Difference in Achievement and Home Backgrounds of the Highly Intelligent and Highly Creative Students: Investigations by Gatzels Jackson on students of a private school in Chicago revealed that the two groups of children, i.e., the creative and the intelligent were equally superior in academic performance as measured by standard achievement tests. Highly creative students tended to come from somewhat less well-educated homes and experienced greater independence from their mothers.

The essence of these differences may be summed up in one sentence. “The adolescent with high IQ may be seen as preferring the anxieties and delights of safety, and those with high creativity as preferring the anxieties and delights of growth.”

Creativity and Age

Lehman concluded on the basis of his studies that although some outstanding creative accomplishments appear at advanced ages, superior creativity generally rises rapidly to its highest or peak points in the thirties and declines slowly afterwards. Lehman also pointed out that apart from age there are numerous social, emotional and physical factors that retard creativity.
Creativity and Mental Abilities: Guilford mentioned the following mental abilities:

1. Fluency (the ability to produce large ideas).
2. Flexibility (the ability to produce a variety of ideas or approaches).
3. Originality (the ability to produce uncommon responses).
4. Redefinition (the ability to define or perceive in a way that is different from the usual).
5. Sensitivity to problems (the ability to evaluate implications).

Theories of Creativity

1. Creativity as Divine Inspiration: According to Plato, a creative writer is an agent of a super-power.
2. Creativity as Madness: Creativity is sometimes taken to be a sort of 'emotional purgative' that kept a man insane. Van Gough, the great master painter was said to be half-mad. Freud stated, "A neurotic is an artist san art."
3. Creativity and Intuitive Genius: According to this viewpoint, a creative person intuits directly and immediately.
4. Creativity as Association: It is said that new ideas are manufactured from the older ones. Hence, more association leads to more ideas and more creativity.
5. Gestalt Theory and Creativity: Restructuring patterns or gestalts that are structurally deficient is called creativity.
6. Psychoanalysis and Creativity: According to Freud, creativity originates in a conflict within the unconscious mind. Creativity is a tension-reducing process.

Creative Process

Wilson, Guilford and Christensen observed that creative process is any process which produces something new—an object or an idea including a new form or arrangement of old elements. The new creation must contribute to the solution of some problem.

Torrance was of the view that the process of creativity is similar to the steps in scientific method. The central element of both is the production of something new.

Nature and Characteristics of Creativity

1. Creativity is the resultant of some interaction.
2. Creativity is the ability to synthesize ideas or objects.
3. Creativity is the ability to create new ideas, theories or objects.
4. Creativity is the ability to develop something original.
5. Creativity has several dimensions.
6. Creativity is a process as well as a product.
7. Creativity is a complex, dynamic and serious process.
8. Creativity knows no special medium, place, person or time.
9. Creativity is the capacity to accept challenges.
10. Creativity is the freedom to exercise choice.
11. Creativity is the readiness to change self and environment.

Creativity to Different Professions is Different

- To the artist, creativity is the ability to evoke an emotional mood.
- To the architect, creativity is the ability to evolve new approaches, forms and new materials.
- To the scientist, creativity is the ability to explore new way of extending knowledge.
- To the teacher, creativity is the ability to discover and apply dynamic methods of teaching-learning.
- To the student, creativity is the ability to use words and phrases in new situations, to solve sums speedily, to prepare new types of charts and projects, to write essays and stories depicting new ideas and so on.

Characteristics of a Creative Personality

Torrence compiled a list of 84 characteristics describing the traits of a creative personality. Some of these are:

1. Adventurous.
2. Curious by nature.
3. Desirous to excel.
4. Flexible in his thinking, feeling and doing.
5. Intuitive.
6. Keen to explore and invent.
7. Non-conformist.
8. Self-disciplined.
10. Willing to take risk.

Creative children are constantly probing, discovering, imagining, fantasizing, asking questions, guessing and wondering. Therefore, they should be encouraged to ask unusual questions, to explore new ways of thinking, to try novel approaches
Critical and Creative Thinking

4.3.1 Helping Children to be More Creative

School is, in fact, the proper place where an organized effort should be made to develop the basic foundations for creativity in children. Deliberate attempts need to be made to develop an environment of creativity among them. Some methods useful in promoting creativity are:

I. Identification of the Creative Child: Both test and non-test techniques can be used to identify the creative child. Guilford and Merrifield developed test techniques that measured fluency, flexibility, originality, redefinition and sensitivity to problems.

Getzels and Jackson, on the other hand, used five different measures of creativity in their research.

(a) Word-Association Tests — Students are required to give as many definitions and number of different categories into which they could be placed.

(b) Uses of Things Tests — A student is asked to give as many uses as he can for a common object.

(c) Hidden Shapes Tests — A student is required to find more complex form of figures and shapes on cards, presented to him in a simple form.

(d) Three Different Endings — A student is required to suggest three different endings to incomplete short fables.

(e) Make-up Problems — A student is required to make-up or form as many mathematical problems he can on the basis of information given in a complex paragraph.

Besides these, the Minnesota tests of creative thinking comprising non-verbal tasks like picture construction, creative design, circles and squares, etc. and Torrence’s check-list comprising 84 characteristics for identifying the creative children, are also very helpful.

II. Factors in the School that Hinder Creativity: The present curriculum and methods of teaching are rigid and tradition bound. The current educational system largely encourages acquisition of knowledge and lays emphasis on rote memory. It rarely calls upon children to think and use their creativity. Most of the school activities and curriculum are usually teacher-centred.

III. Strategies for Developing Creativity: It is often said that creativity needs to be identified, energized and guided almost from birth. Research findings suggest that the development of creativity cannot be left to chance. Creativity is likely to flourish in an environment which values independent and free thinking.
IV. Types of Programmes for the Education of Creative Children:

Following are the programmes for educating and guiding creative children.

(a) Identification of the creative children in the school.

(b) Formulation of general and specific goals for guiding creative talent.

(c) Providing appropriate learning environment.

(d) Stimulating creativity among those children who do not apparently show it.

V. Providing Creative Learning Environment and Experiences in the Classroom:

The teachers should follow the given guidelines to promote creativity in children.

(i) Inspire the students to learn to disagree constructively.

(ii) Inspire the students to emulate creative persons.

(iii) Provide for exciting experiences to the students.

(iv) Provide a safe, permissive and warm environment.

(v) Develop student’s ideas through constructive criticism and through referral to competent authorities.

(vi) Provide necessary guidance and counselling for developing motivation and overcoming emotional fears.

(vii) Allow the students ask unusual questions.

(viii) Appreciate imaginative and unusual ideas of the students.

(ix) Assure students that their ideas have values.

(x) Evoke originality in thinking.

(xi) Provide opportunities to students for self-initiated learning.

(xii) Provide materials which develop imagination of the students.

(xiii) Ask challenging and thoughtful questions.

(xiv) Rewards rather than punishment helps to increase creativity in students or children.

(xv) Shower love on them and let them know it.

(xvi) Provide activities like drama, dance, music, etc.

(xvii) Encourage debates, discussions, quiz, etc.

(xviii) Show wit and humour in the class.

(xix) Encourage them to do intensive and extensive reading.

(xx) Arrange lectures of creative personalities.

(xxi) Encourage students for self-evaluation.

(xxii) Follow gaming technique.

(xxiii) Follow brainstorming strategies.
Brain Storming as a Strategy for Developing Creativity

It is a technique which emphasizes the importance of divergent thinking. It involves generating ideas in response to some problem in a group. It allows children to attack and solve a problem without any inhibition or restriction. Literally speaking, it is ‘storming’ a problem by a number of possible ideas and solutions.

To start with, students may be provided with a focus, i.e., a particular problem like ‘Students’ Self-government in the School’, ‘Checking Late Coming’, ‘Improvement in the Examination System’, ‘Organizing the Annual Function’, etc. Thereafter, students are asked to suggest ideas. In this context, following guidelines need to be kept in view:

(i) Students are encouraged to suggest as many ideas as possible; however, unusual these might be.
(ii) Students are allowed to express their ideas freely.
(iii) Students’ ideas should not be criticized.
(iv) Students may be encouraged to build new ideas on the basis of ideas already suggested by the fellow students.
(v) Main points of all the ideas should be written on the blackboard.
(vi) In the end, attempts should be made to find out a meaningful solution.

Role of Home in the Promotion of Creativity

The home environment greatly influences the creativity aspect. Neither too much love nor too much fear promote creativity in children. Students should be permitted to ask questions freely. They should be provided with stimulating learning material. Appropriate toys and reading material may be made available to children.

4.4 CRITICAL THINKING AND ITS COMPONENTS

Critical thinking is the creative application of creative inquiry in problem solving. Critical thinking is a process of application of logic and inquiry in order to attain the desired objectives. Critical thinking involves the following components:

1. Perception
2. Assumptions
3. Emotions
4. Language
5. Argument
6. Fallacy
7. Logic
8. Inquiry
Critical thinking methods help in analysis-synthesis of problem with the help of a teacher. This method also helps in finding the solution of the problem. The process of critical thinking is self-directed, self-motivated, self-disciplined and self-monitored process. It helps in providing the solutions to the current problem. It provides evidence through reality. It is more of a negative process, as it tears down the ideas and inserts nothing in their place. However, it is also a positive process that is able to put things in a more realistic perspective. The process of critical thinking encompasses specific elements/components:

1. **Perception**
   
   It involves the process through which individuals receive, interpret and translate the experiences. The way an individual perceive things defines the way in which they tend to think.

2. **Assumptions**
   
   Assumptions are one of the important components of critical thinking. They tend to be implied, however, many times individuals unconsciously believe them. Assumptions are not always bad and often rest on the notion that the ideas are not conscious. Assumptions make the individuals to adjust with their belief system, thereby shutting out any alternatives.

3. **Emotions**
   
   Emotions are the building block of every individual’s personality. They help in building up the mental state of an individual, thereby regulating the nervous system. Emotion is thus a positive or a negative experience associated with a particular pattern of physiological activity. Emotions are responsible for the production of different physiological, behavioural and cognitive changes. They thus form the major component in development of creative thinking.

4. **Language**
   
   Language is a major device that is used as a tool of communication between individuals. It is regarded as one of the primary methodologies for the development of culture in a society. Language is important to critical thinking because of its close relationship with culture. According to Piaget, thought comes before language, which is one of the form of expression.

5. **Argument**
   
   In everyday life, people often use argument to mean a quarrel between people. But in logic and critical thinking, an argument is a list of statements, one of which is...
the conclusion and the others are the premises or assumptions of the argument. Arguments can also be used to support other people’s viewpoints.

6. Fallacy

When we form arguments or examine others’ arguments, we need to be cognizant of possible fallacies. A fallacy can be defined as a flaw or error in reasoning. At its most basic, a logical fallacy refers to a defect in the reasoning of an argument that causes the conclusion(s) to be invalid, unsound, or weak.

7. Logic

Critical thinking is a process of evaluation which uses logic to separate truth from falsehood, reasonable from unreasonable beliefs. If you want to better evaluate the various claims, ideas, and arguments you encounter, you need a better understanding of basic logic and the process of critical thinking.

4.4.1 Socratic Questioning to Enhance Critical Thinking

One of the reasons that instructors tend to overemphasize ‘coverage’ over ‘engaged thinking’ is that they do not fully appreciate the role of questions in teaching content. Consequently, they assume that answers can be taught separate from questions. Indeed, so buried are questions in established instruction that the fact that all assertions all statements that this or that is so are implicit answers to questions is virtually never recognized. For example, the statement that water boils at 100 degrees centigrade is an answer to the question “At what temperature centigrade does water boil?”

Hence every declarative statement in the textbook is an answer to a question. Hence, every textbook could be rewritten in the interrogative mode by translating every statement into a question. To our knowledge this has never been done. That it has not is testimony to the privileged status of answers over questions in instruction and the misunderstanding of teachers about the significance of questions in the learning (and thinking) process. Instruction at all levels now keeps most questions buried in a torrent of obscured “answers.”

But thinking is not driven by answers but by questions. Had no questions been asked by those who laid the foundation for a field — for example, Physics or Biology — the field would never have been developed in the first place. In fact, every intellectual field is born out of a cluster of questions to which answers are either needed or highly desirable. Furthermore, every field stays alive only to the extent that fresh questions are generated and taken seriously as the driving force in a process of thinking. To think through or rethink anything, one must ask questions that stimulate thought.

Questions define tasks, express problems and delineate issues. Answers on the other hand, often signal a full stop in thought. Only when an answer generates a further question does thought continue its life as such. This is why it is true that only students who have questions are really thinking and learning. Moreover, the
quality of the questions students ask determines the quality of the thinking they are doing. It is possible to give students an examination on any subject by just asking them to list all of the questions that they have about a subject, including all questions generated by their first list of questions. That we do not test students by asking them to list questions and explain their significance is again evidence of the privileged status we give to answers isolated from questions. That is, we ask questions only to get thought-stopping answers, not to generate further questions.

**Check Your Progress**

1. What is the associationist approach to thinking?
2. What is the creative process?
3. What does perception involve?

### 4.5 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Associationist approach to thinking suggests that the thinking involves the reproduction of previously learned responses.
2. Wilson, Guilford and Christensen observed that creative process is any process which produces something new—an object or an idea including a new form or arrangement of old elements. The new creation must contribute to the solution of some problem.
3. Perception involves the process through which individuals receive, interpret and translate the experiences.

### 4.6 SUMMARY

- Thinking critically is not just about thinking clearly or rationally, it is about thinking independently.
- Thinking is manipulating information as when we form concept, solve problem, think critically reason and make decision.
- According to Hudson, there are two different styles of thinking—convergent and divergent.
- There are a number of different approaches or terms within this broad heading for teacher thinking:
  - Experiential learning
    - Co-operative learning
    - Adventure learning and
    - Apprenticeship
According to J.E. Drevdahl, “Creativity is the capacity of a person to produce compositions, products or ideas which are essentially new or novel and previously unknown to the producer.”

Torrance was of the view that the process of creativity is similar to the steps in scientific method. The central element of both is the production of something new.

The home environment greatly influences the creativity aspect. Neither too much love nor too much fear promote creativity in children. Students should be permitted to ask questions freely.

Critical thinking is the creative application of creative inquiry in problem solving. Critical thinking is a process of application of logic and inquiry in order to attain the desired objectives.

But thinking is not driven by answers but by questions. Had no questions been asked by those who laid the foundation for a field — for example, Physics or Biology — the field would never have been developed in the first place.

4.7 KEY WORDS

- **Perception**: It is the ability to see, hear, or become aware of something through the senses.
- **Brainstorming**: It is a group creativity technique by which efforts are made to find a conclusion for a specific problem by gathering a list of ideas spontaneously contributed by its members.
- **Fallacy**: It means a mistaken belief, especially one based on unsound arguments.

4.8 SELF ASSESSMENT QUESTIONS AND EXERCISES

**Short Answer Questions**
1. Why is it important to teach children to think critically?
2. What are the two styles of thinking?
3. List some of the attributes of good thinkers.

**Long Answer Questions**
1. Differentiate between divergent and convergent thinking.
2. Describe the different approaches of teacher thinking.
3. Discuss what can be done to make children more creative.
4.9 FURTHER READINGS


5.0 INTRODUCTION

In the previous unit, you learnt about critical and creative thinking. Here, the discussion will turn towards motivation and learning.

Motivation is a force that drives humans for achieving their targets. Motivation is said to be internal or external. Initially, it was used with reference to human beings, but now it can also be related to animal behaviour. On the other hand, learning implies acquiring new or modifying existing knowledge, behaviour, skills, values or preferences and may involve synthesizing different types of information. Before examining the relationship between motivation and learning, we will examine the concept of emotion.

5.1 OBJECTIVES

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

- Discuss the concept of emotion
- Examine the relationship between motivation and learning
- Explain value theory

5.2 SOME THOUGHTS ON EMOTION

Emotions play an important role in life and contribute to the personal and social development of an individual. Continuous emotional disturbance affects the individual’s growth and development and gives rise to mental, physical, social and
other problems. It also tends to hamper intellectual training. On the other hand, an emotionally stable individual leads a happy, healthy and peaceful life. He is at ease with himself, his surroundings and other fellow beings. Therefore, the development of emotions is extremely important for the harmonious development of the personality of an individual. Emotions influence all the aspects of an individual’s personality. Proper training and education will go a long way to enable the young people to control their emotions and obtain mental balance and stability. Emotions are the prime motive forces of thought and conduct and their control is very important. It is often said, ‘To keep one’s emotions under control and be able to conceal them is considered a mark of strong character’.

Child A is a **happy** child.
Child B gets **angry** over small things.
Child C always looks **sad**.
Child D is very **jealous** of his younger brother.
All these children show signs of expressing emotions.

**Meaning of Emotions**

Etymologically the word emotion is derived from the Latin word *Emovere* which means to *stir up, to agitate* or to excite. RS Woodworth (1945), by making use of this explanation has defined emotion in this way, ‘Emotion is a moved or stirred up state of an organism. It is a stirred up state of feeling, that is, the way it appears to the individual himself. It is a disturbed muscular and glandular activity—that is the way it appears to an external observer’.

According to Crow and Crow (1973), an emotion ‘is an effective experience that accompanies generalized inner adjustment and mental and psychological stirred up states in the individual, and that shows itself in his own behaviour’.

William McDougall (1949) says, ‘An instinct is an inherited or innate psycho-physical disposition which determines its possessor to perceive and to pay attention to, objects of a certain class, to experience an emotional excitement of a particular quality upon perceiving such an object, and to act in regard to it in a particular manner, or, at least, to experience an impulse to such an action’. This statement gives us the nature of emotions as well. According to McDougall, an instinctive behaviour has three aspects:

(i) Cognitive or knowing or the perceptual aspect.
(ii) Affection or feeling or emotional effects.
(iii) Conative or doing or striving or executive, active or the behavioural aspect.

Let us take an example. A child sees a bull coming towards him. He experiences an instinctive fear and undergoes the above three processes. Firstly, he perceives the bull, secondly he experiences an emotion of fear and thirdly he tries to run away. It is, therefore concluded that an emotion is an affective experience.
McDougall discovered 14 basic instincts and pointed out that each and every emotion, whatever may be, is the product of some instinctive behaviour.

The instincts with their associated emotions are listed alphabetically as under:

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<thead>
<tr>
<th>No.</th>
<th>Instinct</th>
<th>Emotion Accompanying an Instinct</th>
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<tbody>
<tr>
<td>1.</td>
<td>Acquisition</td>
<td>Feeling of ownership</td>
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<td>2.</td>
<td>Appeal</td>
<td>Distress</td>
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<td>3.</td>
<td>Construction</td>
<td>Feeling of creativeness</td>
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<td>4.</td>
<td>Curiosity</td>
<td>Wonder</td>
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<td>5.</td>
<td>Flight or Escape</td>
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<td>6.</td>
<td>Food seeking</td>
<td>Appetite</td>
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<td>7.</td>
<td>Gregariousness</td>
<td>Feeling of loneliness</td>
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<td>8.</td>
<td>Laughter</td>
<td>Amusement</td>
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<td>9.</td>
<td>Parental</td>
<td>Tenderness, Love</td>
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<td>10.</td>
<td>Pugnacity or Combat</td>
<td>Anger</td>
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<td>11.</td>
<td>Repulsion</td>
<td>Disgust</td>
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<td>12.</td>
<td>Self-assertion</td>
<td>Positive feeling or elation</td>
</tr>
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<td>13.</td>
<td>Sex, Mating</td>
<td>Lust</td>
</tr>
<tr>
<td>14.</td>
<td>Submission</td>
<td>Negative feeling</td>
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Kimball Young notes, ‘Emotion is the aroused psychological state of the organism marked by increased bodily activity and strong feelings directed to some subject’.

**Chief Characteristics of Emotions**

There are several characteristics associated with humans and emotions. Some of these important ones are given below:

1. Emotional experiences are associated with some instincts or biological drives.
2. Emotions, in general, are the product of perception.
3. The core of an emotion is feeling that which is essentially linked with some sort of urge or impulsive act to do. There is only a difference of degree between feeling and emotion.
4. Every emotional experience involves several physical and psychological changes in the organism. Some of these changes, like bulge of the eyes, flush of the face, flow of tears, pulse rate, are easily observable. Also, there are internal physiological changes like circulation of blood, impact on the digestive system and changes in the functioning of some glands.
5. Emotions are frequent.
6. Emotions are expressed in relation to concrete objects or situations.
7. Emotions are temporary.
8. Emotional expressions in early childhood are intense irrespective of the intensity of the stimulus.
9. Small children fail to hide their emotions and express them indirectly through different activities like crying, nail-biting, thumb-sucking and speech difficulties.
10. Emotions are prevalent in every living organism.
11. Emotions are present at all stages of development and can be aroused in young as well as in old people.
12. Emotions differ from person to person.
13. The same emotion can be aroused by a number of different stimuli—objects or situations.
14. Emotions rise abruptly but die slowly.
15. Emotions are subject to displacement. The anger aroused on account of one stimuli gets transferred to other situations. The anger caused by the rebuking of the officer to his subordinate may be transferred in beating of his children at home.
16. One emotion may give rise to a number of likewise emotions.

Effects of Emotions on the Developing Individual

Given below are the important effects of emotions on the developing individual:

1. Emotions provide energy to an individual to face a particular situation.
2. Emotions work as motivators of our behaviour.
3. Emotions influence our adjustment in the society.
4. Highly emotional conditions disturb the mental equilibrium of an individual.
5. Highly emotional conditions disturb the reasoning and thinking of an individual.

5.3 MOTIVATION AND LEARNING

Motivation is the very heart of the learning process. Adequate motivation not only sets in motion the activity which results in learning, but also sustains and directs it. It has been stated, “Motivation arouses interest. Interest is the mother of attention and attention is the mother of learning. Thus to secure learning you must first catch the mother, grandmother and great grand-mother.” Motivation is an indispensable technique for learning. It energizes and accelerates the behaviour of learner. Desirable changes in learner’s behaviour are only possible when a learner is properly motivated. No learning is possible without motivation.
The word motivation has been derived from the Latin word *movers* which means to move. Motivation is an internal force which accelerates a response or behaviour. Some learners learn the same subject-matter or task more efficiently than others, some find it more rewarding and interesting than others; and some enjoy it more than others. At any given time learners vary in the extent to which they are willing to direct their energies to the attainment of goals, due to difference in motivation.

Tremendous research has been conducted on motivation in the last five decades and a number of definitions and theories have been given to explain motivation. K B Madson (1975) in his book, *Theory of Motivation* has given twenty-four definitions and theories of motivations which provide different explanations of learning and human behaviour. Some of the important definitions are given here for having an adequate understanding of the term motivation.

2. *G M Blair and Others* (1947)— “Motivation is a process in which the learner’s internal energies or needs are directed towards various goal objects in his environment.”
3. *J P Guilford* (1950)— “A motive is any particular internal factor of condition that tends to initiate and sustain activity.”
4. *A H Maslow* (1954)— “The self-actualization tendency is growth motivation. Self-actualization is the development of personality which frees the person from the deficiency problems of growth. Motivation is constant, never ending, fluctuating and complex and that it is an almost universal characteristic of particularly every organismic state of affairs.”
5. *W A Kelly* (1955)— “Motivation is the central factor in the effective management of the process of learning. Some type of motivation must be present in all learning.”
6. *L D Crow and A Crow* (1962)— “Motivation is considered with the arousal of the interest in learning and to that extent is basic to learning.”
8. *H W Bernard* (1965)— “Motivation is the stimulation of actions towards a particular objective where previously there was little or no attraction to that goal.”
9. *T W Atkinson* (1966)— “The term motivation refers to the arousal of tendency to act to produce one or more effects.”
10. *F G McDonald* (1972)— “Motivation is an energy change within the person characterized by affective arousal and anticipatory goal relations.”
NOTES

11. C W Good (1973)—“Motivation is the process of arousing, sustaining and regulating activity.”

12. D O Hebb (1975)—“The term motivation refers (i) to existence of an organized phase sequence (ii) to its direction and content (iii) to its persistence in given direction or stability of content.”

13. Bernard (1980)—“Motivation is the stimulation of actions towards a particular objective where previously there was little or no attraction to that goal.”

14. Arun Monappa and Mirza S Saiyadain (1985)—“Motivation is propensiy or the level of desire of an individual to behave in a certain manner at a certain time and in a certain situation.”

Characteristics and Functions of Motivation

1. Motivation is arousing interest in learning.
2. Motivation is sustaining interest in learning.
3. Motivation is directing behaviour.
6. Motivation arouses, sustains and directs behaviour.
7. Motivation stimulates learning activity.
8. Motivation is the arousal of tendency to act and produce result.
9. Motivation is directed to a selective goal.
10. Motivation provides the energy and accelerates the behaviour of the learner.
11. Motivation releases the tension and helps in satisfying the needs of the learner.
12. Motivation is the internal condition or factor of learning.

Terminology of Motivation

Following terms are usually used:

1. Motive—According to McDougall, “Motives are conditions—psychological and physiological within the organism that dispose it to act in certain ways.”
2. Drive—According to Boring, “A drive is an intra-organic activity which initiates for specific activity and behaviour.”
3. Incentive—Incentive is an object or external condition perceived as capable of satisfying an aroused motive that tends to elicit action to attain that object of condition.
4. Interest—According to Bingham, “An interest is tendency to become absorbed in an experience and to continue it.”
5. Curiosity—Curiosity implies the tendency to investigate and seek to learn more about new objects with which there was no previous experience.
6. **Goal**—It is the end result immediate or remote which the individual seeks.

7. **Arouser**—According to Donald Hebb, “Arousal is an energizer of an organism.”

8. **Expectancy**—It is a momentary belief that a particular outcome will follow a particular act.

**Motivation, Hierarchical Needs and Educational Implications**

A Maslov (1954) suggested a hierarchical set of five basic needs which must be satisfied to reach the highest level of motivation. These needs are:

(i) **Physiological**
(ii) **Safety**
(iii) **Love and Belongingness**
(iv) **Self-esteem**
(v) **Self-actualization.**

![Motivational Cycle: Needs—Wants—Satisfaction Chain](image)

**Fig. 5.1** Motivational Cycle: Needs—Wants—Satisfaction Chain

![A Schematic Representation of Maslow’s Hierarchy of Motivation](image)

**Fig. 5.2** A Schematic Representation of Maslow’s Hierarchy of Motivation.

Higher needs can be satisfied only after the lower needs are satisfied.

(i) **Physiological Needs.** These needs are like hunger, thirst, etc., and serve the function of the maintenance of the organism. A severe deprivation of food, for example, can deprive the child of various opportunities of his intellectual and other developments.
(ii) Safety Needs. Children want to have a safe environment. If the safety needs are not satisfied, the child feels a sense of insecurity and develops mistrust.

(iii) Love and Belonging Needs. When the child has his sense of security and trust, he develops affectionate relationships with other people (parents, peers and teachers, etc.) and has the desire to belong to a wider group. Children need affection from all quarters.

(iv) Self-esteem. The child at this level is able to function well in interpersonal situations. He develops the desire for achievement and competence, for independence and freedom, for reputation and prestige.

(v) Self-actualization. This is the highest level of motivational goals. It refers to a child’s desire for self-fulfilment, to realize his potentialities. This has a special significance at the adolescence stage.

5.3.1 Motivating Students to Learn

Students in the classroom learning need constant motivation from the teachers so that optimum use of their talents may be made for their development. The needs are the basis of motivation. Therefore, techniques that the teachers employ to arouse and maintain motivation will be successful only insofar as they make them perceive that progress is being made towards need-satisfaction. Since individual children differ in regard to their specific needs according to their personality patterns and socio-economic background, the teachers will have to vary their motivational techniques and employ them judiciously. In other words, every individual pupil should be led towards goal that he is aware of and will want to attain. Secondly, goals should be within each pupil’s reach, and should seem attainable to him. Thirdly, he should be able to judge whether or not he is attaining his goals and how he is falling short. Fourthly, a teacher should not rigidly and strictly adhere to one technique of motivation but he should make use of all techniques judiciously and scientifically.

1. Attractive Physical and Environmental Conditions. First of all the teacher should attend to the physical conditions of the classroom. There should be no distracting factors in and around the classroom. Noise, strong light and some undesirable scenes often distract the attention and do away with the interest. Abnormal temperature is also a disturbing element. Monotony creates boredom. The rooms should be ventilated and tastefully decorated. There must be flowery plants in the school compound. Cleanliness should be stressed adequately.

2. Sublimation of Innate Impulses. Most of the behaviour of small children is directed by their innate impulses. Curiosity, construction, self-assertion, submission, pugnacity and hoarding are some of their most powerful drives which form the basis of all kinds of their activities. Small children are very curious by nature. They like to do many things. Every new and strange
things attract them. An efficient teacher will stimulate the impulse of curiosity. He will always start the lesson by exhibiting some very new and strange aspect of the same. Similarly, children like to construct things. The teacher should encourage the children to learn by constructing and creating things.

(3) **Stimulus Variation and the Teacher:** It has been generally observed that children are not able to attend to one thing for a very long period. The effectiveness of the teaching–learning process in such a situation depends to a great extent on the stimulus variations used by the teacher behaviour. Some of the common teacher behaviours in the classroom which fall under variation are:

(i) Teacher movement
(ii) Teacher gestures
(iii) Changes in speech pattern
(iv) Changes in sensory focus
(v) Changes in posture.

(4) **Reinforcement (Praise and Blame):** “Praise, like gold and diamonds, owes its value to scarcity”, writes Robinson Johnson. It implies that this technique should be employed with great care. These may be classified as:

(i) **Positive verbal reinforcement:** Following a pupil’s answer, the teacher verbally indicates pleasure at the pupil’s response by the use of words like ‘Good’, ‘Fair’, ‘Excellent’, ‘Correct’, etc.

(ii) **Positive non-verbal reinforcement:** This includes
   (a) Teacher’s nods and smiles.
   (b) Teacher’s friendly movements towards pupils.
   (c) Teacher’s friendly look.
   (d) Teacher writing student’s response on the blackboard.

(iii) **Negative non-verbal:** This comprises gestures and facial expressions, such as those depicting impatience, annoyance, contempt, pity, sometimes by sneering, frowning, etc.

(iv) **Negative verbal:** This includes comments like ‘No’, ‘Wrong’, ‘No good’, ‘Poor’, ‘Of course not’, etc.

(5) **Extrinsic Learning Rewards and Punishment.** These are also termed as reinforcers, and the process of giving rewards and punishment is known as reinforcement. Rewards, whether material or symbolic and psychological, enhance and satisfy child’s safety, belonging and esteem needs, and as such are capable of acting as incentives. Material rewards seem to work better for poor children and symbolic rewards seem to work better for children from rich homes. Thus a reward in order to act as an incentive must be perceived by the child as of some value. As extrinsic motivator, rewards may, however, become an end in themselves, and the child may not develop...
any intrinsic impulsion to identify himself with the learning activity. Therefore the students should be helped to perceive that successful performance is more important than any extrinsic incentive like prizes, marks and certificates.

Intrinsic learning takes place when the individual is motivated without rewards, etc.

(6) **Pleasure and Pain.** According to the oldest theory of behaviour, pleasant experiences which give satisfaction are sought after and painful experiences are avoided by an individual. This theory has direct implication in classroom teaching-learning. The teacher must provide pleasant and satisfying experiences to the students so that they are motivated for further learning.

(7) **Attainable Goal.** There should be a goal to be reached in every lesson. Only then the students can endeavour to continue their efforts to a particular direction. The goal must be made clear to students.

(8) **Experience of Success.** Experience of success motivates a child to continue an activity. The teacher should, therefore, make school work, both curricular and co-curricular, sufficiently varied so that each pupil has a chance to experience success at his own level. He must ensure frequent and regular experience of success or reinforcement throughout all phases of learning, but particularly during the earlier and more difficult phases.

(9) **Competition and Co-operation.** Competition is a spur to activity. But competition on individual basis is likely to be unequal and therefore threatening to some students. Competition between groups makes it possible to spread the share of success or failure.

Co-operation too provides motivation since it provides social situation to learners when they find satisfaction of their acceptance and belonging needs.

(10) **Knowledge of Progress.** Pupil’s knowledge of their progress, of how well they are moving towards their goal is a very effective form of motivation. It also helps them put greater efforts. Individual progress charts not only inform a child as to how he is doing but also keeps the child involved in learning activity. Children are said to learn better through programmed learning because they get immediate information of success or failure.

(11) **Novelty.** The striving toward self-actualization makes pupils search for the new and the different. Field trips, excursions, dramatics, sports, literary activities, etc., satisfy the pupil’s needs for self-actualization by providing them opportunities. But their safety needs require that they should know beforehand when and how the new experiences will be provided.

(12) **Individual Differences of the Children.** Children have different interests and capabilities. All the children cannot be motivated alike for all the lessons at all time. It is the duty of the teacher to discover individual interests and capabilities of the children in his charge to motivate them accordingly.

(13) **Teaching Skills.** Teaching skills of the teacher greatly influence motivation. It is not easy to give an exact number of teaching skills involved in motivating
students in the class. Commonly identified skills in the teaching-learning process may be listed as under:

(i) Skill in introducing the topic.
(ii) Skill in putting questions.
(iii) Skill in dealing with pupil’s answers.
(iv) Skill in stimulus variations.
(v) Skill in the use of blackboard or the chalkboard.
(vi) Skill in handling teaching aids and other equipment.
(vii) Skill in non-verbal cues.
(viii) Skill in reinforcement.
(ix) Skill in the use of illustrations and examples.
(x) Skill in the exposition of sub-matter.
(xi) Skill in explanation.
(xii) Skill in encouraging group discussion.
(xiii) Skill in planned repetition.
(xiv) Skill in drawing out conclusions from students.
(xv) Skill in teacher liveliness.
(xvi) Skill in the closure of the lesson.
(xvii) Skill in using appropriate methods of teaching.

(14) Teacher’s Own Motivation and Interest in Teaching. The teacher must be interested in what he is teaching and in the children whom he is teaching. If he is not interested in the work himself, he can never motivate the class. It may be said that a teacher who has been teaching the same subjects to the same classes for years tends to lose interest. But this is not the fact. The subject matter may be the same but the children are not the same. Even the subject matter is changing and developing. Moreover, with experience the teacher will discover new approaches and methods of teaching even the same subject matter.

Check Your Progress

1. Define emotion.
2. List three characteristics of motivation.

5.4 VALUE THEORY

When people talk about a school curriculum, they think about maths, science, social studies, and language courses. Seldom we hear or read about moral values as being part of the curriculum. The problem is that the neglect of teaching moral
values in the schools is hurting our students and causing problems in society. If a person has never learned any moral values, how is she or he able to discern the difference between right and wrong? That is basically the essence of moral values education. For example: We are learning the chapter of honesty as a value since our childhood days. We learn that success is one percent inspiration and 99 percent perspiration. However, if you see nowadays, so many students want to cheat and cut corners in their studies because they are lazy and do not place any value on hard work. This thinking needs a change. We need to look upon our values and more important is we have to understand the importance of values (honesty and hardwork). To bring a change in the society, we need to make the people aware that, for being respectable and valuable in the society we must not forget our roots as they make up our values.

As every day students are exposed to violence, dishonesty, and many other social problems in the media and the real world. How many times have we heard about school shootings? What about other times when students are caught cheating on exams? Then, too, we read about bullying in school and fights between gangs. If moral values were taught in schools, we would have fewer of these problems. It is therefore essential that the youth of a nation are equipped with the core values which are needed to live as responsible citizens in complex democratic societies.

Values are like seeds that sprout and become saplings and thus later becoming a tree that spread its branches all around. The building of value system starts with an individual who forms the basis of architecture and for the integration, the child needs security, dignity and integrity in the society as a wellbeing. For example: The individual pass the values on to the family, then to the community which is the third building block of spreading value education. There is a close relationship between the individual and the community. It plays an important role in the identity formation and determines the level of security the child enjoys. The fourth building block is the society, which is characterized by diversities of individuals, and the interests of families and communities then spreading throughout the land of the world. Values are built up in a similar fashion as the house is made, brick by brick. Therefore value education is the need of the hour and therefore it needs to be taken as a valuable investment.

Various approaches of value theory examine how, why and to what degree do the humans value things. The things include objects, materialistic things, it may also include idea, a person, or anything else. In the field of philosophy, value theory, is termed as the theory of ethics or axiology.

According to ecology, value theory is divided into two components: donor type value and receiver type value. In the field of sociology, value theory is associated with personal values which are majorly held by the social groups and associations and are deeply connected to an individual. These values, however, might change with a particular period of time depending upon the conditions. Different groups of people hold and prioritize different kinds of values that influence human behaviour.
Value education is an important subject and the method of study ranges from questionnaire surveys to participant observation. Values can also be socially attributed.

5.4.1 Valuing Task and Expecting Success

In simple terms, value based education means the part of education which provides some of the essential moral, ethical, cultural, social, spiritual values in the child which are necessary for their all-round development and prepares them to become a complete man. It builds the character of the individual and is necessary for its personality development. Example: Some of the values includes physical health, mental health, etiquettes, social behaviour, civic rights and duties etc. Every one of us is well aware about importance of these values in life of an individual yet we are unable to develop it in the children thus results in a number of behavioural and developmental problem. Next question which comes to mind is that how these values can be developed in the children? Some educationalist suggests that the moral values are developed in an individual automatically during school time, once they come in contact with the society. Value development is a continuous process during which an individual keeps on changing himself but this concept fails to explain why the adjustments made by two individuals are different in similar situation? Adjustments can be positive as well as negative, if changes are positive these could be called as values, however if the changes are negative or opportunity based then, they can be termed as only adjustment. Thus, we can say that social adjustment made or experiences that we get during the school time are not enough to inculcate values in child as two individuals never react similarly to the same situation it means that values are the thoughts which are to be introduced in.

Value education is concerned with the development of the total personality of the individual which includes: intellectual, social, emotional, aesthetic, moral and spiritual. It involves ability to choose the right values in accordance with the highest ideals of life and then making them actual in thought and action. The learner not only know the difference between right and the wrong, but also should care and feel the appropriate emotions, concern and commitment and exercise the will to do the right thing at the right moment.

Further, to ‘value educate’ is to create rational critical thinking, educate the emotions, cultivate the imagination, strengthen will and to train character of the learner. Without true value education, material education will just be a curse because, if our mind is not motivated in the right direction, we will use our knowledge for destruction only. Values are thus fundamentally social in origin as well as in their manifestation. The more complex a society becomes, the greater is the need for the operation of values.

The school is thus a very important source of value development. The students have a very crucial role to play in our society at present, as a sharp shift seems to have developed towards the ‘wrong kind’ of values among the youth. It sometimes may have to come in conflict with the family and other agencies in trying to transmit
the right kind of values to the youngsters. This is especially true in a tradition bound society like that of India, where the process of social change is fairly slow. The youth today are exposed to a set of conflicting values and are not certain about the type of values they have to choose from. Within the society itself, forces such as corruption, religious fundamentalism and separatist motives are misleading our youth. The school has to combat these forces and provide to the young alternative role models that can lead them to the right direction. If schools fail in this significant task of inculcating the right kind of values, it might be a disaster.

Value education may be imparted through direct or indirect methods.

In direct method of value education, systematic instructions are provided in fixed periods of time. However, direct method is criticized because through this method, value education is given to the children in a formal way through the medium of textbooks ignoring the fact that value education is to be inculcated in the children, children need not to memorize it and therefore it needs not to be taught in the form of a subject.

The indirect method of value education is the method in which value education is provided through the teachers in their own way to the students. Students learn from the school environment, personality of the teacher, through school environment which creates a long lasting impact on the behaviour of the student. As there are no shortcuts or cut copy paste method through which value education can be inculcated in the students. The teacher has to adopt his or her own technique to provide training of values and morality. School environment and the academic climates needs to be modified so as to provide rich experience to the students.

Keeping in view the facilities to be provided for all-round development of the child, the students should imbibe the following values and the school should provide the necessary activities and programmes to inculcate them:

1. Aesthetic Values: For the appreciation of truth, love and beauty
2. Spiritual Value: For understanding the importance of yoga and meditation.
3. Moral and Ethical Values: To understand the difference between right and wrong actions. Example: values related to self-reliance, self-control, honesty.

Check Your Progress

3. What is value theory associated with in the field of sociology?
4. What is the direct method of value education?
5.5 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. According to Crow and Crow (1973), an emotion ‘is an effective experience that accompanies generalized inner adjustment and mental and psychological stirred up states in the individual, and that shows itself in his own behaviour’.

2. Three characteristics of motivation are as follows:
   (i) Motivation is arousing interest in learning.
   (ii) Motivation is sustaining interest in learning
   (iii) Motivation is directing behaviour.

3. In the field of sociology, value theory is associated with personal values which are majorly held by the social groups and associations and are deeply connected to an individual. These values, however, might change with a particular period of time depending upon the conditions.

4. In direct method of value education, systematic instructions are provided in fixed periods of time.

5.6 SUMMARY

- Emotions play an important role in life and contribute to the personal and social development of an individual.
- Emotional experiences are associated with some instincts or biological drives. They, in general, are the product of perception.
- Motivation is the very heart of the learning process. Adequate motivation not only sets in motion the activity which results in learning, but also sustains and directs it.
- A Maslov (1954) suggested a hierarchical set of five basic needs which must be satisfied to reach the highest level of motivation. These needs are:
- Students in the classroom learning need constant motivation from the teachers so that optimum use of their talents may be made for their development.
- The problem is that the neglect of teaching moral values in the schools is hurting our students and causing problems in society.
- In simple terms, value based education means the part of education which provides some of the essential moral, ethical, cultural, social, spiritual values in the child which are necessary for their all-round development and prepares them to become a complete man.
The school is thus a very important source of value development. The students have a very crucial role to play in our society at present, as a sharp shift seems to have developed towards the “wrong kind” of values among the youth.

Value education may be imparted through direct or indirect methods.

5.7 KEY WORDS

- **Value Education**: It is the process by which people give moral values to each other.
- **Self-Esteem**: It is an individual’s subjective evaluation of their own worth.
- **Emotion**: It is a strong feeling deriving from one’s circumstances, mood, or relationships with others.

5.8 SELF ASSESSMENT QUESTIONS AND EXERCISES

**Short Answer Questions**

1. How does emotion effect the development of the individual?
2. How does one motivate students to learn in a classroom?
3. Why should we teach values to children?
4. What are the indirect methods of value education?

**Long Answer Questions**

1. Discuss the chief characteristics of emotions.
2. Motivation is the heart of the learning process. Discuss.
3. Explain Marlow’s levels of motivation.

5.9 FURTHER READINGS

UNIT 6 RESEARCH IN EDUCATIONAL PSYCHOLOGY

6.0 INTRODUCTION

Educational psychology employs various methods to improve the teaching-learning process in the classroom. It uses these methods to gather facts about the nature of children; how they learn and how they develop. It employs methods to know how any aspect of a child's personality like learning, social adjustment or skills develop from the elementary stage to a complex one. It studies how children pass through several stages of growth and development. As educational psychology is an applied branch of general psychology, it uses methods of general psychology. In this unit, you will study these methods in detail.

6.1 OBJECTIVES

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

- Discuss the importance of the methods of educational psychology
- Explain the process of introspection
- Identify the various limitations of introspection method
- Describe the steps involved in clinical approach

6.2 EXPERIMENTAL AND NON EXPERIMENTAL METHODS

With rapid use of technology in education, psychology and other social sciences, new research strategies are being evolved for conducting research.
Important methods and techniques for collecting data are as follows:

1. Introspection

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

Merits of Introspection Method

- It is the most economical method. No apparatus or laboratory is required for its use.
- This method can be used anytime and anywhere.
- It is the easiest method and is readily available to the individual.
- Introspection has generated research that gradually led to the development of more objective methods. It is still used in all experimental investigations.
- It is the only method through which an individual can know his emotions and feelings.
- William James has pointed out the importance of this method in these words, ‘Introspective observation is what we have to rely on first and foremost, and always. The word introspection need hardly be defined—it means, of course, looking into our own minds and reporting what we discover there. Everyone agrees that there we discover states of consciousness. So far as I know, the existence of such states has never been doubted by any critic, however sceptical in other respects he may have been’.

Limitations of Introspection Method

- In introspection, the mind studies its own working. But the mind cannot study itself. For example, when one is in a state of anger or fear, one is too agitated to study the working of one’s mind and when one is able to study one’s mind, the state of anger, fear, etc. disappears. It is a futile effort to expect any individual to attend to the working of his mind during an emotional state. As Ross has observed, ‘The observer and the observed are the same, the mind is both the field and the instrument of observation’.
Human beings are not static objects such as chairs or stones. Their mental process is under constant change. So when one attempts to introspect, the state of the mind may change. It is difficult to introspect over psychological experiences that are constantly changing.

The data collected by introspection cannot be verified. An individual may not pass through the same mental state again. There is no independent way of checking the data.

The data collected by introspection is highly subjective. It carries the risk of being biased and influenced by preconceptions of the individual.

There is ample scope for the reporter—the individual who introspects—to lie deliberately and hide the facts from the researcher.

Introspection can be done by normal and stable individuals. Mentally unstable human beings cannot introspect.

Introspection cannot be done by children. It can only be done by adults.

Introspection can be assisted by trained and skilled guides.

According to Gestalt psychologists, it does not yield adequate representation of the unitary experience in its totality.

Introspection is generally carried out when a particular state of mind that we wish to study has passed. So it is really retrospection that the individual goes through because we study the event after it has taken place.

Limitations of introspection can be overcome by practice and training, by remaining alert during introspection and by comparing results obtained by experts. G F Stout observed, ‘Introspection to be effective for the advancement of science must, like other modes of observation, be carried on by a number of experts in cooperation’.

2. Observation

Observation is one of the oldest techniques that man has made use of. Even today, we notice farmers feeling the breeze, watching the sky, sun, moon and stars in order to determine what the weather is likely to be and what season is approaching.

In the words of Carter V Good of the University of Cincinnati, ‘Observation deals with the overt behaviour of persons in appropriate situations’. According to John Dollard, ‘The primary research instrument would seem to be the observing human intelligence trying to make sense out of human experience’. Observation has been defined as ‘measurement without instruments’. In education, observation is the most commonly employed method among all measurement techniques. In the present as well as in the past, students have been labelled as good, fair or poor in achievement and lazy or diligent in studies etc., on the basis of observation. Similarly, teachers rank students 1, 2, 3 and so on based on their responses and comprehension in the classroom.
Merits of Observation Method

- Being a record of the actual behaviour of the child, it is more reliable and objective.
- It is a study of an individual in a natural situation and is therefore more useful than a restricted study in a test situation.
- The method can be used with children of all ages; of course, the younger the child, the easier it is to observe him. This method has been found very useful with shy children.
- It can be used with little training and almost all teachers can use it. It does not require any special tools or equipment.
- It can be used in every situation including physical activities, workshops and classroom situations as well.
- It is adaptable both to the individual as well as groups.

Limitations of Observation Method

- Great scope exists for observer’s personal prejudice and bias to creep into the analysis.
- Records may not be written with 100 per cent accuracy as the observation is recorded after the actions. There is some time lag.
- The observer may only get a small sample of student behaviour. It is very difficult to observe everything that a student does or says. As far as possible, observations should be made from several events.
- It reveals the overt and expressed behaviour only and not the behaviour that is within.

Principles to be followed for Reliable Observations

- The whole situation should be observed.
- One student should be selected to observe at a time.
- Students should be observed in their regular activities, such as in the classroom, on the playground, in school corridors.
- Observations should be made over a period of several days.

Requisites of Good Observation

- Proper planning
- Proper execution
- Proper recording
- Proper interpretation
Proper Planning of Observation

- Specific activities or units of behaviour to be observed must be clearly defined.
- An appropriate group of subjects to be observed needs to be selected.
- The scope of observation—whether individual or group—should be decided upon.
- The length of each observation period, number of periods and interval between periods should be decided.
- The form of recording should be determined.
- The instruments to be used should be decided.
- Physical position of the observer should be demarcated.
- Proper tools for recording the observations should be kept handy.
- Various terms may be studied.

Proper and Accurate Execution of Observation

An expert execution demands skill and resourcefulness on the part of the investigators. This depends upon:

- Proper arrangement of special conditions for the subjects
- Ensuring proper physical conditions for observing
- Focusing attention on the units of behaviour on the specific activities under observation
- Observing discretely the length and number of periods and intervals decided upon
- Proper handling of the recording instrument being used
- Optimally utilizing the training received
- Having two or more observers

Proper Recording of Observation

Generally, two methods are employed for recording observations. The nature of the activities or behaviour of the group determines the selection of a particular method. The skills of the observer also play an important role in deciding the method.

- The first method is to record the observation simultaneously. It is useful in the sense that a time-gap may distort facts. However, at times, this may not be feasible when the action or activity performed is very swift. Moreover, this is likely to distract the subjects.
FACTS may be recorded soon after the observation is over. This is helpful as this does not distract the mind of the subjects. But the investigator may not be able to recall facts accurately after the interval of a few minutes.

**Proper Interpretation**

Results of observation should be interpreted cautiously and judiciously after taking into account limitations of the procedure.

**Devices Used in Observation**

- Checklists
- Rating scale
- Score cards
- Blank form for tallying frequencies

**Types of Observation**

(a) **Participant Observation**

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

**Merits**

- It is more reliable
- It is very flexible
- It enables greater degree of probing
- It discloses the minute and hidden facts
- Its cost is relatively less

**Demerits**

- It is time consuming
- The observer’s presence is likely to modify the behaviour of the subjects under study
- It becomes more subjective

(b) **Non-Participant Observation**

This is used with groups such as infants, children or mentally disabled people. The observer takes a position where he is able to observe in detail the behaviour of the individual under observation. The position of the observer should be least disturbing to the subject under study. Non-participant observation permits the use of recording instruments. It also permits the gathering of larger quantity of data.
(c) Structured Observation

Structured observation starts with relatively specific formulations. The observer sets up categories in terms of which he wishes to analyse the problem. He must keep in view:

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

(d) Unstructured Observation

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

3. Clinical Methods

It is a method employed to an individual in cases when he/she has a problem. A clinical study is the in-depth study of an individual in all its details. It helps to reveal the underlying causes of misbehaviour by careful observation of an individual. It provides insights into adjustment problems.

The clinical method is based on the truism that each individual is different from another and is therefore a unique case. His problem has some definite causes and antecedents lying both within the individual and in his/her environment. The problem does not arise suddenly but has a history behind it. Clinical method employs both methods of diagnosis and treatment, and in doing so, it operates at the level of art as well as of science. The types of problems under investigation are shyness, nervousness, thumb-sucking, speech defects, truancy, phobias, stealing, telling lies, sexual disorders, sex offences, etc.

Diagnosis of the Problem

Diagnosis of the problem is the first step. It begins with a careful physical examination. Then the case history is prepared to gain insights into the problem. It is followed by a clinical interview and psychological testing of individual’s abilities and personality traits.

Treatment follows on the basis of a hypothesis developed and inferences drawn from the comprehensive diagnosis. It may involve change of environment (school or home). The issue of utmost importance is that the individual must undergo a change. Children can be helped in this regard through play-therapy, psycho-drama, role-playing, or behaviour modification techniques that are based on the principle of conditioning.

Clinical approach involves the following steps:

- Preparation of case history
- Study of the environment
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Preparation of the Case History

Case history is the history of an individual case. It is usually prepared for a problem child. Some case histories give a cross-sectional view of the subject at the time the study begins. Some give longitudinal details of the individual including family background of the subject, his development during infancy and childhood, information regarding his schooling, etc. A case history is more than an extended cumulative record. It is used for research purposes and is helpful in the diagnosis and treatment of special problems. It may also be used for instructional purposes regarding how to summarize and interpret data collected on students. Some case histories end with the diagnosis; others report extended treatment and the success that attended the treatment.

Making and Using a Case History

For drafting a case history of a pupil, usually the first step is to collect all the important information pertaining to the pupil from school records. Cumulative records can be of great help in this case.

As a rule, the data is entered at regular intervals and there will usually be a period of several weeks between the time of the last entry and the time of making the case history. The case investigator will therefore find it necessary to interview those who have had contact with the pupil so that he might get relevant information regarding the child.

The next step is to interview the child himself and if necessary, give him tests. For example, if the case is one of reading disability, a diagnostic silent reading test and an oral reading check test should be given.

When reasonably complete data about the pupil have been collected, the case should be written up and a tentative diagnosis and plan for treatment should be formulated before the treatment starts. The record should be amplified from time to time. A written record of all these activities garners further suggestions before adopting a plan for handling the case.

The following suggestions are helpful for the counsellor who prepares the case:

- If possible, select a pupil from your own class whom you feel needs your help and more attention.
- To start with, try to plan the case in a small way. As you proceed, if you feel that you should elaborate the case, plan it on a larger scale.
- While collecting the data, the pupil should not be put on the defensive. He should not be made to feel as if he is a culprit or is deviant from other students. The observer should try to discuss the problems at a friendly and normal level. He should be like a friend with whom the subject shares all his worries and difficulties.
While writing the case, use plain and simple language and the points should be direct and matter of fact. This does not mean that you avoid interpretations and recommendations. They can be added after discussing the factual data as it is.

- In the report of the case, use both general and specific illustrations.
- The investigator should not attempt to apply treatment which is beyond his experience. Normally, a teacher can handle problems arising out of learning difficulties, lack of interest or minor behavioural problems at his or her own level.
- After the case has been released from treatment, it should be followed up so that the subject does not relapse. This is especially important in cases involving skills such as reading, spelling and arithmetic. Some pupils who have improved tremendously during the period of treatment will tend to return to the old habits later unless they are carefully supervised.

**Various Steps in Case Studies**

- Determination of the status of the phenomenon under investigation through direct observation or measurement
- Determination of the most probable antecedents of the case
- Formulation of a definite hypothesis or a set of hypotheses through perusal of similar cases
- Verification of the hypothesis
- Formulation of remedial steps for removing the causes for maladjustment
- Follow-up of the case

**Characteristics of a Good Case Study**

- Completeness of data
- Validity of data
- Confidential recording
- Scientific synthesis
- Continuity

**Limitations of Case Study Method**

Case studies may fail to furnish valid generalizations. They display greater element of subjectivity. They should be primarily considered as a clinical procedure and secondarily as a research technique. As a method of scientific research, the results of the case history method must be viewed with caution. Only when the studies of large numbers of children are carefully compared to discover uniformities, deviations and cause and effect relationships, can trustworthy conclusion be drawn.
Treatment of Problem or Case

Some important treatment techniques of a case are as follows:

- Simple advice, supplying information, giving suggestions and counselling
- Direct treatment or psychotherapy
- Play therapy in the case of children. Play therapy also includes doll playing and drawing.
- Psychodramatic techniques and role playing
- Group therapy
- Occupation therapy by engaging the subjects in productive work
- Attitude therapy by changing the attitude of parents and others
- Changing the environment of the individual
- Shifting to a juvenile home, orphanages, or residential school.

Two Types of Case Studies: Clinicians generally use two different procedures to develop case studies: (a) The Clinical Case Study or Case History (b) Developmental Case Study.

4. Experimental Method

The experimental method is generally regarded as the most sophisticated research method for testing hypotheses. In the words of W S Manro and M D Engelhast, ‘Experimentation is the name given to the type of educational research in which the investigator controls the educative factors to which a group of children is subjected during the period of inquiry and observes the resulting achievement’. Experimental research is the description and analysis of what will be, or what will occur, under carefully controlled conditions. Thus, the keywords in experimental research are as follows:

- What will be
- What will occur
- Carefully controlled conditions

The essence of an experiment may be described as observing the effect on a dependent variable of the manipulation of an independent variable.

Characteristics of an Experiment

An experiment calls for the satisfaction of three basic interrelated conditions, i.e., control, randomization and replication.

- Control: Control is the basic element in experimentation. The influence of extraneous factors that are not included in the hypothesis are prevented from operating and confusing the outcome that is to be appraised. These types of controls are exercised in an experiment:
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- Physical control
- Selective control
- Statistical control

**Randomization:** As it is very difficult to exercise complete control, efforts are made to assign cases in the experiment and control groups randomly.

**Replication:** This implies conducting a number of sub-experiments within the framework of an overall experimental design.

**Use of Experimentation in Education:** Among the main uses of experimentation in education are as follows:

- Determining and evaluating the adequacy and effectiveness of educational aims and objectives through the measurement of outcomes
- Serving as a basis for the formulation, execution and modification of educational policies and programmes.
- Ascertaining the effects of any change in the normal educational programmes and practices.

**Merits of Experimental Method**

- Experimental method is the most systematic method of getting reliable data.
- In this, research is conducted under rigorously controlled conditions. The experimenter can control the application and withdrawal of independent variables.
- Findings of the experimental method are verifiable by other experimenters under identical conditions.
- Experimental method provides adequate information about the problem.
- It provides objective information about the problem.
- It tests the traditional beliefs and throws new light on them and opens avenues for future progress.
- It helps to minimize subjective opinions in the analysis.
- It increases our knowledge of cause-effect relations in the behaviour of the learners and provides guidelines for making teaching-learning effective, interesting and inspirational.
- It provides innovative ideas for further experimentation.

**Limitation of Experimental Method**

- Psychologists like Thorndike and Skinner conducted experiments on animals like cats and dogs and deduced principles on the basis of these experiments. This raises the issue that how far is it justifiable to generalize those principles and laws on human beings.
Human nature is changing. One may not act exactly in the same manner even in identical situations.

Experiments are conducted in an artificially determined pattern of behaviour. In real life, the situation is quite different.

Each child is unique. He differs from other children in several aspects. This fact hinders objective generalizations.

Experimental data do not provide insights into the total behaviour of the learner. For all practical purposes, behaviour is an interaction between the learner and the environments. The experimentalists often omit important factors by their tendency to eliminate and isolate experimental variables or to keep them constant.

Various types of actions of children do not fit into a laboratory setting.

Experimental method is time-consuming.

Experimental method is costly.

Experimental method needs specialized knowledge and therefore, every teacher cannot be expected to conduct an experiment.

Experiments in social sciences are not possible in the same sense as they are in physical sciences.

Some religious leaders and other thinkers have raised ethical issues regarding administration of experiments and tests, especially those that encroach upon the privacy of the subjects (individuals).

It is not always possible to construct tools that will make accurate measurements of individual differences.

In several experiments, it is not possible to manipulate human beings according to the research designs that are theoretically possible.

It is not possible to reach certainty in matters of social sciences, including educational psychology.

5. Correlational, or Differential Methods

Correlational methods are used to study the subjects as they are, without changing the conditions surrounding them. For instance, various tests are given to the individuals and their results are compared with other performances. In vocational guidance, jobs are matched with the candidates to be employed for those jobs. Correlational methods are also used to study individuals in pairs, for example twins, siblings, etc. These methods are also used for comparing groups that are more or less alike.

6. General Statistical Methods

All methods that make use of statistics fall under this category. As a matter of fact, most of the methods like experimental and correlated methods may be classified under this category, especially when they make use of statistical techniques.
7. Projective Methods

These methods are called projective because the assumption is that an individual tries to project his feelings on the environments and thus, reveals his personality.

8. Sociometry

The sociometric technique was developed by Dr J L Moreno to determine the degree to which individuals are accepted in a group. It is used to discover the relationships that exist among members of a group. These relationships are found out by asking such questions to the members:

- With whom would you like to sit?
- With whom would you like to work?

Check Your Progress

1. List four merits of the introspection method.
2. What principles should be followed for reliable observations?
3. Mention the steps involved in the clinical approach.

6.3 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Four merits of introspection method are as follows:
   - It is the most economical method. No apparatus or laboratory is required for its use.
   - This method can be used anytime and anywhere.
   - It is the easiest method and is readily available to the individual.
   - Introspection has generated research that gradually led to the development of more objective methods. It is still used in all experimental investigations.

2. For reliable observations, the following principles should be followed:
   - The whole situation should be observed.
   - One student should be selected to observe at a time.
   - Students should be observed in their regular activities, such as in the classroom, on the playground, in school corridors.
   - Observations should be made over a period of several days.

3. The clinical approach involves the following steps:
   - Preparation of case history
   - Study of the environment
   - Direct observation of the individual during interview or play
6.4 SUMMARY

- In recent years, with the development of technology, researchers have started using new methods of collecting and analysing data.
- With rapid use of technology in education, psychology and other social sciences, new research strategies are being evolved for conducting research.
- Introspection is composed of two words, intro and aspection. Intro means within or inward and aspection means looking.
- In the words of Carter V Good of the University of Cincinnati, ‘Observation deals with the overt behaviour of persons in appropriate situations’.
- The clinical method is based on the truism that each individual is different from another and is therefore a unique case.
- Clinical method employs both methods of diagnosis and treatment, and in doing so, it operates at the level of art as well as of science.
- Diagnosis of the problem is the first step. It begins with a careful physical examination. Then the case history is prepared to gain insights into the problem.
- The experimental method is generally regarded as the most sophisticated research method for testing hypotheses.
- Correlational methods are used to study the subjects as they are, without changing the conditions surrounding them.
- The sociometric technique was developed by Dr J L Moreno to determine the degree to which individuals are accepted in a group.

6.5 KEY WORDS

- **Introspection**: Introspection is the examination of one’s own conscious thoughts and feelings. In psychology, the process of introspection relies exclusively on observation of one’s mental state.
- **Clinical Study**: A clinical study is the in-depth study of an individual in all its details.
- **Psychoanalysis**: Psychoanalysis is a set of theories and therapeutic techniques related to the study of the unconscious mind, which together form a method of treatment for mental-health disorders.
6.6 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions
1. What are the merits of the introspection method?
2. What are the advantages and disadvantages of the observation method?
3. List the principles to be followed for reliable observations.
4. What are the devices used in observation various method?
5. What are the various types of observation?
6. Identify the main characteristics of the experimental method.

Long Answer Question
1. Explain the process of introspection.
2. Identify the various limitations of the introspection method.
3. Write a detail note on clinical method.
4. Describe the steps involved in clinical approach.
5. Explain some limitations of the case study method.

6.7 FURTHER READINGS

UNIT 7 DIFFERENT VIEWS OF LEARNING

7.0 INTRODUCTION

This unit will examine different views of learning with a special focus on constructivism. The theory of constructivism is based on observation and scientific study of how people learn. As per this theory, people construct their own understanding and knowledge of the world by experiencing things and reflecting on those experiences. Whenever a person encounters something new, he has to reconcile it with his previous ideas, beliefs and experience and then maybe either changing what they believes in, or discarding the new information as irrelevant. The final sections of the unit will discuss language acquisition and the development of morality.

7.1 OBJECTIVES

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

- Discuss Piaget’s theory of intellectual development
- Examine the conception of constructivism
- Describe how morality develops in a child
- Explain the behaviourist view of learning
7.2 DEVELOPMENTALLY BASED VIEWS OF TEACHING AND LEARNING

Depending on the type of development, learning is classified as
(i) Academic learning
(ii) Emotional learning
(iii) Intellectual learning
(iv) Moral learning
(v) Motor learning
(vi) Sensory learning
(vii) Social learning.

In this section, we will focus on intellectual learning. The next sections will discuss moral learning and social learning.

7.2.1 Piaget’s Theory of Intellectual Development

Piaget is regarded as one of the pioneers in psychological investigation of children. However, he neither undertook formal study nor passed any examination in psychology. He was actually a biologist by training. At an early age of 22, he obtained his Doctorate Degree in Zoology on Mollusks of Valia. He worked on child development for more than 50 years and produced enormous literature on developmental psychology. He read philosophy, psychology and sociology etc. He pursued clinical research at the Alfred Binet Laboratory at Paris. By observing, dissecting and experimenting with children, he developed his educational theory regarding cognitive development or learning by children. His work as a Professor of Child Psychology at the University of Geneva (Switzerland) made him famous throughout the world.

Piaget began his study of child development with the observation of his own three children. From this beginning, his investigations were gradually extended to other children. These investigations resulted in the publication of a large number of papers and books which are often quoted by eminent psychologists and other thinkers on education.

Publications of Piaget on Education and Child Psychology/Development

1. The Language of Thought of the Child. (1923)
2. Judgement and Reasoning in the Child. (1924)
3. The Child’s Conception of the Physical World. (1926)
4. The Moral Judgement of the Child. (1932)
5. The Origin of Intelligence in the Child. (1937)
6. The Child’s Conception of Number. (1941)
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8. Play Dreams and Imitations in Childhood. (1945)
10. The Child’s Conception of Movement and Speed. (1946)
12. The Child’s Conception of Space. (1948)
14. The Child’s Conception of Movement and Speed. (1946)
15. The Child’s Conception of Space. (1948)
18. The Child’s Conception of Space. (1948)
21. The Child’s Conception of Space. (1948)
22. The Child’s Conception of Time. (1946)
24. The Child’s Conception of Space. (1948)
25. The Child’s Conception of Time. (1946)

Piaget’s Work on Cognitive Development

Before we describe Piaget’s four stages of development we shall consider his views on education and learning and on some of the important concepts stated by him.

Piaget’s Views about Education

Piaget stressed the following aims of education:

1. The principal goal of education is to create men who are capable of doing new things, not simply repeating what other generations have done. Education should create men who are creators, inventors and discoverers.
2. The second aim of education is to form minds which can be critical, can verify and do not accept everything they are offered.

Writing in his book, To Understand is to Invent—The Future of Education for the International Commission on the Development of Education, UNESCO, Piaget stated, ‘The author of these lines is by no means a professional educator, but rather a psychologist led by his research to study the problems of the formation of man’. In other words, education in its real sense deals only with the formation of man and nothing else.
Piaget's Views about Learning

He revolutionized thinking and understanding about the intellectual growth of young children. According to his theory, a child goes through a series of developmental stages which are as follows:

1. Sensori-Motor Stage (Birth to two years)
2. Pre-conceptual Stage (two to four years)
3. Intuitive Stage (four to seven years)
4. Concrete Operation Stage (seven to eleven years)
5. Former Operations Stage (eleven years to adolescence)

Basic Concepts

Piaget introduced four concepts in the building of his theory. These are as under:

(i) Schemes
(ii) Assimilation
(iii) Accommodation
(iv) Equilibration

(i) Schemes (Cognitive structures): Piaget called ‘schemes’ as cognitive structures or the patterns of behaviour that children and adults use in dealing with objects in their environment. These patterns can be simple as well as complex. As the development proceeds, each pattern enlarges and changes. It is coordinated with other patterns to form more complex patterns. For instance, the infant suck the breast of his mother, he looks at the objects of his environment, listens different voices in his environment and finally he tries to comprehend, conceptualize the articles, animals, space and many other behaviour patterns or structures.

(ii) Assimilation: It implies incorporation of something from the environment. New ideas, concepts and stimuli are taken in and incorporated into one’s ‘existing set of scheme.’ A scheme is the organized pattern of behaviour which the child develops when he is engaged in any activity. For example, when a child is engaged in sucking, there is a certain pattern of movements of the cheeks, lips and hands. When a child is confronted with a new object, he will try to understand the new object by applying his old scheme to it. He grasps. He adapts himself to a new object by assimilating it. His old scheme does not change in the process.

(iii) Accommodation: It involves modification or change of some elements of an old scheme or learning a new scheme which is more appropriate for the new object. A baby who has already got a scheme of sucking mother’s breast accommodates to the object placed in the mouth—finger, nipple, pencil, a toy—depending on its shape, form and the size. The baby develops a new scheme or a modified scheme. This is called ‘accommodation’
Thus a baby assimilates when he understands and perceives the new in the light of his old perceptions. A baby forms a new scheme when he modifies or changes his old perception to suit the new. This implies adjusting or accommodating. In this way, a baby forms new structures or new schemes and consequently develops cognitivity.

(iv) **Equilibration**: The structures or the schemes change from one stage to another by the process of equilibration—maintaining the balance between the child and his changing environment. According to Piaget, when by the existing scheme, the new situation is not fully handled, then there is created a state of disequilibrium or an imbalance between what is understood and what is encountered. In such a case, the individual tries to reduce such imbalances. This is done by him by focussing his attention on the stimuli that has caused the disequilibrium and developing new schemes or adapting old ones until equilibrium is restored. This process of restoring balance is called equilibration. Piaget believes that learning depends on this process.

**Stages of Child Development**

Piaget divides the stages of cognitive development of the child into the following categories.

1. **Sensori motor Stage**: This stage covers the period from birth to two years. This stage is marked by sensation. Simple learning occurs but the child does not think at this stage. These early sensori-motor experiences of the child have a great bearing on the development of his later intellectual abilities.

   In the world of the child, an object exists when it is physically present. He then gains some consciousness about the stability of the object. He starts comprehending casually. It is sometimes said that the child’s mental development at this stage is equal to that of an intelligent animal. By the end of two years, the child develops the concept which is characterised by relationship among objects and between objects and his own body.

2. **Pre-conceptual stage**: This stage is roughly between two years and six years. The child develops ways of representing events and objects through symbols, including verbal symbols of language. He can now think about things that are not immediately present.

   The child now becomes egocentric, i.e., primarily concerned himself.

3. **Intuitive Stage**: This is covered between the ages of four to eight years. The reason of the child is not logical and is based on intuition rather than systematic logic. The intuitive thought is primarily concerned with static conditions but the child is able to use concepts as stable generalization of his past and present experiences. He, however, cannot adequately link a whole set of successive conditions into an integrated totality.

4. **Concrete Operations Stage**: The stage of development is usually between the age of six and eleven or twelve years. At this stage a child is concerned
with the integration and stability of his cognitive system. The child develops logical operations from simple associations. He learns to add, subtract, multiply and divide. He is in a position to classify, concrete objects. These operations are called concrete because they relate directly to objects. These operations do not involve abstract thinking. Piaget has coined a new term—‘grouping’, to describe a set of operations. Piaget has given a long list of operations which make it possible to handle numbers in various relations to each other, the arrangement of objects into classes and subclasses and the ordering of objects according to one or more attributes.

5. **Formal Operations Stage:** This stage is roughly from 12 years to adolescence. At this stage, the thought process of the child becomes quite systematic and reasonably well integrated. The child is in a position to free himself from the concrete operations related directly to objects and to groups. He is capable of reasoning with propositions removed from the concrete. He develops an experimental spirit. Now he solves problems more systematically and the bases of action are not trial and error. The youngsters at this stage are able to organize information, reason scientifically, build hypotheses based on understanding to causality and test their hypothesis.

**General Educational Implications of Piaget’s Cognitive Theory of Development**

1. It provides a broad development perspective to the educator for building a curriculum for the children.
2. The description of developmental stages and qualitative aspects of intellectual growth is very useful in providing suitable educational practices.
3. The cognitive theory states that the child needs to be actively involved in the teaching-learning process for his intellectual growth.
4. Piaget-based curriculum requires that children should not skip any stage.
5. The pre-school child is at the pre-operational level. The educational programme at this stage should provide concrete operations.
6. Educational programmes should enable the child to integrate the information.
7. A child should be helped to develop internal consistency of the system.
8. Most of the activities of the Piaget type require simple equipment and material.
9. Drilling the child to learn a skill should be avoided.
10. Teaching learning situations should be geared to a point where the child is neither too familiar nor too unfamiliar with the objects and ideas.
11. Variety of cognitive activities like storytelling, rhymes, singing, etc., should be included in the programme in a systematic manner. There is a deliberate attention of developing cognitive growth.
12. A child’s development is slower if he is not allowed a fairly wide sensory 
and motor experience in his early years.

13. Real events and concrete objects play an important role in learning.

14. In science and mathematics, learning from the physical environment is more 
important than what is learnt from people, books or television.

15. A teacher should arouse the curiosity of the child through planned activities.

16. Children like to find things out by themselves by their own spontaneous 
activity.

17. Children learn speedily if we provide concrete material to them.

Implications at the Pre-School and Primary Stage

1. The teacher should familiarize himself with the theoretical and practical aspects 
of Piaget’s theory of cognitive development.

2. The teacher should try to assess the level and the nature of thinking of each 
child in his class.

3. Each child should be asked to perform some of the experiments as suggested 
by Piaget.

4. The teacher should spend a lot of time in listening to each child’s reaction to 
the experiments.

5. Plenty of equipment materials and opportunities should be given to children 
to learn on their own.

6. For social interaction, group situations should be arranged so that children 
can learn from each other.

7. Learning experiences should be so arranged as they take into account the 
level of thinking of mental development attained by an individual or group.

8. It should be kept in mind by the teachers that the children may be influenced 
by egocentric speech or thought.

In Secondary Classes

1. The teacher should familiarize himself with the nature of concrete operational 
thinking and formal thought so that he is able to note when his students are 
applying either of the two or a combination of them.

2. Students could be asked to conduct a few experiments suggested by Piaget.

3. Each student could be asked individually to explain how they would arrive 
at solutions to problems in response to the experiments similar to those 
devised by Piaget.

4. Students should be guided to be more systematic regarding solving problems.

5. Care should be exercised to ensure that class discussions are constructive 
and do not go astray.
6. Students should be trained to appreciate the viewpoints of others. They should not become ego-centric.

Suggested Play Activities on Piaget’s Model

Dr T Saraswati, Reader, MS University, Baroda, suggested the following:

**Play Activity No. 1**

**Skills aimed at:** Developing one-to-one correspondence, observing shapes of objects, noticing similarities and differences; matching.

**Materials Required**

(a) Two 12”× 18” pieces of tag-board and hard-board.
(b) Coloured pencils to colour the outlines.
(c) Small objects: block, key, comb, scissors, books, buttons, rubber bands, toys, paper clips; corks, Coca-Cola lids (any object available).
(d) A container for the objects.

(If tag-board, card-board and coloured pencils are not available, the outlines of the objects could be drawn on the floor with the help of chalk).

**Activity:** The child takes out one object at a time from the container and names it. He then tries to place the object on its outlines only in one trial. Children who are very confident would like the challenge of attempting to reproduce the arrangement on the answer board.

**Getting Started:** The teacher might discuss the activity by asking questions like:

- Can you find what shape this key is on the answer board? Why do you choose this one? Good! Try it and seal.

**Ideas for follow-up discussion:** The teacher can interact with the students with the following questions:

1. What did you do with the objects, Nila? How did you know where they would go on the answer board?
2. Point out to an object which is round. How many objects are green? How many are not white, not red; Show me.
3. Show me something used to hold things together.
4. Point to an object that unlocks a lock.

**Play Activity No. 2**

**Skills Aimed at:** Learning about the natural environment of various animals, classifying animals according to their habitat: making comparisons, drawing conclusions.
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**Notes**

**Materials Required**

(a) Some 9” × 12” sheets of icag-board, card-board and clean paper.

(b) Pictures showing ‘in water’, ‘on land’ and ‘in the air’.

(c) Pictures of animals that live mostly in water, in air and on the land.

**Activity:** The child sorts the pictures under appropriate category, placing together the animals which live in water, in air, on the land.

**Getting Started:** The teacher might say, showing a picture, ‘If this animal mostly lives on land where will this picture go? If he mostly lives in the air where will this picture go? Put the pictures where you think the animals mostly live’.

**Ideas for follow-up discussion:** The teacher can interact with the students with the following questions:

1. Name the animals that live in water, in air, on land.
2. Name one animal which is very small and lives on land. Name one large animal.
3. Do you know the name of the largest bird and the tallest bird?
4. Show me some pictures of animals whose names you do not know and I will tell you their names.

**Criticism of Piaget’s Theory of Development**

Several psychologists do not agree with Piaget’s theory of cognitive development. According to R M Gagne (1968), stages described by Piaget were not necessarily the inevitable result of an inborn time-table. Instead, they were a consequence of children having learned sets of rules that are progressively more complex and these rules are taught by their physical and social environment. Gagne thought that Piaget was indifferent to the role of learning in developmental changes.

Some psychologists do not agree with the view of Piaget that infants are born with some elementary mental structures that are starting points for their attempts to deal with their environment.

Piaget’s views are not new to educational thought. The unique thing about them is that they have been stated in the context of classroom situations. Instruction in the classroom would serve the function of setting into motion the processes of assimilation and accommodation for a particular area of exploration.

**Check Your Progress**

1. What are the aims of education according to Piaget?
2. How does Piaget define schemes?
7.3 CONSTRUCTIVISM

The constructivist view of learning points us towards a number of teaching practices. It usually means encouraging students to use active techniques (experiments, real-world problem solving) to enhance their knowledge base, then reflect on new additions and the overall effect, and then externalize what they are doing and how their understanding is changing. It is important that the teacher makes sure that he understands the already firmed and existing conceptions of the students, and guides the activity to address them and then build on them.

Teachers who believe in the theory of constructivism encourage students to constantly assess how the activity is helping them gain understanding. By questioning themselves and their strategies, students in the constructivist classroom ideally become "expert learners." This gives them ever-broadening tools to keep learning. With a well-planned classroom environment, the students understand 'how to learn'.

When students regularly reflect on their experiences, their ideas gain in complexity and power, and they develop increasingly strong abilities to integrate new information. Here the teacher’s main role is to encourage this learning and reflection process.

Constructivism does not negate the active role of the teacher or the value of expert knowledge. Constructivism modifies that role, so that teachers help students to construct knowledge rather than to reproduce a series of facts.

Let us consider groups of students in a science class discussing a problem in chemistry. Despite knowing the solution to the problem, the teacher focuses on helping students restate their questions in useful ways. He suggests that each student reflect on and examine his current knowledge. When one of the students comes up with the relevant concept, the teacher seizes upon it, and indicates to the group that this might be a fruitful avenue for them to explore. They design and perform relevant experiments. Later, the teacher talks to the students about what they have learned, and how their observations and experiments have helped them to understand the concept.

The constructivist teacher thus provides tools such as problem-solving and inquiry-based learning activities with which students formulate and test their ideas, draw inferences, and strengthen their knowledge. Constructivism transforms the student from a passive recipient of information to an active participant in the learning process. Always guided by the teacher, students construct their knowledge actively rather than just passively absorbing knowledge from the textbook or the teacher.

Benefits of Constructivism

(a) Children learn more, and enjoy learning more when they are actively involved, rather than passive listeners.
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(b) Education works best when it concentrates on thinking and understanding, rather than on rote memorization. Constructivism concentrates on understanding how to think and learn.

(c) Constructivism gives students a sense of achievement in what they learn, since learning is based on students’ questions and explorations, with the students often having a hand in designing the assessments as well.

(d) By combining learning activities in a realistic, real-world context, constructivism stimulates and engages students. Students in constructivist classrooms learn to question things and to apply their natural curiosity to the world.

(e) Constructivism promotes social and communication skills by creating a classroom environment that emphasizes collaboration and exchange of ideas. Students must learn how to articulate their ideas clearly as well as to collaborate on tasks effectively by sharing in group projects.

(f) Students learning by constructivism exchange ideas and learn to ‘negotiate’ with others. This is essential to success in the real world, since they will always be exposed to a variety of experiences in which they will have to cooperate and navigate among the ideas of others.

Criticism of Constructivism

Constructivism has been criticized on a few grounds. Some of the charges critics have level against it are:

(a) It is elitist. Critics say that constructivism and other “progressive” educational theories could be successful with children from privileged backgrounds who are fortunate in having outstanding teachers, committed parents, and affluent home environments. They argue that disadvantaged children, lacking such resources and exposures, benefit more from more explicit instruction.

(b) Majority tyranny prevails. Critics say that the Theory of Constructivism leads to “group think.” They say the collaborative aspects of constructivist classrooms tend to produce a ‘tyranny of the majority,’ in which a few students’ voices or interpretations dominate the group’s conclusions, and those students who have a dissenting opinion would generally be forced to conform to the emerging consensus.

(c) Impractical. Critics also feel that the present world of educational systems, time and syllabi would never practically allow classroom functioning to be based on the methodology propounded by constructivism. They also feel there is little hard evidence that constructivist methods work.

Concluding Remarks

Different theories of learning have advocated different learning approaches. Both teaching and learning have immensely improved by the contribution of these
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approaches. Each of these, in its own way, has added something or the other to
the understanding of the complex learning process. However, no single approach
alone is adequate enough for the proper understanding of the different phases and
various types of learning. To illustrate this, it can be said that the different principles
of learning—readiness, exercise, effect, insight, whole patterns, conditioning,
practice, primary association and concomitant learning—each has its own use and
value in describing and explaining the learning process and to make it more effective
and efficient by combining all these approaches rationally.

7.3.1 Vygotsky’s Sociocultural Applications

Born in Russia, Lev Vygotsky (1896-1934) was taught by a private tutor. The
tutor adopted the method of teaching which included engaging in critical inquiries
and philosophical conversations with his students. This shaped Vygotsky’s views
on the importance of social dialogue in learning.

Social constructivism is a variety of cognitive constructivism which lays
emphasis on the collaborative nature of learning. Social constructivism was
developed by post-revolutionary Soviet psychologist Lev Vygotsky. Despite being
a cognitivist, Vygotsky rejected the assumption made by cognitivists such as Perry
and Piaget that it was possible to separate learning from its social context. He
argued that all cognitive functions have their origin in social interactions and that
learning did not simply comprise the accommodation and assimilation of new
knowledge by learners; it was the process by which learners were integrated into
a knowledge community. According to Vygotsky (1978, 57),

“Every function in the child’s cultural development appears twice: first, on the
social level, and, later on, on the individual level: first, between people (inter-
psychological) and then inside the child (intra-psychological). This applies
equally to voluntary attention, to logical memory, and to the formation of concepts.
All the higher functions originate as actual relationships between individuals.”

Vygotsky’s theory of social learning has been expanded upon by numerous
later researchers and theorists.

Check Your Progress

3. What is the theory of constructivism based on?
4. What does constructivist theory encourage?

7.4 LANGUAGE ACQUISITION

Language is our primary means of communicating our thoughts. Everyone can
master and use an enormously complex linguistic system.

Development and Levels of Language

Language use has two aspects—production and comprehension. In the production
of language, we start with a thought, somehow translate it into a sentence, and end
up with sounds that express the sentence. In the comprehension of language, we start by hearing sounds, attach meanings to the sounds in the form of words, combine the words to create a sentence, and then somehow extract meaning from it. Language use seems to involve moving through various levels. At the highest level are sentence units, including sentences and phrases. The next level is that of words and parts of words that carry meaning (the prefix or the suffixes, for example).

The lowest level contains speech sounds; the adjacent levels are closely related. The phrases of a sentence are built from words and prefixes and suffixes, which in turn are constructed from speech sounds. Language is therefore a multilevel system for relating thoughts to speech by means of word and sentence units (Chomsky, 1975). The following are the levels of language:

- **Speech sounds**: We would not perceive the person's speech as a continuous stream of sound but rather as a sequence of phonemes, or discrete speech categories. For example, the sound corresponding to the first letter in 'boy' is an instance of a phoneme symbolized as 'b'. Every language has a different set of phonemes. When phonemes are combined in the right way, we perceive them as words. Each language has its own rules about which phonemes can follow others.

- **Word units**: Unlike phonemes, words carry meaning. However, they are not the only small linguistic units that convey meaning. Suffixes, such as 'ly' or prefixes such as 'un' also carry meaning. They can be added to words to form more complex words with different meanings. The term morpheme is used to refer to any small linguistic unit that carries meaning. The most important aspect of a word is its meaning. Some words are ambiguous because they name more than one concept.

- **Sentence units**: As listeners, we usually combine words into sentence units, which include sentences as well as phrases. An important property of these units is that they can correspond to parts of a thought, or proposition. Such correspondences allow a listener to extract propositions from sentences.

- **Phrases and propositions**: Analyzing a sentence into noun and verb phrases, and then dividing these phrases into smaller units like nouns, an adjective, and verbs, is syntactic analysis. Syntax deals with the relationships between words in phrases and sentences. Syntax primarily serves to structure the parts of a sentence.

### 7.4.1 Roots of Language and its Use

Development occurs at all three levels of language. It starts at the level of phonemes, proceeds to the level of words and other morphemes, and then moves on to the level of sentence units, or syntax.
Phonemes and combinations of phonemes

Although children learn which phonemes are relevant during their first year of life, it takes several years for them to learn how phonemes can be combined to form words. When children first begin to talk, they occasionally produce difficult words like dumber for lumber. By age four, however, children have learned most of what they need to know about phoneme combinations.

Words and concepts

At about one year of age, children begin to speak. One-year-olds already have concepts for many things (including family members, household pets, food, toys, and body parts), and when they begin to speak, they are mapping these concepts onto words that adults use. The beginning vocabulary is roughly the same for all children. Children who are 1 to 2 years old talk mainly about people (dada, mama, baby, etc.). Thereafter, the child’s vocabulary development virtually explodes. At a year and a half, a child might have a vocabulary of twenty-five words, at six years, the child’s vocabulary grows; children have to learn new words at the rate of almost ten per day (Miller and Gildea, 1987). Children seem to be attained to learning new words.

From primitive to complex sentences

Between the ages of a year and a half and two and a half years, the acquisition of phrase and sentence units, or syntax begins. Children start to combine single words into two-word utterances. Children progress rapidly from two-word utterances to more complex sentences that express propositions more precisely.

Learning process

Innate factors must also play a role. That is why children raised in English-speaking households learn English where as children raised in French-speaking households learn French.

Imitation and conditioning

One possibility is that children learn language by imitating adults. Although imitation plays some role in the learning of words (a parent points to a telephone says, “phone” and the child tries to repeat the word), it cannot be the principal means by which children learn to produce and understand sentences. A second possibility is that children acquire language through conditioning. Adults may reward children when they produce a grammatical sentence and correct them when children make mistakes. For this to work, parents would have to respond to every detail in a child’s speech. However, Brown, Cazden, and Bellagi (1969) found that parents do not pay attention to how the child says something, as long as the statement is comprehensible. Also, attempts to correct a child (and, hence, apply conditioning) are often futile.
Hypothesis testing

The problem with imitation and conditioning is that they focus on specific utterances. However, children often learn something general as a rule. They seem to form a hypothesis about a rule of language, test it, and retain it if it works.

Innate factors

Some of our knowledge about language is inborn or innate. If our innate knowledge is very rich or detailed, the process of language acquisition should be similar for different languages, even if the opportunities for learning differ among cultures unique to the human species?

The richness of innate knowledge

All children, regardless of their culture and language, seem to go through the same sequence of language development, which is as follows:

- When children are one, they speak a few isolated words.
- At about two years of age, they speak two- and three-word sentences.
- At three years, sentences become more grammatical.
- At four years, the children’s speech sounds much like that of an adult.

Cultures differ markedly in the opportunities they provide for children to learn from adults. In some cultures, parents are constantly speaking to their children, whereas in others parents verbally ignore their children. The fact is that this sequence is so consistent across cultures which indicate that our innate knowledge about language is very rich.

Indeed, our innate knowledge of language seems to be so rich that children can go through the normal course of language acquisition even when there are no language users around them to serve as models or teachers.

Critical periods

More recent research indicates that there is also a critical period for learning syntax. With respect to understanding and producing words with multiple morphemes, such as ‘untimely’, which consists of the morphemes ‘un-’, ‘time’, and ‘ly’, native signers did better than those who learned ASL when entering school, who in turn did better than those who learned ASL after age twelve (Meier, 1991; Newport, 1990).

7.5 DEVELOPMENT OF MORALITY

In the past the study of moral development was considered to be on the fringe of psychology. It has now become a worthy independent topic of study that has important implications.
The term *moral* is derived from the Latin word *mores*, meaning manners, customs and folk ways. Morality is indissolubly linked with social system. The child has to learn what is *good* and what is *bad*, what is *right* and what is *wrong*. He has also to learn his *duty*. All these terms clearly imply that morality has reference to social relationship and the social process. Morality has two dimensions which are closely interlinked. Rules of morality operate in the social context. Secondly, it is used to mean pursuit of good life—personal moral code.

**Dimensions of Moral Development**

Baqer Mehdi and B P Gupta in an NCERT publication entitled, *Psychology of the Child and Curriculum* (1983) observed, “Moral development of the child implies inculcation in the child a number of qualities for which the curriculum provides ample opportunities”. According to them, some important moral qualities which need to be attended to in schools are:

- Honesty in words and deeds
- Truthfulness
- Self-respect and a desire to respect others
- Righteousness
- Self control
- Duty consciousness
- Compassion.

**Piaget’s Views on Moral Development**

Jean Piaget (1932) used the interview method to find the various stages of moral development of the child. According to him, there are four stages:

1. **Anomy** (First five years). *Anomy* means without law. At this stage, the behaviour of the child is neither moral nor immoral; it is *non-moral* or *amoral*. His behaviour is not guided by moral standards. The regulators of behaviour are pain and pleasure. This is the “discipline of natural consequences” as advocated by Rousseau.
2. **Heteronomy—Discipline of Authority** (5–8 years). The second stage of moral development may be called the discipline of artificial consequences imposed by adults. Moral development at this stage is controlled by external authority. Rewards and punishments regulate moral development.
3. **Heteronomy—Reciprocity** (9–13 years). At this stage, there is the morality of cooperation with peers or equals. This stage is regulated by reciprocity which implies, “we should not do to others what will be offensive to us.” Conformity with the group becomes imperative.

4. **Autonomy—Adolescence** (13–18 years). Piaget also calls this stage *equity* stage. As Piaget puts it, while reciprocity demands strict equality, autonomy develops equity, taking into account such factors as motive, circumstance, etc. The individual at this stage is fully responsible for his behaviour. J A Hadfield (1964) observes, “The goal of moral authority is to know ourselves, accept ourselves, and be ourselves.” The rules governing moral behaviour come from *within* the individual. Such autonomy is the ideal of moral development.

*A word of caution!* The different levels of moral development associated with the different age levels must not be looked upon as fixed stages for all children. It should neither be assumed that each succeeding stage makes the child give up the preceding stage.

**Kohlberg’s Views on Moral Development**

A L Kohlberg (1963) distinguished three levels of moral development. Pre-conventional, conventional and post-conventional, each divided into two stages.

**Pre-conventional Level**

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

**Stage 2: Instrumental Relativist Orientation.** Right action consists of behaviour that satisfies child’s own needs. Human relations are considered in reciprocity. It may be seen in a pragmatic way, i.e., “you scratch my back and I’ll scratch yours.”

**Conventional Level**

**Stage 3: Interpersonal Concordance.** At this stage, the child begins to like the goodwill of others and tries to please others to obtain their approval in the form of ‘good boy’, ‘nice girl’. Good moral behaviour always pleases others.

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

**Post-conventional Level**

**Stage 5: Social Contract Orientation.** Right behaviour is defined according to the standards agreed upon by the group or society. These standards can be changed through a proper procedure.

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

**Moral Maturity**

W Kay (1970) asserted that moral maturity involves the following elements or attitudes:

1. Altruism
2. Rationality
3. Responsibility, and
4. Moral independence

Altruism is that element which reveals a concern for others, a readiness to consider the feelings of other persons and to help them to the extent possible. Rationality is the readiness to discuss the moral requirements of a situation with an open mind. Responsibility is the readiness to accept the results of one’s actions. Finally, moral independence is the degree to which one is ready to reach moral decisions by himself.

**Educational Implications of Moral Development**

Research findings on moral development indicate that young children whose mothers preferred physical discipline were more likely to resist the temptation of cheating in a game than were children of mothers who preferred other methods. Older children deviated less than younger ones when punishment plus a reason was provided. However, they deviated more than younger children when only punishment was provided. Moral reasoning was also found more effective than verbal punishment in preventing deviation.

Self-administered rewards have been found to be as effective as rewards administered by adults. According to R M Liebert et al. (1979), “Among the factors in child rearing that seem to encourage strive for achievement are warm and encouraging mothers, reward of achievement efforts and instigation of intellectual pursuits.”

The type of discipline one receives is related to moral development. Inductive discipline can lead to a moral code that is *internally* based and, not *dependent* on external sanctions. Power assertive discipline can lead to a shallow morality based on fear of external detection.

Both parents and teachers are expected to observe high standard of morality.

**Activity-oriented School Programme for Moral Development**

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

1. Organizing group projects
2. Organizing group games
3. Organizing a school panchayat
4. Conducting daily morning school assembly
5. Celebrating national events
6. Celebrating festivals, including those of different communities
7. Organizing camps
8. Screening appropriate films
9. Staging dramas and plays
10. Stressing the main teachings of saints and seers
11. Looking after the cleanliness of school campus, classroom and playground, etc.
12. Looking after the school garden
13. Organizing social service programmes, including ‘shramdan’
14. Organizing girl guiding and scouting
15. Celebrating festivals of different communities
16. Organizing educational excursions and trips
17. Domesticating and rearing animal pets
18. Visiting backward and slum areas and rendering some sort of service to the people living in these areas
19. Arranging community and school get-together
20. Organizing a comprehensive programme of guidance and counselling for bringing about moral changes.

7.5.1 Social Responsibility and Self-Control

Social responsibility is directly associated with the process of socialization and welfare of the society. It is also linked with the mindfulness of our actions and its linkage with the society. Every individual possess certain social responsibilities, these include our behaviour, etiquettes and actions we perform in the society. And the way we perform our actions directly affects its functions and regulations. We know that social responsibility doesn’t always happen, despite the seemingly best efforts of a company. For example, court papers accuse British Petroleum of gross negligence for safety violations and knowingly failing to maintain the oil rig, which caused the death of eleven workers and leaked oil in the Gulf of Mexico for eighty-seven days.
Ideally, companies should look at four main areas of social responsibility and act ethically in all four areas. In fact, even as individuals we should be aware of these areas of social responsibility, which we will discuss in this section. The four areas of social responsibility are as follows:

(a) Economic  
(b) Ethical  
(c) Legal  
(d) Philanthropic

Companies need to maintain strong economic interests so they can stay in business. Being profitable and providing value to shareholders is part of a company being socially responsible. Legal aspects. A company must follow the law and have a legal obligation to do so. For example, car companies are required to meet a certain level of emissions standards in car production. Ethical aspects. Acting ethically means going above and beyond the legal requirements and meeting the expectations of society. In a recent example, Apple Inc. policies were questioned when it was discovered the high suicide rate of workers producing iPhones in the Chinese Foxconn factory. As a result of the newfound awareness, Foxconn raised the salary for workers from 900 yuan ($143) to 1,800 yuan.

In other words, the ethical expectations (and outrage) of society can encourage companies to act ethically. Philanthropic aspects. This is the expectation that companies should give back to society in the form of charitable donations of time, money, and goods. Some organizations, such as REI, based in Seattle, Washington, donate 3 percent of profit and thousands of hours to non-profit community groups each year. Based on these areas, many believe business should go above and beyond the law to act ethically, meet expectations of society, and even go beyond by donating profit back to the communities in which the businesses operate. As we mentioned at the start of this section, businesses are not the only ones who engage in social responsibility. Since people run businesses, often we see business social responsibility initiatives that are directly related to individuals in the organization.

**Self-Control**

Self-control is the ability to regulate one’s thoughts, emotions and behaviour in order to attain success. It plays a major role in the controlling an individual’s life as it is a necessary element to achieve long-term goals. It separated modern people from the ancient ones and of course animal kingdom. Humans are therefore considered to be significantly valuable as they possess the ability to gain control on the senses. Self-control is primarily rooted in the pre-frontal cortex of the brain which is responsible for impulse transmission, planning and evaluation of alternative actions. The ability to gain control on oneself is termed as willpower. Willpower is directly associated with mental energy and it underlies all the kinds of achievements which an individual receives since his childhood to the workplace.
Social Control Theory

Social control theory gained importance in the 1960s as sociologists found the different views on crime. Social control theory has a major focus on social and familial bonds as constraints on offending. According to Hirschi, social control theory is built upon the existing concepts of social control. He also asserts that, social control theory is tied to family, school and different aspects of the society that serve to diminish one’s propensity for deviant behaviour. This theory specifically relates to young people have close bond with family, schools, community, and religion to determine the extent to which bonds impact offending. This theory claims that, crime is the outcome, when such bonds are weakened or loosely established. Further, this theory does not explain why the people engage themselves in deviant behaviour rather it takes the opposite approach, questioning why people refrain from offending. Therefore, criminality can only be avoided by those who try to maintain and seek good bond and relations with their family and society. According to Hirschi, these bonds are based on the following:

(i) Attachment: both within, and outside the family
(ii) Commitment: to activities in which individuals invest time
(iii) Involvement: to maintain good relationship with the environment and society
(iv) Belief: to maintain wider social values

7.6 BEHAVIOURIST VIEWS OF LEARNING

Robert S. Sears, an American child psychologist, provides a behavioural approach to the study of child development. Behavioural approach lays emphasis on learning experiences of the child which involve stimulus-response associations that may result from either classical or operant conditioning procedures. Sears’ theory of child development suggests that development is a process of observable social interaction. He derived the main concepts from Hull’s learning theory. He emphasized the importance of reinforcement and secondary drive behaviour. He divided human development into three broad phases. A brief description of the phases is given below:

- **Phase I: Rudimentary behaviour (Innate needs and initial behaviour learning):** Phase I starts from birth and continues up to sixteen months. During this period the behaviour of the infant is activated by innate needs which create tension and in order to reduce tension, the infant is motivated for action which gratify his needs. The infant’s behaviour operates purely on an altruistic level unrelated to any social world but gradually social events become the prime motivator of behaviour, for example, hunger motivates the infant for action (crying) and he requires the bottle or breast for the gratification of his need and his actions become more learned and goal-directed. He strives to imitate previously successful actions and thus socialization begins.
The child depends on someone for the fulfilment of his basic needs. Dependency is a type of operant behaviour that has as its required environmental events affectionate and nurturant behaviour performed by another person.

In early infancy, the behaviour of the child is controlled by the principle of operant conditioning. Social environment in which an infant is born has a great influence on his later development. The sex of the child, ordinal position in the family and socio-economic condition of the parents have bearing on the development of personality. In our country, a male child is preferred to a female and discriminative treatment is given right from the birth of the child.

According to Sears, 'A child is allocated to one sex or the other, and society begins to implant in him motives, interests, skills and attitudes appropriate to such membership.'

The first phase, as a matter of fact, interlinks the biological endowment of the child with his social environment where through the process of constant interaction his personality develops. Conducive social environment is very essentially required for the development of a harmonious personality.

- **Phase II: Secondary behavioural systems:** The training for socialization of the child begins in this phase in the family. The child is motivated by basic requirements of life and secondary dependency needs. Parents and other members of the family continue to be the major reinforcing agents of the child's behaviour. Parents should reinforce desirable behaviour of children. The child begins to imitate the behaviour of his parents. Therefore, it is very important that parents should present a role model before the child. Social learning depends upon replacing previous learning with newer experiences based upon more appropriate satisfaction rather than upon fearing and avoiding unpleasant consequences. Punishment should be avoided because it creates behaviour problems. During this phase, children begin to satisfy their dependency need themselves. They start imitating spontaneously the behaviour of parents and the other person who works as model. Dependency decreases with age and unfolds in the process of identification with peers. Formerly, the dependence was on parents but now it extends to many persons.

Secondary motivational drives become the behavioural system of feeding, toilet-training, aggression identification and dyadic relationship.

- **Phase III: Secondary motivational system:** During this phase, the social boundary of the child expands beyond the four walls of home. The child comes into contact with other families and the process of socialization is accelerated. Dependency becomes reduced to a specific sphere of family living. The teacher becomes a new support for dependence in school. The quality of dependency is influenced by the previous experiences.
Development proceeds in terms of seeking and gaining admiration and approval from parents and others. The teacher and parents should strike a balance between independency and control of child’s behaviour.

As the number of environmental reinforcers increases, the child identifies himself with models who satisfy his needs. If adults fail to present desirable models then the child identifies himself with his peers. The child acquires social, religious, political and economic values from his environment. He continues to strive for his parents’ acceptance of him in order to maintain the gratification of such acceptance.

Albert Bandura also came up with a theory. Bandura is a social learning theorist who is most concerned with social development and particularly with moral development. He emphasizes the importance of reward and punishment in the development of behaviour. Behaviour is learned through conditioning and observational learning. Children’s responses that are reinforced are more likely to recur than responses that are not reinforced. There is positive correlation between reward or punishment and their effect on the behaviour of the child.

According to Bandura, the child’s behaviour is affected by satisfaction and pleasure. In early childhood parental approval and fear or anxiety associated with punishment influence the moral and social development of the child.

Another important mechanism is imitation by which a child learns social and moral development. The child learns many things by imitating the behaviour of the model through observation. Imitation follows certain principles such as competency, prestige, power and similarity of the model.

5. What are the two aspects of language use?
6. What does moral development of the child imply?
7. What is self-control?
8. What did Bandura emphasize in the development of behaviour?

1. According to Piaget, the following are the aims of education:
   - The principal goal of education is to create men who are capable of doing new things, not simply repeating what other generations have done. Education should create men who are creators, inventors and discoverers.
   - The second aim of education is to form minds which can be critical, can verify and do not accept everything they are offered.
2. Piaget called ‘schemes’ as cognitive structures or the patterns of behaviour that children and adults use in dealing with objects in their environment.

3. The theory of constructivism is based on observation and scientific study of how people learn.

4. Constructivist theory usually means encouraging students to use active techniques (experiments, real-world problem solving) to enhance their knowledge base, then reflect on new additions and the overall effect, and then externalize what they are doing and how their understanding is changing.

5. Language use has two aspects—production and comprehension.

6. Moral development of the child implies inculcation in the child a number of qualities for which the curriculum provides ample opportunities.

7. Self-control is the ability to regulate one’s thoughts, emotions and behaviour in order to attain success.

8. Bandura emphasized the importance of reward and punishment in the development of behaviour.

7.8 SUMMARY

- Depending on the type of development, learning is classified as
  (i) Academic learning,
  (ii) Emotional learning,
  (iii) Intellectual learning,
  (iv) Moral learning,
  (v) Motor learning,
  (vi) Sensory learning,
  (vii) Social learning.

- Piaget began his study of child development with the observation of his own three children.

- Piaget revolutionized thinking and understanding about the intellectual growth of young children. According to his theory, a child goes through a series of developmental stages which are as follows:
  1. Sensori-Motor Stage (Birth to two years)
  2. Pre-conceptual Stage (two to four years)
  3. Intuitive Stage (four to seven years)
  4. Concrete Operation Stage (seven to eleven years)
  5. Former Operations Stage (eleven years to adolescence)

- The theory of constructivism is based on observation and scientific study of how people learn. As per this theory, people construct their own
understanding and knowledge of the world by experiencing things and reflecting on those experiences.

- The constructivist view of learning points us towards a number of teaching practices. It usually means encouraging students to use active techniques (experiments, real-world problem solving) to enhance their knowledge base, then reflect on new additions and the overall effect, and then externalize what they are doing and how their understanding is changing.

- Constructivism does not negate the active role of the teacher or the value of expert knowledge.

- The constructivist teacher thus provides tools such as problem-solving and inquiry-based learning activities with which students formulate and test their ideas, draw inferences, and strengthen their knowledge.

- Different theories of learning have advocated different learning approaches. Both teaching and learning have immensely improved by the contribution of these approaches. Each of these, in its own way, has added something or the other to the understanding of the complex learning process.

- Social constructivism is a variety of cognitive constructivism which lays emphasis on the collaborative nature of learning. Social constructivism was developed by post-revolutionary Soviet psychologist Lev Vygotsky.

- Language is our primary means of communicating our thoughts. Everyone can master and use an enormously complex linguistic system.

- Language use has two aspects—production and comprehension. In the production of language, we start with a thought, somehow translate it into a sentence, and end up with sounds that express the sentence.

- Jean Piaget (1932) used the interview method to find the various stages of moral development of the child. According to him, there are four stages:
  
  (i) Anomy (the first five years),
  (ii) Heteronomy—Authority (5–8 years),
  (iii) Heteronomy—Reciprocity (8–13 years),
  (iv) Autonomy—Adolescence (13–18 years).

- Social responsibility is directly associated with the process of socialization and welfare of the society.

- According to Hirschi, social control theory is built upon the existing concepts of social control. He also asserts that, social control theory is tied to family, school and different aspects of the society that serve to diminish one’s propensity for deviant behaviour.

- Robert S. Sears, an American child psychologist, provides a behavioural approach to the study of child development.
Behavioural approach lays emphasis on learning experiences of the child which involve stimulus-response associations that may result from either classical or operant conditioning procedures.

According to Bandura, the child's behaviour is affected by satisfaction and pleasure. In early childhood, parental approval and fear or anxiety associated with punishment influence the moral and social development of the child.

### 7.9 KEY TERMS

- **Altruism**: It means disinterested and selfless concern for the well-being of others.
- **Assimilation**: It implies incorporation of something from the environment.
- **Constructivism**: It is a teaching philosophy based on the concept that learning (cognition) is the result of 'mental construction' - students construct their own understanding by reflecting on their personal experiences, and by relating the new knowledge with what they already know.
- **Morality**: It refers to principles concerning the distinction between right and wrong or good and bad behaviour.

### 7.10 SELF ASSESSMENT QUESTIONS AND EXERCISES

**Short Answer Questions**

1. How is learning classified?
2. What are the criticisms of Piaget’s theory of child development?
3. Write a short-note on Piaget’s view of moral development.
4. What is social responsibility?

**Long Answer Questions**

1. Examine Piaget’s view of learning.
2. Discuss constructivism. What are its benefits and criticisms?
3. Describe the roots of language and its use.
4. Explain the behaviourist view of learning.

### 7.11 FURTHER READINGS

NOTES

8.0 INTRODUCTION

In the previous unit, you learnt about different views of learning. The unit also discussed language development and the development of morality. In this unit, we will discuss the nature and meaning of disciplining in education. Discipline can be thought to be the practice of teaching others to obey rules or norms by using punishment to correct unwanted behaviours. In a classroom, a teacher uses discipline to ensure routine is maintained, school rules are enforced, and the students are in a safe learning environment.

8.1 OBJECTIVES

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

- Explain the meaning and nature of discipline
- Describe the areas of discipline
- Discuss problem solving

8.2 DISCIPLINE: NATURE AND MEANING

The concept of discipline is not a straightforward one. Discipline can mean several things and as such has several connotations associated with it. Since the nature of discipline is different from each other, there is no precise definition of discipline.
that can be stated. Discipline can be used to mean and represent several things at
the same time. Merriam Webster gives the following meanings of discipline:

- Punishment
- A field of study
- Control gained by enforcing certain rules on someone
- A prescribed pattern of behaviour
- Self-control
- A system of rules governing a specific activity or the behaviour of people

Thus, it is understood that discipline has several meanings and each of them
denotes something different, making it impossible to fit all these meanings into a
concise or a specific definition.

Discipline originates from a Latin word 'discipulus', which means pupil,
and 'disciplina' which means teaching. The Oxford English Dictionary defines
the term discipline as a noun as well as a verb. As a noun, the meaning of discipline
as stated in Oxford English Dictionary is as follows:

- the practice of training people to obey rules or a code of behaviour,
  using punishment to correct disobedience
- the controlled behaviour resulting from such training
- activity that provides mental or physical training
- a system of rules of conduct
- a branch of knowledge, typically one studied in higher education'

As a verb, discipline is ‘train (someone) to obey rules or a code of behaviour,
using punishment to correct disobedience’ and ‘punish or rebuke formally for an
offence.’

As a system of rules of conduct, discipline is a way of life. It is the personal
orientation towards life that enables people to live in a systematic manner. Discipline
is, therefore, a habit which one adapts over time to lead a better life. It is also an
essential life skill that extends to personal, career, student as well as social life of a
person.

Discipline governs the way in which people behave in their day to day lives.
It has several advantages which include the following:

- It enables a person to stay focused towards work, activities and goals.
  A disciplined person, because of his focus on work, can complete his or
  her work in time. Discipline also enables a person to avoid mental
disturbances and achieve toughest of the goals.
- Discipline helps a person command respect from others. A disciplined
  person often completes work in time and behaves in a manner that is
  looked upon by others. A disciplined person is, therefore, often looked
  upon as a role model by many others.
Discipline in life enables a person to stay healthy. A person who is disciplined in life eats food on time, follows a particular exercise regime and is thus able to stay healthy. This way, a person is able to tune in the mind and the body for a healthy lifestyle.

Discipline keeps one active since it provides a positive outlook to life. A person who is disciplined is self-confident and always enthusiastic to do things, and overcomes laziness and the unwillingness to do a specific work.

A disciplined person is able to practice better self-control. The person knows what he or she is talking about and avoids getting into silly problems. A disciplined person is therefore able to build good and strong relations with other people in life.

Discipline is also important for better education. Discipline in school as well as classroom enables a person to learn in a better manner since he or she is attentive to what is being taught. Thus, a disciplined person learns better than others and is also able to retain the lesson for a longer time period.

Discipline also enables a person to overcome stress as the person is well-organized and planned in his day to day routine. It helps a person develop better self-esteem and also avoid depression.

While discipline is associated with the above stated advantages, it is also associated with negative connotations. Research suggests that parents often associate discipline with punishment. Learning for children begins at a very early stage which parents are not aware of and often have issues with using the word ‘no’. Since parents do not use the term ‘no’ often, as they worry that they would inhibit the development of the child, they resort to punishment as a means of disciplining their children. Punishment is not discipline; it is in fact a negative stimulus that is used by parents as well as teachers when children are in school to get rid of the undesirable behaviour of the children. Instead of using punishment as a means to discipline the child, the use of word ‘no’ and the following ‘Ds’ of discipline can be tried to have a more positive outcome:

- **Determine**: It is important to determine the rules in the sense the child’s activities must be determined. Any activity that a child indulges in, which the parent thinks will become annoying, must be discouraged and the child must be asked not to do it.

- **Demeanour**: It is important for parents and teachers to say ‘no’ in a serious tone so that the child knows that what is being said needs to be followed.

- **Displace**: When a child does not stop indulging in an activity or behaviour which is not acceptable, the best thing to do is to move the child from the area instead of punishing the child. This will have a positive outcome.
Classroom Atmosphere
and Management

NOTES

DISTRACTION: The best way to avoid indiscipline in a child is to distract the child with something useful and constructive.

DILIGENCE: It is important that the rules that the parents or children specify for the child are consistent. A ‘no’ must mean ‘no’ for the child. Saying ‘no’ once may not be enough and may not have the desired effect. Parents and teachers need to be sure enough of the fact that the child follows what has been once said and does not deviate from it. If the parents and teachers are not consistent with their rules and responses, the child may not take the answer ‘no’ seriously enough.

Effective Discipline

Effective discipline requires three components:

1. A positive, loving and supporting relationship between the child and the parents
2. Using positive reinforcement strategies so that undesirable behaviours can be avoided
3. Applying punishment to reduce or eliminate undesirable behaviours

For discipline strategies to be most effective, it is important for parents and children to have a relationship wherein the children feel loved and secure. Children respond to the positive nature of relationship and a positive connotation of discipline. Therefore, a parent must take the following steps for effective development of discipline in the children:

- Maintain a positive emotional tone
- Provide attention to the child so as to increase positive and desirable behaviour
- Respond consistently to similar behavioural situations
- Provide consistency in the daily activities and routine of the child
- Being flexible especially with older children

The word discipline usually connotes strategies to reduce or eliminate undesirable behaviours. However, eliminating undesirable behaviour without having a strategy to stimulate more desirable behaviour is not effective. An important part of discipline is to enable children learn behaviours that meet parental expectations, are effective in promoting positive social relationships, and enable to develop self-discipline that leads to positive self-esteem. To develop positive and desirable behaviours in children, it is important for parents as well as teachers to:

- Pay positive attention to the children
- Listen carefully to the children and help them to express their feelings
- Provide children with opportunities so that they can take the right decisions
- Reinforce positive behaviours with praise
To curb and get rid of undesirable behaviours on the part of the children, it is important for the children as well as the parents to know what problematic or undesirable behaviour is and what the consequences of such behaviour are. It is also important to provide instructions to the children as to how to avoid undesirable behaviour from taking place. Parents can use the strategy of removal of privileges effectively in order to reinforce positive behaviour in the children.

Areas of Discipline

The areas of discipline are as follows:

1. Child discipline

Discipline as a concept is applicable socially as well as academically. The basis of social discipline is child discipline which begins at home. Child discipline involves all those strategies that are used to prevent undesirable behaviours from arising in children. Discipline in this context means imparting knowledge and skills to children so that they may develop desirable behaviours. Child discipline involves teaching children a specific code of conduct that they need to follow.

Parents use discipline to teach their children about basic principles that need to be followed and also about the expectations from children. Child discipline enables the children to learn right from wrong and is an essential area that needs to be focused on. Child discipline teaches children self-control so that they exhibit more of desirable behaviours and their undesirable behaviours are curbed.

Child discipline may often involve rewards and punishments. Rewards are given to reinforce desirable and positive behaviours while punishments are given to get rid of undesirable behaviour. The purpose of child discipline is to help children develop desirable social behaviour. The ultimate aim of child discipline is to enable children to develop sound judgment and morals so that the child attains self-discipline.

The methods of child discipline vary because of the difference in the opinions, beliefs and values of people. When it comes to child discipline, the following types of parenting styles are taken into consideration:

- **Authoritative parents:** Authoritative parents are the ones who use warmth, firm control and rationally help their children develop self-discipline. Though they lay emphasis on the self-development of the child but they take the ultimate responsibility of the behaviour of the child. The children are required to follow the rules framed by the parents but also develop an autonomous style of living. Such parents use issue-oriented discipline approach to help their children develop positive and desirable behaviours.

- **Authoritarian parents:** Such parents make use of punitive, forceful and absolute discipline with their children. Such parents believe that children must confirm and obey the rules that have been set in all instances. Such parents believe that it is them who must provide for their children and be responsible for them and that the children in turn cannot teach the parents how to do things. Authoritarian parents believe in complete control of their
children. In such cases, the interests of children are placed foremost mainly because the parents know what is best for their children.

- **Indulgent parents**: Indulgent parents are the ones who use accepting and benign ways to promote positive and desirable behaviour in the children. Such parents are responsive to the needs of their children but are not demanding as their only concern is the happiness of their child.

- **Indifferent parents**: These are the parents who exhibit low levels of responsiveness and are also less demanding. They try every method to ensure that their time and interaction with their children is minimised. In extreme cases, indifferent parents become neglectful of the needs of their children and therefore fail at helping children to develop the required self-discipline. Such parents are not involved in the life of their children as they believe that the children can handle their own lives.

- **Connected parents**: Connected parents are the ones who find ways to stay connected with their children and improve their relationship with the children. Such parents help their children to become emotionally capable and confident and develop positive behaviour and attitude.

The following are a few methods of child discipline:

- **Time-outs**: One of the most common methods of child discipline is to send the child away from the group or family when the child exhibits some form of undesirable behaviour. Time-outs are discipline strategies that are used by parents to ensure that their children develop the right kind of behaviour and know right from wrong.

- **Grounding**: This is a form of punishment used for older children, especially children in their teens and involves restricting the movement of the children out of the homes.

- **Scolding**: This is a technique used to reprove or criticise the negative behaviour or actions of the child. This is used to reinforce positive behaviour and actions in the children.

- **Praise and rewards**: Praising the children and rewarding them when they are not misbehaving is a method of reinforcing positive and desirable behaviour in the children.

Non-punitive discipline is a form of discipline strategy that does not use any form of punishment. In fact, this strategy is based on love and guidance and requires the parents to help and guide the child into learning the appropriate and positive behaviours.

2. School discipline

It is another area that needs to be paid attention to. Children spend most of their time in school and therefore, it becomes the duty of the teachers to make sure that the students develop the right and acceptable behaviour. School discipline is referred
School discipline sets limits for the behaviour of the students or guides them to learn the acceptable behaviours. School discipline prevents the students from indulging in behaviours and attitudes that are considered harmful and are against the educational norms or the rules and regulations of the school.

School discipline is important to develop a safe and fun learning environment. Without discipline, learning and teaching cannot be carried out and therefore, a learning environment cannot be developed. Discipline, however, does not mean classroom management but is a part of classroom management wherein teachers need to help students develop discipline as a skill. School discipline is an art that required skills, knowledge and sensitivity and is acquired through learning and experience. It is, therefore, essential for teachers to develop a well-planned approach to discipline and also to understand the basic theories of discipline before they can encourage the students to practice it.

The area of school discipline gained importance because students misbehave in school and classroom. Misbehaviour is any behaviour which is unacceptable and oversteps the society’s ideas of moral, valid and ethical behaviour. Now the important question is why do students misbehave? Students misbehave because of the following reasons:

(i) **Lack of engagement and stimulation:** Students are curious beings in school and want something new and engaging all the time. When in school, students are forced to attend classes that are one-dimensional in the sense that it is only the teacher who is talking most of the time and the students are not engaged appropriately, they tend to misbehave because of the lack of stimulation that they require for learning.

(ii) **Rigid definition of acceptable behaviours:** Rigid law and order in the classroom also often result in the students misbehaving. Students are often required to keep sitting at one place, read, listen and take notes and are not allowed to move and engage interpersonally with other students. The strictness in class often leads to students misbehaving.

(iii) **Lack of love and attention:** When students in the class do not receive the attention of their teachers, they find ways and often negative ones to draw the attention of the teacher towards them. This often has negative consequences for the children who are punished for misbehaving.

There are several discipline models that can be used by teachers to manage students who misbehave. These include:

- **Relationship listening:** This model is used by teachers who believe that the students have the capacity to change their behaviour and therefore, the teacher makes use of minimal power. The teacher believes that if the student
can be helped to express his or her emotions and talk about the problem he or she is facing, he or she would stop misbehaving. The teacher plays a supportive role in this case. The teacher listens to the student in a manner which is non-judgemental and facilitates an environment wherein the student can feel free to express his or her concern.

- **Confronting contracting**: This model is used by those teachers who believe that a student who misbehaves has to be confronted so that he can stop behaving in that particular manner. The student is given complete power to take steps to change his or her behaviour. The teacher encourages the student to make a contract for improved behaviour. The teacher and the students develop ways to resolve problems arising out of the misbehaviour mutually.

- **Rules and consequences**: The rules and consequences is a model wherein the teacher exercises maximum control in the class. It is the teacher who decides the rules and behaviour of the students. The teacher makes sure that the students learn the rules that have been developed by her and rewards those students who successfully acquire these rules.

The following are the ways of maintaining school discipline:

(i) **Corporal punishment**: Corporal punishment has been used as the most common means since ages for maintaining discipline in the school. In the school, the teacher acted as a substitute parent and was therefore allowed to make use of corporal punishment to chastise the students. Teachers often made use of birch, cane etc. to punish the students. Corporal punishment however is not permitted in schools now-a-days and has totally disappeared.

(ii) **Detention**: Detention is another common method used to maintain discipline in schools. Detention is the process wherein a student is required to report to a designated area of the school during a specified time period and remain there for a specific time period.

(iii) **Suspension**: Suspension is temporary expulsion of a student. Suspension is mandatory leave assigned to a student as a punishment for misbehaviour and is commonly used in many schools. Suspension can be in-school and out-of-school. In-school suspension is the one wherein a student is required to report in the school but not allowed to attend the class. Instead the student is required to attend a designated suspension classroom. Out-of-school suspension is the one wherein the student is not allowed to be on the school grounds during the school hours when the school is in session.

(iv) **Expulsion**: Expulsion is the ultimate last resort for misbehaviour of student and to maintain discipline in school. Expulsion means that the student’s education is terminated on a permanent basis. Expulsion is used when all other methods of maintain discipline have failed.
### 8.3 Problem Solving Behaviour

Problems in everyday life are best understood as obstacles to goals. That is, the individual wants to achieve an outcome, but something stands in the way. Therefore, thought must be given to a strategy, tactic, or activity that overcomes the obstacle. That activity is the solution to the problem. Problems can be major—associated with long-term and substantial goals (e.g., an 18 year old student wants to go to college but lacks the credits for high school graduation). Alternatively, they can be minor, requiring only small problem-solving activities (e.g., the student’s pencil is too dull to write legibly). Some problems are solved consciously and deliberately, whereas others are solved automatically with minimal thought. For many individuals, the process of setting goals, planning, reviewing, and adjusting (solving problems) is often relatively automatic.

Problem solving can be understood as an act of cognition separate from other cognitive and self-regulatory acts. Alternatively—and more accurately—it can be understood within the more general context of self-regulation. Individuals who are successful in life tend to know what they need and want, set goals for themselves, make plans to achieve the goals, act in a goal-directed manner (initiating relevant behaviours and inhibiting distracting behaviours), pay attention to their successes and failures in achieving goals, and make adjustments (i.e., solve problems) when goals are not achieved or difficult to achieve. Thus problem solving is a critical component of self-regulation or executive functioning and should be understood within this context. When students are not aware of difficulties in a specific area of functioning—or actively resist acknowledging such difficulties—they are less likely to effectively monitor their performance in that area and engage in successful problem solving when problems emerge. When students resist problem-solving strategies and systems, or fail to develop habits of problem solving, it is often because of either weak awareness of or resistance to acknowledge their difficulties.

Students’ reflection on what they might do differently to succeed can be facilitated with a checklist of common strategies (i.e., solutions to problems):

- Start working early
- Ask for help
- Break large tasks into small tasks
- Have somebody check work along the way
- Devote specific times every day at home to homework
- Have a special quiet place at home where homework is done
- Check math work with a calculator
- Use a spell checker and grammar checker for written assignments
Participation in Problem-Solving Activities: Social, Emotional, and Behavioural Functioning

Similar problem-solving activities can be encouraged in social, emotional, and behavioural domains.

To heighten self-understanding, students can be asked to list situations that cause stress or problem behaviours (e.g., performance demands; multiple assignments; conflict with friends; conflicts at home; specific school or work tasks; poor grades). Students should also list their known reactions to stress (e.g., increased heart rate; perspiration; rapid breathing; trembling hands; feeling of illness, headache, or fatigue; feeling of anxiety, fear, anger, irritability; inability to concentrate or remember; aggressive thoughts or actions; self-critical thoughts or actions; social withdrawal).

Third, students should list useful strategies (i.e., solutions) to use when feeling stress or other negative emotions (e.g., ask for help; talk to family or friends about the problem; create a plan to deal with the problem and act on it; engage in fun, relaxing activities; exercise; reduce demands; view the problem as a challenge to be resolved; try to find something positive or funny about the situation).

With the help of a teacher or counsellor, the student can then periodically describe difficult emotions or behaviours that have occurred, their reactions, their behaviours and strategies, the outcome, and alternative strategies.

Check Your Progress

1. How can discipline strategies be most effective?
2. What does child discipline involve?
3. What is non-punitive discipline strategy?
4. What is problem solving?

8.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. For discipline strategies to be most effective, it is important for parents and children to have a relationship wherein the children feel loved and secure.
2. Child discipline involves all those activities that are used to prevent undesirable behaviours from children.
3. Non-punitive strategy is a discipline strategy that does not make use of punishment at all but love and guidance to discipline the children.
4. Problem solving can be understood as an act of cognition separate from other cognitive and self-regulatory acts.
8.5 SUMMARY

- Discipline is the practice of training people to obey rules or a code of behaviour, using punishment to correct disobedience.
- As a system of rules of conduct, discipline is a way of life. It is the personal orientation towards life that enables people to live in a systematic manner.
- Discipline also enables a person to overcome stress as the person is well-organized and planned in his day to day routine.
- Effective discipline requires three components:
  - A positive, loving and supporting relationship between the child and the parents
  - Using positive reinforcement strategies so that undesirable behaviours can be avoided
  - Applying punishment to reduce or eliminate undesirable behaviours
- Child discipline involves all those strategies that are used to prevent undesirable behaviours from arising in children. Discipline in this context means imparting knowledge and skills to children so that they may develop desirable behaviours.
- School discipline is important to develop a safe and fun learning environment. Without discipline, learning and teaching cannot be carried out and therefore, a learning environment cannot be developed.
- Problems in everyday life are best understood as obstacles to goals. That is, the individual wants to achieve an outcome, but something stands in the way. Therefore, thought must be given to a strategy, tactic, or activity that overcomes the obstacle.
- Problem solving can be understood as an act of cognition separate from other cognitive and self-regulatory acts. Alternatively – and more accurately – it can be understood within the more general context of self-regulation.

8.6 KEY WORDS

- Grounding: This is a form of punishment used for older children, especially children in their teens and involves restricting the movement of the children out of the homes.
- Corporal Punishment: It refers to physical punishment, such as caning or flogging.
- Expulsion: It is the action of forcing someone to leave an organization, school or college.
8.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions

1. Define discipline
2. Write a short-note on problem solving for students.

Long Answer Questions

1. What are the components of effective discipline? Discuss.
2. Describe the different areas of discipline.

8.8 FURTHER READINGS

UNIT 9 LEARNER DIFFERENCES

Structure
9.0 Introduction
9.1 Objectives
9.2 Intelligence
9.3 Socioeconomic Status, Culture and Gender
9.4 At Risk Students
9.5 Answers to Check Your Progress Questions
9.6 Summary
9.7 Key Words
9.8 Self Assessment Questions and Exercises
9.9 Further Readings

9.0 INTRODUCTION

Democratically, all individuals are equal, but physically and psychologically all individuals are unequal and different. Each individual is different from the others. All the same, it is now universally acknowledged that equal opportunity or equality of opportunity must be provided to every individual for drawing out the best that he/she has, so that the individual achieves optimum development. It has been aptly stated by Benjamin S Bloom, an American educator thus: 'A society which places such great value on education and schooling that it requires the individual to attend school for a long period of time must find the means to make education attractive and meaningful to the individual learner'. This implies that education should be individual centred. But in spite of the loud talk on child centred or individual centred education, it is observed that there is very little action in this regard. In this unit, you will study the different areas of individual or learner differences.

9.1 OBJECTIVES

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

- Explain the fourfold classification of the definitions of intelligence
- Discuss the difference genetic determinants
- Describe how personality is shaped by culture, class and caste
- Discuss at risk students

9.2 INTELLIGENCE

There is no unanimity among writers and psychologists regarding defining intelligence. In fact, there are as many definitions of intelligence as there are writers...
on the subject. P B Ballard who writes on educational psychology (1913) observed, 'While the teacher tried to cultivate intelligence and the psychologist tried to measure intelligence, nobody seems to know what intelligence was.' On account of the different ways in which intelligence is interpreted, it has become less acceptable and more exposed to criticism by psychologists. Nevertheless, it is traditionally acknowledged by parents and teachers that intelligence is the most important single variable which affects success in school and in life. In general terms, intelligence means the manner with which an individual deals with facts and situations. Intelligence is the aggregate or the global capacity of the individual to act purposefully, to think rationally and to deal effectively with the environment. According to the educationist R R Kumra, 'Call it practical wisdom, call it common sense, call it genius—it is just the same in different names and grades.'

**Four-fold Classification of Definitions of Intelligence**

A variety of definitions of intelligence have been suggested by the psychologists, which can be classified into at least four distinct groups.

1. **Ability to Adjust**
   - A Binet (1905) defined intelligence as, 'The ability of an individual to direct his behaviour towards a goal.'
   - According to Boynton, 'It is an inherited capacity of an individual which is manifested through his ability to adjust and reconstruct the factors of his environment in accordance with the most fundamental needs of himself and his group.'
   - Burt (1949) observed, 'It is the power of readjustment to relatively novel situations by organizing new psycho-physical coordination.'
   - F N Freeman (1937) said, 'Intelligence is represented in behaviour by the capacity of the individual to adjust himself to new situations, to solve new problems, to learn.'
According to Johnson, ‘It stands for an ability to solve the general run of human problems to adjust to new situations.’

J Piaget (1926) defined intelligence as ‘Adaptation of self to physical and social environment.’

Peterson was of the view, ‘It is a mechanical means for adjustment and control.’

For Pinter (1921) intelligence meant, ‘The ability of the individual to adapt adequately to relatively new situations to life.’

According to Stern (1941), ‘Intelligence is a general capacity of an individual, consciously to adjust his thinking to new environment.’

Van Wagener was of the view, ‘It is the capacity to learn and to adjust to relatively new and changing conditions.’

William James (1907) observed, ‘It is the ability to adjust oneself successfully to a relatively new situation.’

William McDougall (1923) defined, ‘It is the capacity to improve upon native tendency in the light of past experience.’

2. Ability to Learn

According to Buckingham (1921), ‘Intelligence is the learning ability.’

Calvin believed ‘It is the ability to learn.’

Spearman (1927) said, ‘Intelligence may be thought of in terms of two abilities, i.e., ‘g’ or general and ‘s’ or specific.’

L. L. Thurstone (1946) defined intelligence in terms of five primary abilities.

Woodrow observed, ‘It is the capacity to acquire.’

3. Ability to Do Abstract Reasoning

For C Spearman (1927) intelligence was the ‘General intelligence which involves mainly the education of relations and correlates.’

E L Thorndike (1931) said, ‘We may define intelligence in general as the power of good responses from the point of view of truth or fact’.

Gates and Others (1955) observed, ‘It is a composite organization of abilities to learn, to grasp broad and subtle facts, especially abstract facts, with alertness and accuracy, to exercise mental control and to display flexibility and sagacity in seeking the solution of problems.’

Henry Garrett (1946) was of the view, ‘The abilities demanded in the solution of problems which require the comprehension and use of symbols, i.e., words, numbers, diagrams, equations, formulae.’

J M Hunt (1966) defined, ‘The technique that a child acquires for processing information supplied by his senses.’
Learner Differences

NOTES

• L M Terman (1921) pointed out, ‘An individual is intelligent in proportion as he is able to carry on abstract thinking.’
• According to Munn, ‘Intelligence is the flexibility or versatility to the use of symbolic processes.’
• P E Vernon (1927) defined intelligence as, ‘All round thinking capacity or mental efficiency.’

4. Operational Definitions

• In the words of Boring (1948) ‘Intelligence is what intelligence tests.’
• Dockell (1970) observed, ‘Intelligence might be taken to mean “ability”, i.e., what a person can do at a moment.’
• D O Hebb (1949) described three situations in which the term intelligence could be used.
• According to D W Wechsler (1950), ‘Intelligence is the aggregate or the global capacity of the individual to act purposefully, to think rationally and to deal effectively with the environment.’
• G D Stoddard (1943) said, ‘Intelligence is the ability to undertake activities.’
• According to Hein, ‘Intelligence is the activity consisting in grasping the essentials in a situation and responding approximately to them.’
• P E Vernon (1927) defined, ‘Intelligence is what intelligence test measures.’
• Well observed, ‘Intelligence is the property of recombining our behavioural pattern as to act later in novel situations.’

Brief Historical Review and Evaluation of Definition of Intelligence

Alfred Binet (1905), a French psychologist, was the first to take interest in the concept of intelligence. He defined intelligence as the ‘ability of an individual to direct his behaviour towards a goal, to make adaptation in his goal-oriented behaviour when necessary, to know when he reached the goal.’ Comprehension, invention, direction and censorship: intelligence lies in these four words. Terman (1916) defined intelligence as ‘an individual’s ability to carry on abstract thinking.’ In the words of Thompsoon, ‘The definition presented by Terman probably reflects most adequately our present functional definition of intelligence.’ Thorndike (1926) further elaborated the definition given by Terman. He defined intelligence in terms of three somewhat independent dimensions: (i) Attitude, (ii) Breadth, and (iii) Speed. In 1946, Thurstone identified the following, more or less, mutually exclusive components of intelligent behaviour.

• S, or space factor: Ability to visualize flat or solid objects, heavily involved in mechanical aptitude.
• N, or number factor: Ability in the carrying-out of the rather simple numerical exercise similar to those used by a cashier.
V, or verbal comprehension factor: Ability to deal with verbal concepts, e.g., verbal reasoning, and vocabulary availability.

W, or word fluency factor: Ability to produce words in a restricted context, i.e., a child may be fluent even though he has a small vocabulary.

M, or memory factor: Ability to store and reproduce perceptual-conceptual materials.

Induction factor: Facility in discovering the principle or rule that applies to a series of problems.

Deduction factor: Only a small amount of evidence for—ability to apply a given principle to a series of specific problems.

Flexibility and speed to closure: Ability to interpret instructions quickly, facility to size up a problem situation quickly; flexibility is the ability to abandon one configuration in favour of a more promising one.

Let us discuss some other definitions by psychologists.

G D Stoddard and B L Wellman (1934) offered a seven-category definition of intelligence. According to them, 'Intelligence is the ability to undertake activities that are characterized by:

- Difficulty
- Complexity
- Abstractness
- Economy
- Adaptiveness to a goal
- Social value
- The emergence of originals and to maintain such activities under conditions that demand a concentration of energy and a resistance to emotional force.'

J P Guilford (1950) was of the view that these definitions ignore the important concept of creativity and thus provide a narrow approach to intelligence.

D Wechsler (1950) concluded that general intelligence is more than a combination of the cognitive functions identified by Thurstone and others. He said, general intelligence is influenced by certain cognitive factors like drive, will, perseverance and persistence; by certain emotional factors like anxiety and impulsiveness; and by other more general personality characteristics.

G Thompson (1975) summed it up as, 'There is no absolute definition of intelligence. A theoretical construct may be changed any time. According to the law of parsimony, the simplest yet most fruitful definition will eventually prevail. Thurstone’s approach to the definition and measurement of children’s intelligence is challenging. Whether this approach will be more valuable than those of Binet and Terman, is of course unknown.'
Chief Characteristics and Generalizations about Intelligence

- **Inherited intelligence**: Intelligence cannot be increased or decreased. The amount of intelligence that a person possesses is inherited and fixed. The amount, though fixed, does not reveal itself at the start of life. With the growth of the child, the amount inherited by a child also grows. The general belief is that the growth of intelligence stops and it reaches its limit at the age of sixteen or seventeen. It is true that a man of forty knows more than what he knew as a boy of sixteen. But this does not mean that the amount of intelligence possessed by him has increased. This may be due to his experience. As regards his intelligence, his position remains the same.

- **Intelligence and influence of environmental factors**: It is certainly justifiable to assume that love, affection, concern and generosity, when judiciously bestowed on growing children, have desirable effects. Poor environments retard the development of intelligence. The growth of intelligence in certain children may be retarded due to certain unfavourable circumstances and when these are removed, intelligence begins to grow and functions normally.

- **Intelligence, adjustment and inventions**: An intelligent person has the ability to adjust himself to the changing circumstances with ease, efficiency and speed. He can assimilate ideas very quickly and clearly. He can cope with new situations very successfully. All the inventions of the world can be attributed to persons of very high intelligence. The unintelligent or the dullard fail to think of new situations. They are always guided by others. They lack originality.

- **Distribution of intelligence**: The majority of the school children, say about 60%, are found in the IQ range 90–110 and are referred to as ‘Normal’ or ‘Average’.

- **Intelligence and sex differences**: Generally speaking, the research studies show that the average scores of the sexes are strikingly similar.

- **Intelligence and race differences**: Every racial and cultural group contains some gifted children. Franz Boas stated, ‘If we were to select the most intelligent, imaginative, energetic and emotionally stable third of mankind, all races would be represented.’

**Three Broad Areas of Intelligent Behaviour**

Thurstone suggested that we may recognize at least three broad areas of intelligent behaviour:

- **Abstract intelligence**: He defined this as the ‘ability to understand and manage ideas and symbols, such as words, numbers, chemical or physical formulas, legal decisions, scientific principles and the like...’ In the case of students, this is very close to what is called scholastic aptitude.
Mechanical intelligence: This includes, the ability to clean, to understand and manage things and mechanisms, such as a knife, a gun, a moving machine, and automobile, a boat, and the like.

Social intelligence: ‘This is the ability to understand and manage men and women, boys and girls to act wisely in human relations.’

Check Your Progress

1. How did Binet define intelligence?
2. What is abstract intelligence?

9.3 SOCIOECONOMIC STATUS, CULTURE AND GENDER

There has been a constant warfare between hereditarians and environmentalists as regards the contribution of gender, demography, class and caste in the development of personality. There are some psychologists who overemphasize the environmental influences to the exclusion of heredity in the growth and development of personality and there is another group of psychologists who claim the superiority of heredity over environment in the development of personality. As a matter of fact, no definite line of demarcation can be drawn between the contribution of heredity environment in the development. This is an old problem which has not yet been conclusively solved.

There is no doubt that an individual is the by-product of heredity and environment of the constant interaction of hereditary and environmental factors. These two factors contribute to the development of an individual. The way an individual is like or different from other individuals in his performance and personality is due to these factors. The teacher must have the knowledge of individual differences and their causes in order to teach efficiently and to deal effectively with students in the class. To understand behaviour, the teacher must have the basic knowledge of genetics because the organism is born with certain biological inheritance. The influences of genetics on the individual, in many respects, can be considered preliminary to understand human behaviour. He must also have the knowledge of social factors such as class and caste which influence the development of the individual and group of students.

Gender and Genetic Determinants

Like begets like. Even a layman knows that a cat gives birth to kittens, lions have cubs and human beings have babies. Children, generally, resemble their parents or relatives. But we also find that in many cases children do not resemble their parents. There are numerous instances where intelligent parents have dull children or handsome parents have ugly children. This variation is universal in nature and is
called the principle of variability of inheritance. There are two principles: one is of
resemblance and the other of variability.

Ideas of appropriate behaviour for each gender (masculine and feminine)
vary among cultures and tend to change over time. For example, aggression and
assertiveness have historically been emphasized as positive masculine personality
traits and submissiveness and caretaking have historically been held as ideal feminine
traits. While many gender roles remain the same, others change over time.

Culture, Demography, Class and Caste

Every society is characterized by its cultural heritage which is transmitted from
generation to generation in the form of social heredity. Indian society is very rich
as regards its cultural heritage that has a deep influence on children. Personality of
an individual is gradually shaped by the culture he is born in. E.B. Tyler, the famous
anthropologist, defined culture as, ‘It is that complex whole which includes
knowledge, beliefs, morals, law, custom and many other capabilities and habits
acquired by man as a member of society.’

Culture refers to total life activities of a society. What people think or do
and feel constitute the culture of a society. It is the physical way of life, social
institutions and psychology of the people fused together. Biological inheritance is
the same in human beings all over the world but it is the difference in their cultural
conditions which develops distinctive personality characteristics in the individuals
of different cultural groups. We can easily identify people reared in different cultures
by the personality patterns they possess. English, American, African and Indian
can be identified by their cultural backgrounds. India is a big country having many
sub-cultures within a broad culture. The personality of individuals within these
sub-cultures is moulded by the customs, beliefs, rituals and religious faiths and
early childhood training of children. Culture is a great educator of human beings,
sometimes directly and sometimes indirectly by the methods of training and passing
on great social heritage, it leaves permanent impression on the personality of the
child.

The importance of cultural forces in the development of personality is very
great. The influence can be understood by an example. Suppose there are three
identical twins who are adopted in three sub-cultures—homes of Muslim, Christian
and orthodox Hindu. They are reared and trained in three different cultural
backgrounds. It is obvious that the impact of culture will produce three distinctive
types of personalities. Our attitudes, needs and aspirations are regulated by our
culture.

In the course of development, society stabilized certain patterns of behaviour
which are followed by the members of a society. It develops certain common
personality characteristics in the members. Common characteristics develop in
the members of a cultural group on three principles:

● Early experiences which the child gets in a culture.
Child-rearing practices are culturally patterned so that children in a society are subjected to similar early experiences.

- Culture influences the personality development of an individual in the following ways:
  - **Internalization of values, ideas, beliefs and customs through the process of learning:** A child since his birth is reared in a definite cultural background where he is taught values, customs, and beliefs, etc. which create distinctive personality characteristics in the child.
  - **Institutionalization:** Buildings of various religious prayers, books and cultural programmes. Many religions, faiths and creeds are found in India that follow different religious faiths, beliefs, prayers and cultural programmes which create unique personality characteristics among the followers of different religions.

Anthropologists have made a study of the impact of culture on personality development. Margaret Mead conducted a study on adolescents in Samoa, a primitive culture. She concluded in her study that cultural conditions play an important role in moulding the personality patterns of individuals. According to her findings, the development of the sense of security seemed to be one of the chief factors determining the formation of personality.

**Check Your Progress**

3. State the importance of cultural forces in the development of personality.
4. How does culture influence the development of personality?

### 9.4 AT RISK STUDENTS

Every society prescribes a set of norms which it expects that all its members should follow. Those who deviate from these norms and behave in anti-social manner are called delinquents. These delinquents are at risk students. Children and adolescents who are minor in age and who deviate are known as juvenile delinquents. Juvenile delinquents commit offences like assaulting, cheating, gambling, murdering, thieving, etc. They also indulge in sexual offences. Most of these delinquents are school drop-outs.

The following definitions provide valuable insight to the concept of juvenile delinquency.

C Burt observed “A child is to be regarded as technically delinquent when his anti-social tendencies appear so grave that he becomes or ought to become the subject of official action”
According to Hadfield, “Delinquency may be defined as an anti-social behaviour. It is primarily a term of social application: it is a failure in social adaptation.”

Herbert Quay viewed, “The delinquent then would be a person whose misbehaviour is relatively a serious legal offence, which is inappropriate to this level of development, is not committed as a result of extremely low intellect ... and is alien to the culture in which he has been reared.”

Johnson and Szuick said, “Delinquency as holes in super ego.”

According to Hower, “Delinquency is moral deficiency.”

A Cloward Richard observed, “The delinquent act is a behaviour that violates norms of the society, and when officially known, it evokes a judgement by agents of criminal justice that such norms have been violated.”

Travis Hirchi said, “Delinquency is defined by acts, the deletion of which is thought to result in punishment of the person committing them by agents of the larger society.”

Valentine observed, “Broadly speaking, the term delinquency refers to the breaking of some law.”

From the above, it can be concluded that delinquency has the following features:
1. It is a deviation from the accepted standards of the culture of a society or the laws of the land.
2. The deviation is detected.
3. The deviation results in punishment by the judges.

Characteristics of Delinquents
Sheldon and Gluecks in their studies of delinquency found the following general characteristics:
1. **Attitudinal:** A delinquent is defiant, hostile, non-submissive to authority, resentful, suspicious and unconventional.
2. **Physical:** A delinquent is mesomorphic in constitution, muscular and bold.
3. **Psychological:** A delinquent is less methodical in approach.
4. **Social:** He usually lacks moral standard.
5. **Temperamental:** A delinquent is aggressive, destructive, energetic, extraverted, impulsive and restless.

Types of Delinquent Acts
1. Acquisitive tendency resulting in stealing, etc.
2. Forgery leading to forged signatures of the parents on cheques, etc.
3. Aggressive tendencies which include (i) Damaging school property (ii) Bullying and mockery (iii) Torturing (iv) Committing suicide.


Causes of Delinquency

Delinquency is the result of a number of causes. Broadly speaking, these may be categorized under the following heads:

1. Hereditary, Biological and Physiological.
2. Home environment.
4. Social environment.

1. Hereditary, Biological and Physiological

(a) **Criminal Type:** In the last quarter of the 19th century, Italian criminologist, Lombroso, put forward the hypothesis of a criminal type. He held that the majority of crimes are committed by ‘born criminals.’ Lombroso held that a number of physical and mental peculiarities are found in born criminals; for instance, they are mentally ‘deficient in sensibility to pain, have unnatural emotions and a defective moral sense, and possess peculiar physical features like ‘an excessive development of jaws, high cheek bones and a symmetrical or misshapen ears.’ According to him, normal persons would not possess all these mental and physical marks together; only the born criminal will have a significant number and a peculiar combination of these. Later, Lombroso added that to bring about a full development of criminality, environmental influence is necessary. Goring and others tested what Lombroso had said and declared that the criminal hypothesis was unsound.

(b) **Innate Imbecility and Delinquency:** Thedyot stressed that delinquency was the result of ‘innate imbecility.’ According to him, criminals gave evidence of deficiency in powers of moral discrimination, though they often possessed normal and even subnormal or superior intelligence. But Healy’s tests declared that such cases were not of defective moral feelings or defective powers of moral discrimination, rather they were mentally defective. Healy, however, held that innate mental defect was an important factor of delinquency. The Stanford-Binet intelligence tests supported the view of Healy by finding a considerable percentage of mental defectiveness among delinquents, the range varying from 15 to 30 per cent.

(c) **Delinquents and Mentally Defective Children:** According to Goddard, 30 to 50 per cent of the delinquents are mentally defective. But these tests have been criticized on the ground that they were of the Binet-Simon variety,
which were not sufficiently standardized then. According to Cyril Burt, 7 per cent of delinquents are defective as compared with 1 per cent of non-delinquents. Murchison did not find any important difference between the delinquents and the non-delinquents so far as intelligence was concerned.

According to Slawson, in the measure of verbal intelligence, the delinquents were inferior to the non-delinquents on the average but in non-verbal tests there were no significant differences, rather the delinquents, on the average were superior to the non-delinquents. Slawson said that the social status was an important factor leading to delinquency. He also emphasized the fact that low social status was also responsible for low intelligence.

(d) Delinquency and Innate Emotional Instability: According to Dr. Parsons, the major cause of delinquency is innate mental abnormality. But his assumptions were proved wrong by Cyril Burt and others. Burt said that delinquency is caused by innate emotional instability. According to him, temperamentally defective persons are marked by emotional maladjustments. Delinquents are emotionally unstable from their birth onwards, though intellectually they are normal. According to his views, the proportion of emotionally unstable and temperamentally defective persons is three to six times greater among the delinquents than among the non-delinquents. Woodworth’s device of Psycho-neurotic Questionnaire indicated that instability score of an individual is directly associated with delinquency. But the problem whether emotional instability is innate or acquired is still an open question.

2. Home Environment
   (i) Broken homes and marital adjustment problems
   (ii) Disability of parents
   (iii) Defective discipline
   (iv) Lack of affection
   (v) Partiality of parents
   (vi) Lack of recreation
   (vii) Crowded families
   (viii) Lack of moral code
   (ix) Extreme poverty and also extreme wealth
   (x) Servant’s company
   (xi) Sudden accidents or deaths

3. School Environment
   (i) Unhealthy Physical Environment of the School: Unhealthy surroundings, noisy places, absence of playground, insufficient accommodation and overcrowded classrooms dampen the spirit of the child.
(ii) **Defective Organization of the School:** Bad time-table, long hours of study, lack of co-curricular activities, stress of examinations, lack of guidance and lack of special facilities for retarded and backward children create conditions of dislike and even hatred for the school.

(iii) **Unsuitable Curriculum and Uninspiring Methods of Instruction:** These inappropriate curricula and inept teaching methods destroy all interest in the studies, in the mind of the child. No wonder that he plays a truant, or remains away from the school.

(iv) **Wrong Attitude of the Teacher:** This becomes an important source of most of the crimes committed by adolescents. Slurs, taunts, cutting remarks, racial or social prejudices, severe punishments, lack of sympathy, rudeness and injustice create revolting and revengeful spirit in a child. Hartshorn and May made a study of some children who have been honest earlier but turned thieves in the school under rude teachers.

(v) **Unhealthy Relationship among Pupils in the School:** Lack of organization, coordination and discipline create jealousy, rivalry, formation of gangs, caste prejudices among pupils. In such cases, the energies of adolescents are spent on fighting, picketing, strikes, destructive actions and crimes.

### Social Environment

(i) Inequalities
(ii) Class conflict
(iii) Natural calamities
(iv) Corruption at various levels.

### Remedial Measures

It may be stressed that a delinquent act is the outcome of a tendency of satisfying a thwarted or checked motive. So the best way of preventing such acts is to satisfy the needs of children in respect of their social, economic and hygienic conditions. Our attention should be directed to the betterment of their environment. Ethical training should be given from the very beginning. Adaptability, altruism and harmony should be emphasized regularly. Social influence is the best way to give the child direct teaching in practical morality. Morality cannot be taught, it is caught. So, emphasis should be laid to present examples of good moral behaviour rather than precepts. Parents should also be educated to appreciate the value of these principles.

### Role of Parents

1. Understanding their children’s emotions, urges and mental traits.
2. Providing children with necessary requirements and facilities.
3. Creating healthy emotional, physical and social environment.
4. Developing proper discipline at home.
5. Setting good examples.
6. Contacting school from time to time.

Responsibility of the Society
1. Strengthening cultural and religious institutions, youth-serving agencies, educative agencies like libraries, recreational agencies like public tournaments, clubs, etc.
2. Helping the youth-serving organizations like Bharat Scouts and Guides, etc.
3. Eliminating evil influences in the society like gambling, drinking, robbery, pick-pocketing, prostitution, begging, sex-appealing advertisements, slums, unemployment and poverty.
4. Opening and strengthening reformative agencies like juvenile courts, police service, orphanages, mental hospitals, guidance clinics, Bal Niketan children’s homes, district jails. Juvenile police should be instituted to patrol areas infested with delinquents.

Role of the School and Teachers
(a) Preventive Measures by the Teachers
   (i) Reforming techniques of teaching
   (ii) Sympathetic attitude
   (iii) Organizing creative and constructive activities
   (iv) Constructive discipline
   (v) Guidance and Counselling

(b) Diagnosis
   (i) Medical examination of the delinquent, noting physical disabilities if any.
   (ii) Administering mental tests, discovering IQ, character traits and personality traits.
   (iii) Administering achievement tests and finding the scholastic level, educational attainment and failure.
   (iv) Preparing case history, collecting data about the family and community life, about the school life of the child.
   (v) Examination by the psychiatrist, who will interview the child, engage him into playful activities, administer CAT or TAT tests. The psychiatrist will take him into confidence and elicit from him his problems and their sources.
(vi) Interpretation of the data. This will be done in a special meeting of the psychologist, psychiatrist and the social worker (who gets data about the family and community).

**Remedial Measures**

1. The classroom and school environment should be purged of all the deficiencies and should be made stimulating.

2. The teacher’s attitude must be sympathetic. He should understand and be aware of the difficulties and help the delinquent to overcome those. He should develop wholesome human relationship.

3. Guided group activities must be encouraged like group play, group games, scouting, social service, group therapy, etc. These will strengthen their ego and super ego.

4. Special classes must be started for the low achievers.

5. Crafts or skills are useful in engaging the less developed mind to proper action.

6. The teachers should take the help of clinical services in understanding the specific problems.

7. The parents should be educated and they should be apprised of the activities of the child. The parent’s attitude must be changed and the father should be made to understand the nature and the cause of the boy’s trouble to avoid further dangers.

8. The change in the environment also helps certain cases. Children can be removed from bad homes and put in foster homes, from bad school and admitted into reputed schools.

9. The impulses and emotions of children must be sublimated. Instead of advising them, they should be engaged in activities.

10. Punishments, corporal or otherwise, should not be taken recourse to, as these only create reaction and revolt in the mind of delinquents.

11. Proper supervision should be done regarding the gangs and their activities in the school and community. Gang-formation leads to unsocial behaviour. On the other hand, self-government should be started in the schools so that their energies are redirected to proper course.

12. Moral and religious teaching in the schools can go a long way in strengthening the super ego of the children. Noble sentiments should be developed.

**Summing up:** Each case of delinquency is unique in itself. It has at its source a number of causes. These causes must be discovered, and remedies adopted according to the causes. Although, the home, the community and the state must cooperate in dealing with the problem of delinquency, it is the school which has to play a central role in the prevention as well as checking of delinquency.
5. Define delinquency.
6. What is the major cause of delinquency according to Dr. Parsons?

9.5 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Binet defined intelligence as the ‘ability of an individual to direct his behaviour towards a goal, to make adaptation in his goal-oriented behaviour when necessary, to know when he reached the goal.’

2. Abstract intelligence is the ability to understand and manage ideas and symbols, such as words, numbers, chemical or physical formulas, legal decisions, scientific principles and the like.

3. The importance of cultural forces in the development of personality is very great. The influence can be understood by an example. Suppose there are three identical twins who are adopted in three sub-cultures—homes of Muslim, Christian and orthodox Hindu. They are reared and trained in three different cultural backgrounds. It is obvious that the impact of culture will produce three distinctive types of personalities. Our attitudes, needs and aspirations are regulated by our culture.

4. Culture influences the personality development of an individual in the following ways:
   - Internalization of values, ideas, beliefs and customs through the process of learning: A child since his birth is reared in a definite cultural background where he is taught values, customs, and beliefs, etc. which create distinctive personality characteristics in the child.
   - Institutionalization: Buildings of various religious prayers, books and cultural programmes. Many religions, faiths and creeds are found in India that follow different religious faiths, beliefs, prayers and cultural programmes which create unique personality characteristics among the followers of different religions.

5. Delinquency may be defined as an anti-social behaviour. It is primarily a term of social application: it is a failure in social adaptation.

6. According to Dr. Parsons, the major cause of delinquency is innate mental abnormality.
9.6 SUMMARY

- Intelligence is the aggregate or the global capacity of the individual to act purposefully, to think rationally and to deal effectively with the environment.
- Intelligence cannot be increased or decreased. The amount of intelligence that a person possesses is inherited and fixed. The amount, though fixed, does not reveal itself at the start of life.
- An intelligent person has the ability to adjust himself to the changing circumstances with ease, efficiency and speed. He can assimilate ideas very quickly and clearly. He can cope with new situations very successfully.
- There has been a constant warfare between hereditarians and environmentalists as regards the contribution of gender, demography, class and caste in the development of personality.
- There are some psychologists who overemphasize the environmental influences to the exclusion of heredity in the growth and development of personality and there is another group of psychologists who claim the superiority of heredity over environment in the development of personality.
- Every society is characterized by its cultural heritage which is transmitted from generation to generation in the form of social heredity.
- The importance of cultural forces in the development of personality is very great.
- Every society prescribes a set of norms which it expects that all its members should follow. Those who deviate from these norms and behave in anti-social manner are called delinquents.
- Delinquency is the result of a number of causes. Broadly speaking, these may be categorized under the following heads:
  - Hereditary, Biological and Physiological.
  - Home environment.
  - School environment.
  - Social environment.
- It may be stressed that a delinquent act is the outcome of a tendency of satisfying a thwarted or checked motive. So the best way of preventing such acts is to satisfy the needs of children in respect of their social, economic and hygienic conditions.

9.7 KEY WORDS

- Delinquency: It means behaviour, especially of a young person, that is illegal or not acceptable to most people.
NOTES

- **Questionnaire**: It is a set of printed or written questions with a choice of answers, devised for the purposes of a survey or statistical study.
- **Adaptation**: It means the action or process of adapting or being adapted.

### 9.8 SELF ASSESSMENT QUESTIONS AND EXERCISES

**Short Answer Questions**

1. How do heredity and environment factors contribute to the development of the individual?
2. What are the common characteristics that develop in the members of a cultural group?
3. How can intelligence be classified?

**Long Answers Questions**

1. Discuss how culture influences an individual’s development.
2. Define delinquency. What are its causes?
3. Describe the remedial measures to prevent delinquency.

### 9.9 FURTHER READINGS


UNIT 10 CHILDREN WITH SPECIAL NEEDS

Structure
10.0 Introduction
10.1 Objectives
10.2 Socially Disadvantaged
10.3 Disabled Children
10.4 Talented, Gifted and Creative Children
10.5 Answers to Check Your Progress Questions
10.6 Summary
10.7 Key Words
10.8 Self Assessment Questions and Exercises
10.9 Further Readings

10.0 INTRODUCTION
In the previous unit, you learnt about individual differences in learners such as intelligence, gender, socio-economic differences, and so on. In this unit, we will discuss children with special needs. The topics taken up in the unit include socially disadvantaged children, disabled children, as well as gifted and exceptional children.

10.1 OBJECTIVES
After going through this unit, you will be able to:
- Discuss the education of the socially disadvantaged children
- Examine the methods of teaching and assessment of disabled children
- Describe the characteristics of gifted children

10.2 SOCIALLY DISADVANTAGED
Educational administrators, teachers, parents and social workers face problems with those children who lag behind other children in their school work. They do not benefit and are not able to manage and deal with classroom instructions. In a highly technological age, where talents are very much needed, dissipation of human resources is a great problem.

In India which has the lever of a skilled manpower resource, the gravity of the problem of backward children cannot be ignored any more. Both as a social and as well as an economic problem, care, education and training of the backward
Children with Special Needs has gained significant importance in recent years. In India, students can be socially disadvantaged because of their economic or caste status.

**Definition of Backwardness**

Some of the popular definitions of backwardness are:

Burton Hall (1947) gave the following definition, “Backwardness in general, is applied to cases where their educational attainment falls below the level of their natural abilities.”

According to F J Schonell, “Backward pupil is one who compared with other pupils of the same chronological age, shows marked educational deficiency.”

C Burt (1950) defined a backward child as, “one who in mid-school career is unable to do the work for the class next below that which is normal for his age.”

**Types of Backwardness**

Backwardness in children can be of two types. A child who is dull, that is, of low intelligence and who is lagging behind in class is considered backward. On the other hand, a child who does not fare well in class, even though his level of intelligence is normal or even above normal, is also considered to be backward, only because his educational achievements are not satisfactory. In many cases, the teachers are not able to distinguish one from the other, and label both these types of children under the category of “dull children.” Under such circumstances, even the child with normal intelligence is unable to exert himself as he is made to believe that he is dull. Enormous amounts of wastage occur due to his misconception.

**Backwardness and Retardation**

No attempt to define ‘backwardness’ is, however, complete without some reference to Schonell’s use of the terms ‘Backwardness’ and ‘Retardation’, since his methods are still widely used for the selection of cases for remedial education.

In categorizing backwardness, Schonell introduced the Mental Age concept, and ‘Subject’ or Educational Age (EA), as determined by standardized tests. In Schonell’s view, Backwardness is measured in terms of the difference between the Educational Age and Chronological Age (CA), so that in this context, he is following the same pattern as Burt. Schonell, however, goes on to introduce the concept of ‘Retardation’.

**Table 10.1** Cases Illustrating Schonell’s Definition of Backwardness and Retardation

<table>
<thead>
<tr>
<th>Case</th>
<th>IQ</th>
<th>CA</th>
<th>MA</th>
<th>EA</th>
<th>Classification</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>Neither Backward nor Retarded</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>B</td>
<td>100</td>
<td>10</td>
<td>10</td>
<td>8</td>
<td>Backward and Retarded</td>
<td>Both remedial</td>
</tr>
<tr>
<td>C</td>
<td>80</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>Backward only</td>
<td>Non-remediable</td>
</tr>
<tr>
<td>D</td>
<td>80</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>Backward and Retarded</td>
<td>Only retardation is remedial</td>
</tr>
<tr>
<td>E</td>
<td>120</td>
<td>10</td>
<td>12</td>
<td>10</td>
<td>Retarded only</td>
<td>Remedial</td>
</tr>
</tbody>
</table>
Retardation is measured in terms of the extent to which the Educational Age falls below the Mental Age. This approach is based on the hypothesis that a child cannot be expected to perform at a level above that of his innate ability as expressed in terms of Mental Age. In applying Schonell’s approach, we find that a number of contingencies can arise. These are best illustrated by means of the Table 10.1.

**Slow Learner**

Prof. T N Birkett defined, “A slow-learning child is one whose capacity for learning the kind of material which is taught in the ordinary school is limited by some deficit in intellectual capacity. Limited intelligence, however, may be defined as the chief characteristic of the ‘Slow Learner’.”

**Classification of Backward / Slow Learners**

(i) Children whose capacity to undertake education or training is limited because of low intelligence, cover a fairly wide IQ range from approximately 40 to 80 or 90. However, students whose IQ ranges between 50/55 to 85/90 are capable of benefiting from the kind of education which is offered within the normal school system. These may be subdivided into two groups.

(a) The Educable Mentally Retarded (IQ range 50 to 70).

(b) The Dull Normals (IQ range 70 to 85).

(ii) Students whose IQ range is between 35/40 to 50 are usually found as Trainable Mentally Retarded. Provision for education of such children may be made outside the normal school system.

**Population of Such Children**

While the Educable Mentally Retarded comprises some 2 per cent of the children’s population, the Dull Normals comprise some 10 per cent of the population.

A UNESCO publication, *Education and Mental Health* (1955) gave the figures of the mentally subnormal children in a school population as in Table 10.2.

**Table 10.2 Estimated Proportion of Various Grades of Mentally Subnormal Children in School Population**

<table>
<thead>
<tr>
<th>Degree of Mental Sub-normality</th>
<th>Terms in Current Use</th>
<th>Approximate IQ Level</th>
<th>Approx. %age in Population of School Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Severe Sub-normality</td>
<td>Idiot</td>
<td>0—19</td>
<td>0.06</td>
</tr>
<tr>
<td>2. Moderate Subnormality</td>
<td>Imbecile</td>
<td>20—49</td>
<td>0.24</td>
</tr>
<tr>
<td>3. Mild Sub-normality</td>
<td>Feeble-minded</td>
<td>50—69</td>
<td>2.26</td>
</tr>
<tr>
<td>4. Dull-Normal</td>
<td>Dull and Backward</td>
<td>70—85/90</td>
<td>10.00</td>
</tr>
</tbody>
</table>
Backwardness in the Indian Context

Backwardness in Indian context cannot be limited to clear-cut definition in general terms. Several complementary definitions become necessary. In Indian context a backward child is one:

(a) who is two years above the average age of class, where this is the result of stagnation and not of late enrolment or interrupted schooling, and is experiencing difficulty in working up to the norms of the group in school subjects.

(b) who is grossly under-functioning in one or more subject areas, although his age approximates to the class average.

(c) whose average total achievement score is less than minus one standard deviation.

Need for the Education of Backward Children or Slow Learners

We cannot ignore the care and education of the backward children who are found in varying degrees in every school. Such children behave like other children with the exception that they take longer time and effort to learn. Slow learners are sometimes referred to as “backward children”. Schonell called a backward pupil as “one who compared with other pupils of the same chronological age shows marked educational deficiency.” With proper guidance, backward children can become useful members of the society.

Chief Characteristics of Backward or Slow-learning Children

Sullivan summarized the characteristics of backward and slow-learning children as:

1. Short attention and concentration span.
2. Short reaction time.
3. Limited ability to evaluate material for relevancy.
5. Limited ability to work with abstractions and to generalize.
6. Slowness to form association between words and phrases.
7. Failure to recognize familiar elements in new information.
8. Habits of learning very slowly and forgetting very quickly.
9. Very local point of view.
10. Inability to set up and realize standard of workmanship.
11. Lack of originality and creativeness.
12. Inability to analyze, to do problem-solving, or think critically.
13. Lack of power to use the higher mental processes.
Causes of Backwardness

There is no denying the fact that backwardness of a child is due to a number of factors which operate simultaneously. Each child has to be studied individually in order to find the reasons for his backwardness. The causes may be grouped on the basis of their origin.

1. **Home Conditions:** Lack of accommodation, over crowdedness, uneducated parents, emotional and moral conditions of home affect the attainment level of the child in school.

2. **General Health:** Poor physical and general health, malnutrition, diseases, etc., contribute towards backwardness of a child.

3. **Intellectual Defects:** (a) **General**—Intellectual deficiency or inborn dullness is the most common and important cause of backwardness, (b) **Special**—Apart from general intelligence, there may be other special intellectual disabilities like perceptual and associative disabilities.

4. **Physical Conditions:** As physical and mental growth are closely related, physical defects often lead to backwardness.

5. **School Conditions:** Inefficient teaching, ill-organized school organization, unsympathetic behaviour of the teachers, lack of individual and group counselling, absence of the child from the school are the important factors which are responsible for backwardness of a child.

6. **Sensory Defects:** Weak eyesight, poor hearing, lack of control of hands also hamper the work of the classroom more directly than physical defects. Sensory defects prove to be a great barrier to the acquisition of knowledge, thereby causing backwardness.

7. **Social:** A number of surveys were conducted in various countries by eminent psychologists to find out the backwardness in relation to the social environment of the child. A survey conducted by Burt during 1925-35, covering the entire area of London, reported that backwardness and poverty go hand in hand.

8. **Temperamental Defects:** Emotional instability, excitability, depression, apathy, lack of industry and lack of honesty are some of the numerous temperamental disorders which can be equally responsible for backwardness.

Problems of a Backward Child

1. A backward child lags behind his classmates. He, therefore, becomes bitter and hostile towards himself and others.

2. A backward child is filled with anxiety.

3. A backward child lacks the motivation to learn.

4. Repeated failures deprive him of his confidence.

5. A backward child may become a problematic child.
A physically handicapped child or a disabled child is one whose physical impairment, in some way or the other limits or inhibits his participation in normal activities. Impairment implies abnormalities of body structure and appearance. It represents a severe distortion of the body’s normal pattern and structure. The impairment may be of a serious type or it may be minor in degree. For instance, a person struck by polio may have only 15 per cent impairment on a certain limb, while another may suffer from total loss of mobility. Similarly, a visual defect may be partial, or serious enough to render the person practically sightless. There would also be visual impairments that may be overcome with certain aids available today. Given the pace of medical research, the day may soon come when stem cells and other emerging technologies may be used to replace or rejuvenate a dead optic nerve or retina or even bypass them by means of opto-electronic or bionic inserts, restoring sight…a ‘biblical’ miracle wrought in the temples of 21st century science.

Generally speaking, the physically handicapped may be classified as:

1. The cripple.
2. The blind, the near blind or the partially blind.
3. The deaf or hard of hearing.
4. The language handicapped.
5. Cerebral palsy sufferers.
6. Orthopedically handicapped.

In addition, there would be chronically ill children who may have health problems like heart defects or cardiac problems, epilepsy, allergies, diabetes, rheumatism, muscular dystrophy, tuberculosis etc. they would also fall in the category of physically handicapped children.

**Objectives of Education of Physically Handicapped Children:** Following are the chief objectives of the education of physically handicapped children:

1. To reach the maximum level of effectiveness in school subjects.
2. To pursue those curricular matters that endow specific types of handicapped school children with the attitude and ability to live life as fully and effectively as possible.
3. To consider the mental as well as physical hygiene needs of handicapped school children and to take suitable measures.
4. To develop rational behavioural patterns in the handicapped that will produce satisfactory achievement in school as well as out of it.
5. To produce in the handicapped a desire to participate in the activities of non-handicapped persons.
6. To develop a realistic self-concept in handicapped children.
Why Education of Handicapped Children?

The education of handicapped children has to be organized not merely on humanitarian grounds, but also on grounds of utility. Proper education generally enables a handicapped child to largely overcome his handicap, and makes him a useful citizen. Social justice also demands it. It has to be remembered that the Constitutional Directive on compulsory education includes handicapped children as well. Very little has been done in this field so far on account of several difficulties. There is much that we could learn from the educationally advanced countries which, in recent years, have developed new methods and techniques, based on advances in science and medicine. The case of cosmologist Stephen Hawking is an outstanding example.

The primary task of education for a handicapped child is to prepare him for adjustment to a socio-cultural environment basically designed to cater to the needs of the normal. It is essential, however, to ensure that the education of handicapped children becomes an inseparable part of the general educational system. The differences lie in the methods employed to teach the child and the means the child uses to acquire information. These differences in methodology do not influence the goals of education. This form of education is, therefore referred to as ‘special’.

Pattern of Education of Physically Handicapped Children

Following are the usual patterns of education of the handicapped:

1. **Integration**: Integration implies that the education of the handicapped children be so organized that they freely mix with normal children. This can be achieved in various ways:
   (a) Having regular classes for all children.
   (b) Deliberate architectural planning to allot space for regular classes and special classes separately, but in the same building.

2. **Partial Integration**: The brightest children join with regular groups of the handicapped children, for carefully selected experiences, games and play.

3. **Total Segregation**: Under this system, the handicapped children are completely separated from other children. They are taught in special schools.

Fundamental Principles for the Education of Physically Handicapped Children

1. Recognition of the handicap of the child by the teacher as early as possible.
2. Taking all available correctional measures.
3. Development of favourable attitude towards the child.
4. Diagnostic and remedial work by the guidance counsellor.
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Effects of Physical Handicaps on Children

A physical handicap may directly or indirectly create the following types of problems for the children and their parents:

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

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

Problems of the Physically Handicapped

The handicapped child is unable to participate in desirable normal activities of daily life. He, therefore, needs appropriate substitute interests.

The physically handicapped child also faces emotional problems as he feels that others have a low opinion about him and develops a feeling of hatred for others or of self-pity. He is not necessarily mentally deficient. In fact, he possesses normal intelligence. It is, therefore, very necessary that the mental powers of the handicapped are exploited fully and suitable opportunities provided to generate hope in life and help compensate for his physical disability.

The major problem of the physically handicapped is to identify the impairment at the earliest and make arrangements for adequate adjustment. The handicap that is obvious at birth is easily identified. Other impairments take time to be identified.

Curricula, Methods of Teaching and Assessment of the Physically Handicapped

Following points may be considered while providing educational facilities for the handicapped children:

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

2. **Special Classes**: Special classes may be organized for partially sighted students.
3. **Special Equipment and Methods of Teaching**: Blind children need special equipment and medium for their education. They also need special teaching methods like the following.

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

4. **Special Subjects**:

   (i) Modelling may be substituted for drawing and painting. Blind children derive pleasure from working with clay and plasticine (a proprietary brand of modelling clay).
   (ii) Dramatic art may be cultivated.
   (iii) Music may be given adequate encouragement.

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

6. **Vocational Education and Handicrafts**: A variety of handicrafts may be taught to the physically handicapped.

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

8. **Education for Living with a Handicap in Society**: Handicapped children have to live in a world of normal people. Therefore, they should be provided all types of education, training and guidance which enable them to face their disability realistically and make suitable adjustments in order to live without bitterness and meet unpleasant situations boldly.

**Education Services for the Exceptional Children**

Prof. K C Panda (2000) mentions the following types of education services to be provided to the exceptional children, depending upon the nature and intensity of the handicap.

1. Regular classroom with minor in-class support.
2. Regular classroom with weekly ‘itinerant’ teacher.
3. Regular classroom with daily resource room supplemental programming.
4. Resource room with several hours of daily regular class-room instruction and non-instructional activities.
5. Regular room with limited hours of weekly non-instructional activities with regular classmates.
Inclusion or Mainstreaming Approach

Inclusion of exceptional children implies the existence of following elements:

1. Sharing the same class-room, resources and opportunities by the handicapped as well as the regular students.
2. Providing special services needed for the exceptional (handicapped) students in the regular schools.
3. Having handicapped (disabled) students follow the same schedule as normal (non-disabled) students.
4. Involving disabled students, in several academic courses and co-curricular activities including art, field trips, music, exercises, etc.
5. Enabling disabled students to use library, playground and other facilities at the same time as normal students.
6. Encouraging friendly relations between disabled and normal students.
7. Arranging for disabled students to receive their education in the regular environment of the community, when feasible.
8. Advising all students to understand the limitations of the disabled students and accept human differences.
9. Enrolling children with disabilities in the same schools they would have attended if they were not disabled.
10. Attending to parents’ concern about their disabled children seriously.
11. Providing an appropriate individualized programme.

To sum up, integration approach is a particular orientation towards providing education to the majority of the handicapped children.

It is estimated that nearly 10 per cent of handicapped students receive most of their education in regular schools. An additional 20 to 25 per cent students are enrolled in special classes located in the same building.

Check Your Progress

1. How did Burton Hall define backwardness?
2. What is the primary task of education for a handicapped child?
10.4 TALENTED, GIFTED AND CREATIVE CHILDREN

An exceptional child may be defined as the one who differs so much from his peer average in respect of physical, mental or social characteristics that he is unable to develop his fullest potential under normal conditions in an ordinary class and for whom some special environment or organization has to be created either within or without the normal school. Exceptional children deviate significantly from the normal ones. The deviation may fall on either end far above the average or far below the average in one or more aspects of achievement.

In the words of Crow and Crow, “The term typical or exceptional is applied to a trait or a person possessing the trait, if the extent of deviation from normal possession of that trait is so great that because of it the individual warrants and receives special attention from his fellows and his behaviour responses and activities are thereby affected.”

Samuel A Kirk, in his book, *Educating Exceptional Children*, gave the following definition. “An exceptional child is he who deviates from the normal or average child in mental, physical and social characteristics to such an extent that he requires a modification of school practices or special educational services or supplementary instruction in order to develop to his maximum capacity.”

According to W M Cruichshank, “An exceptional child is he who deviates physically, intellectually, emotionally and socially so marked from normal growth and development that he cannot be benefited from a regular classroom programme and needs special treatment in school.”

**Characteristics of Exceptional Children**

1. Exceptional children deviate markedly from normal children.
2. Deviation may be physical, intellectual, emotional or social.
3. Exceptional children need a special environment.
4. Special environment may be provided in the normal school or in a special school.

**Classification of Exceptional Children**

1. Mentally Exceptional
   
   (a) Gifted, (b) Backward or mentally retarded
2. Emotionally Exceptional: Delinquents
3. Physically Handicapped
   
   (a) Blind and near blind, (b) Crippled, (c) Deaf and dumb, (d) With defective speech.
4. Socially Handicapped
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5. Neurotic
6. Multi-handicapped

**Importance and Need to Educate Exceptional Children (Special Education)**

Constitutional Directive on compulsory education includes education for all children till the age of 14 years. Therefore, exceptional children must also receive education. The Declaration of the Rights of the Child, adopted by the United Nations in 1959, stated, “The child who is physically, mentally or socially handicapped shall be given the special treatment, education and care required for his particular condition.”

India’s National Policy for Children (1974) specifically observed, “Children who are socially handicapped, who have become delinquent or have been forced to take to begging or are otherwise in distress, shall be provided facilities for education, training and rehabilitation and will be helped to become useful citizens.”

It further it stated, “Special programmes shall be formulated to spot, encourage and assist gifted children, particularly those belonging to the weaker sections of society.”

The National Policy on Education 1986 and as amended in 1992 also envisages special provision for the handicapped.

Apart from constitutional obligations, education of the exceptional children should receive special attention on account of the following reasons:

1. Exceptional children do not get proper motivation in regular classroom work as they need different treatment.
2. Exceptional children may develop behavioural problems if their specific needs are not properly attended to.
3. Principle of equality demands that all children must be provided equal opportunities to develop their potentialities to the maximum level.
4. Education of the exceptional children will enable them to be self-supporting economically.
5. Special education will guide these children to become useful members of the society.
6. Several categories of children i.e., the deaf, the dumb and the blind need special curriculum, methods of teaching, instructional materials, etc., which can be provided only in special schools.

**Gifted Children**

Let us discuss the significance and growing interest in the gifted.

**Significance and Growing Interest in the Gifted**

Kirk, in his book *Educating Exceptional Children*, stated that in ancient Greece, over 2000 years ago, Plato stressed the need for proper and special education of the intellectually superior children.
On account of the significant contribution of the gifted in various fields, interest in their special education and training has grown considerably all over the world during the last one hundred years. Gifted children are the wealth of any civilization or society.

A gifted child is both an asset and a responsibility. He is an asset of incalculable value to society. His potentialities for good are difficult to overestimate. Our socio-economic structure, both at the national and international level, demands leadership should be of the highest quality with keen intelligence. Following are the important reasons for growing interest in the gifted children:

1. Values of democracy can only be realized in the fullest sense when we recognize the full range of ability within our total population.
2. There is a limited pool of ability and special talent in every country. This must be identified and developed to save it from loss.
3. The gifted individuals have played an important role in the preservation and advancement of civilization.
4. Many gifted children languish in educational institutions simply because they are not aware of their ‘gifts’ and the school programmes do not provide them enough motivation and challenge.
5. We need leaders for our business, education, research and government, etc. These leaders are provided by this class of gifted children.

Meaning and Definition of the Term Gifted

Some of the important definitions are mentioned to explain the meaning of the word ‘gifted child.’

According to Havighurst, “The talented or gifted is one who shows consistently remarkable performance in any worthwhile line of endeavour.”

In the words of Hillingworth, “By a gifted child we mean one who is far more educable than the general children. The greater educability may lie along the lines of one of the arts, as in music or drawing, it may lie in the sphere of mechanical aptitude, or it may consist in surpassing power to achieve literacy and abstract knowledge.”

Prem Pasricha observed, “The gifted child is the one who exhibits superiority in general intelligence or the one who is in possession of special abilities of high order in the fields which are not necessarily associated with high intelligence quotient.”

Intelligence Quotient (IQ) and the Gifted

Terman, in 1916, set the lower limit for the gifted person at 110 on the Revised Stanford Binet Simon Intelligence Scale. In 1937, only children having IQ of at least 120 (1.25 sigmas above mean) were judged to be very superior. Some years later, children with IQ 125 or above in the major classes of Cleveland, Ohio, were...
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Self-Instructional Material

Gifted children may be classified into three categories:
1. Superior, having IQ between 100 and 120
2. Very superior, having IQ between 120 and 140
3. Near-genius, having IQ 140 or more.

Scope of Giftedness: Not Confined to IQ

Giftedness is not only confined to intellectual domain but it also pervades different areas. Thus, Guilford envisaged as many as 120 different abilities as an individual may be gifted in one or more abilities in different areas.

The 57th Yearbook of the National Society for the Study of Education in the US explained the nature of giftedness as, “A talented or gifted child is one who shows consistently remarkable performance in any worthwhile line endeavour. Thus, we shall include not only the intellectually gifted but also those who show promise in music, the graphic arts, creative writing, dramatic, mechanical skills and social leadership.”

Ralph W Tyler, discarded the IQ standard and defined the gifted child as one who is exceptional in the amount of production, the rate of his production, the quality of his production or a combination of these; a child who may do much more school work than the average student does, he works faster and performs with much higher quality.

Kirk referred giftedness as any of the special aptitudes and talents:
1. Academically talented
2. Artistically talented
3. Linguistically talented
4. Mechanically talented
5. Musically talented
6. Physically talented
7. Socially talented

Sumption and Lucking envisaged the gifted as, “Those who possess a superior central nervous system characterized by the potential to perform tasks requiring a comparatively high degree of intellectual abstraction or creative imagination or both.”

Louis A Fleigher and Charles E Bish observed, “The term gifted encompasses those children who possess a superior intellectual potentiality and functional ability to achieve academically in the top 15 to 20 per cent of the school population; and/or talent of a high order in such special areas as mathematics, science, expressive
W. J. Getzels explained giftedness as, “Although the question may be largely a semantic one, there is no doubt that many desirable qualities exist beyond those with an exclusively intellectual form. Are there not some social qualities, say moral character or psychological adjustment which also might lead us to call an individual gifted, and may perhaps be reflected in superior school performance, to say nothing of excellence in other areas such as public service? Surely the study of such qualities might be an adjunct to any general and systematic examination of giftedness.”

Thurstone observed that a person of high intelligence may not be creative. According to him, “To be extremely intelligent is not the same as to be gifted in creative work. This may be taken as a hypothesis. It is a common observation in the universities that those students who have high intelligence, judged by available criteria, are not necessarily the only ones who produce the most original ideas. All of us probably know a few men who are creative and highly intelligent, but this combination is not the rule.”

L. X. Magnifico divided the gifted into two groups as follows:

1. A child whose ability, as indicated by an intelligence test, is within the range of the upper 2 or 3 per cent of the population;
2. A child having outstanding ability in a given field, for example, music or art.

Eight-fold Criterion for Defining Gifted Children

In emphasizing special talents, Paul Witty enumerated the following criteria for defining very young gifted children:

1. A large vocabulary, accurately used;
2. The use of phrases and sentences at an early age, as also the ability to tell or reproduce a story;
3. Interests in books and later enjoyment of atlases, dictionaries and encyclopaedias;
4. Interests in calendars and clocks;
5. Ability to concentrate longer than most children;
6. Early discovery of cause and effect relationship;
7. Early development of mental faculties. Gifted children often learn to read before they enter school;
8. Proficiency in drawing, music or other art forms.

Behaviour Pattern of Gifted Children

1. Physical Characteristics: They are physically sound and better than normal children. Their faces are usually bright. They possess vigour and vitality.
2. **Intelligence:** Their intelligence is high. Their ‘g’ factor of intelligence is very strong. Some have a very strong group factor or ‘s’ factor.

3. **Varied Interests:** Their interests are more varied than those of normal children. A gifted child of eight may read novels, write long essays, take interest in subjects such as history, geography, astronomy, grammar, physics and music.

4. **Inquisitive Nature:** They are extremely inquisitive and quick in understanding.

5. **Superiority in Academic Work:** They are characterized by general superiority in academic work. Even in the elementary school, they do their best work on tests of reading and language. 45% of Terman’s group of gifted children, whom he studied, learned to read before entering school. Regarding one child, Terman said “As early as 21 months, she read and apprehended simple sentences, by 26 months her reading vocabulary was more than 700 words.”

6. **Well Adjusted:** As regards character and personality traits, they are well-adjusted. Terman stated, “Even in leadership and social adaptability, traits in which gifted children are thought to be especially deficient, most studies show gifted children to be somewhat superior to children of the general school population.”

### Positive and Negative Characteristics of the Gifted Adolescents

James M Dunlop has categorized positive and negative characteristics of gifted children:

**Positive Characteristics**

1. Learn easily and rapidly.
2. Retain what they learn without much drill.
3. Have a rich vocabulary marked by originality.
4. Show interest in ideas and words.
5. Show much curiosity in questioning.
7. Reason things out.
8. Possess greater ability to generalize.
9. Know and appreciate things of which normal children are unaware.
10. Take interest in the nature of man and universe at an early stage.
11. Seek older companions.
12. Possess a good sense of humour.
13. Have a desire to excel.
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Negative Characteristics
1. Restless, disturbing and inattentive.
2. Careless in handwriting.
3. Indifferent to class work.
4. Critically outspoken.

Extent or Incidence of the Gifted Population
L. Hollingworth, on the basis of a study, concluded that there is one gifted child in a population of one million.

However, studies conducted by J.J. Gallaher did not tally with the estimates of Hollingworth.

Usually, it is said that about 2 to 3 per cent of the population may be placed in the category of the gifted.

On account of several factors, it is not easy to estimate the number of gifted children in a particular school population. The difficulty is on account of the fact that there is no single criterion which can be used as the yardstick for assessing giftedness.

Identification of the Giftedness
Usually four types of techniques are used to identify giftedness. Gallaher pointed out the following limitations of various techniques in this regard:

<table>
<thead>
<tr>
<th>Method</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intelligence Tests (Individual)</td>
<td>Best but expensive and time consuming.</td>
</tr>
<tr>
<td>2. Group Intelligence Tests</td>
<td>Generally good for screening. May not identify those with reading difficulties and emotional problem.</td>
</tr>
<tr>
<td>3. Achievement Test Batteries</td>
<td>Will not identify underachieving gifted children.</td>
</tr>
<tr>
<td>4. Observation by Teachers</td>
<td>Not suitable for children with emotional problems, and children and Others with hostile attitudes towards school.</td>
</tr>
</tbody>
</table>

Gallaher concluded that what gifted children have in common is the ability to absorb concepts, to organize them more effectively and to apply them more appropriately.

Adjustment Problems of Gifted Children
A gifted child may become a problem for the parents and the teacher if he is not handled properly. The following problems arise:
1. He revolts against the parents and teachers when they do not recognize him, and sometimes creates mischief in order to catch their attention or to show his superiority.
2. There is lack of stimulation for him in the subjects of his interests when he does not get opportunities to progress according to his own pace.

3. Because of lack of opportunities and lack of recognition, he sometimes develops inferiority complex.

4. Too much of recognition or applause by the parents or teachers, leads to the development of a feeling of pride and arrogance in the child.

5. When the gifted child is not properly guided, he utilizes his superior intelligence in mischief, indiscipline, gang-formation and revolts against his elders. He, in turn, becomes a nuisance.

**Education of the Gifted**

Efforts to identify gifted children were started in the US by WT Harris in St. Louis Public School in 1867. By 1920, three public schools in Cleveland, Rochester and Los Angeles in the US were offering enriched programmes for gifted children. Later, all educators, parents and administrators recognized the importance of providing special education to gifted children.

**Methods of Educating the Gifted**

1. **Acceleration**: Acceleration offers opportunity for a gifted pupil to move at a pace appropriate to his ability and maturity and to complete an educational programme in less than the ordinary amount of time. It involves advancing the gifted child rapidly from one grade to another in school so that he enters college earlier than others.

2. **Ability Grouping or Homogeneous Grouping or Segregation**: The gifted pupils may be placed in special groups for all or part of the school day. The purpose of ability grouping is usually to provide for enrichment of children’s experiences in both depth and breadth, and to permit the children to stimulate one another.

   According to this scheme, students with more or less similar background are grouped together in the same section. It is a common practice in some of the schools to group students into various sections, i.e., A, B, C, etc., according to intellectual, physical and social interests of the students. This creates healthy competition and is very useful in a large school where classes can be divided into different sections.

3. **Enrichment Programmes**: Enrichment consists in giving the gifted child the opportunity to go deeper or to range more widely than the average child in his intellectual, social and artistic experience.

   Such a programme may be characterized by (i) emphasis upon the creative or the experimental work; (ii) emphasis on the skill of investigation and learning; (iii) independent work, stressing initiative and originality; (iv) high standard of accomplishment; (v) co-operative planning and activity that
provide opportunity for leadership training and experiences in social adjustment; (vi) individual attention given by teacher to student; (vii) first-hand experiences; (viii) flexibility of organization and procedure; (ix) extensive reading; and (x) concern with community responsibility.

The gifted students should be encouraged to study a variety of books and reference material. On the co-curricular side, provisions for a sufficient variety of activities should exist in a school so that the students may develop various social and moral qualities of a high order.

4. **Triple Track Plan:** Track Plan which introduces elasticity in the classification of the students is very popular in American schools. According to this scheme, the authorities prescribe a uniform syllabus for all. Average children cover it within the normal period, the dull in a large period and the gifted in a shorter period in comparison to average children.

5. **Rapid Promotion or Double Promotion:** By this we mean more than one promotion during the course of the year. If a child shows an extraordinary achievement in one class, he may be given a double promotion. The aim of this promotion is to place the gifted student in a setting suiting him the most. But at occasions such promotions prove to be very detrimental to the child. The child may be a gifted one in comparison with the students of his previous class but may not show the same progress in the next class with the students of different mental and physical make-up and this would result in his mental slowdown in the new setting. Age, social maturity and health—all these factors should be given due weight age.

6. **Special Schools:** In some of the developed countries, separate schools are provided for such students. This system has been criticized on the ground that quite a large number of such students are deprived of the practice in leadership which they would get in association with average children. Brown was of the opinion that keeping these children as an integral part of the school was the most important factor in affecting their future performance.

7. **Summer Schools:** These schools are planned during summer vacations. These schools have been successfully tried in the US. Academically talented students are selected from different parts of the country on the basis of psychological tests, interview and previous school records and are brought together for a special educational programme. The programme is intended to be very challenging and is planned under the expert guidance of a band of talented teachers. The students are provided with the best available books which they may consult for writing their project reports and for holding discussions in the class. Usually, three areas—science including mathematics, social studies and literature are covered.

After the programme is over, the students return to their regular schools. Students can attend summer schools as long as they do not complete their final school leaving examination.
Advantages of the Scheme of Summer Schools

(i) The scheme provides students with challenging situations.
(ii) The students realize, perhaps for the first time, that there are other children equally intelligent, or even more intelligent than them.
(iii) The scheme sets the pattern for an enriched programme for the talented.
(iv) The scheme is psychologically and scientifically sound, as it provides a suitable basis for developing a curriculum for the talented children.
(v) The scheme provides first-hand experiences to students of living together for a number of weeks with a wide variety of talented children.
(vi) The scheme provides first-hand experiences to teachers for handling the problems of the academically talented children.
(vii) It is easy to have an all-India scheme for the purpose without much difficulty either of an administrative or of a technical nature.
(viii) The scheme fits in the context of our democratic educational set-up.
(ix) The scheme will help in creating the necessary climate in the country for making adequate provisions for the education of the academically talented.
(x) It would be possible to make the best use of the potential human resources.
(xi) The scheme will help in providing the necessary basis for organizing systematic and scientific research on the academically talented.
(xii) The scheme will also help in spotting out a large number of talented teachers.

8. Scholarship Programmes: The large programme of scholarships at all stages will ensure that all gifted students, or at least the top 5 to 15 per cent of the relevant age group, will receive the highest education possible.

9. Special Visits: Well-planned visits may be arranged to laboratories, museums, and other places.

10. Contact with Talented People: Talented students may be brought into contact with persons engaged in the types of work for which the students show special ability or interest. These persons may be able to provide occasional opportunities for the students to work in their special fields.

11. Hostels: Hostels or ‘day centres’ should be made available for those students whose home environment is not conducive to proper study.
10.5 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. According to Burton Hall, ‘Backwardness in general, is applied to cases where their educational attainment falls below the level of their natural abilities.’

2. The primary task of education for a handicapped child is to prepare him for adjustment to a socio-cultural environment basically designed to cater to the needs of the normal.

3. An exceptional child may be defined as the one who differs so much from his peer average in respect of physical, mental or social characteristics that he is unable to develop his fullest potential under normal conditions in an ordinary class and for whom some special environment or organization has to be created either within or without the normal school.

4. A gifted child may become a problem for the parents and the teacher if he is not handled properly. The following two problems arise:
   (i) He revolts against the parents and teachers when they do not recognize him, and sometimes creates mischief in order to catch their attention or to show his superiority.
   (ii) There is lack of stimulation for him in the subjects of his interests when he does not get opportunities to progress according to his own pace.

10.6 SUMMARY

- Educational administrators, teachers, parents and social workers face problems with those children who lag behind other children in their school work.
- C Burt (1950) defined a backward child as, ‘one who in mid-school career is unable to do the work for the class next below that which is normal for his age.’
- Backwardness in children can be of two types. A child who is dull, that is, of low intelligence and who is lagging behind in class is considered backward. On the other hand, a child who does not fare well in class, even though his level of intelligence is normal or even above normal, is also considered to be backward, only because his educational achievements are not satisfactory.
- There is no denying the fact that backwardness of a child is due to a number of factors which operate simultaneously. Each child has to be studied individually in order to find the reasons for his backwardness.
Children with Special Needs

NOTES

A physically handicapped child or a disabled child is one whose physical impairment, in some way or the other limits or inhibits his participation in normal activities.

Proper education generally enables a handicapped child to largely overcome his handicap, and makes him a useful citizen.

The handicapped child is unable to participate in desirable normal activities of daily life. He, therefore, needs appropriate substitute interests.

The physically handicapped child also faces emotional problems as he feels that others have a low opinion about him and develops a feeling of hatred for others or of self-pity.

In the words of Crow and Crow, “The term typical or exceptional is applied to a trait or a person possessing the trait, if the extent of deviation from normal possession of that trait is so great that because of it the individual warrants and receives special attention from his fellows and his behaviour responses and activities are thereby affected.”

According to Havighurst, “The talented or gifted is one who shows consistently remarkable performance in any worthwhile line of endeavour.”

A gifted child may become a problem for the parents and the teacher if he is not handled properly.

10.7 KEY WORDS

- Impairment: It means the state of being diminished, weakened, or damaged, especially mentally or physically.
- Social Justice: It means justice in terms of the distribution of wealth, opportunities, and privileges within a society.
- Trait: It is a distinguishing quality or characteristic, typically one belonging to a person.

10.8 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions
1. What are the two types of backwardness?
2. What are the ways in which exceptional children are classified?
3. What are the negative characteristics of gifted children?

Long Answer Questions
1. Discuss the causes of backwardness in a child.
2. Why should physically disabled children be educated? Discuss in detail.
3. Explain the methods of teaching and assessment of the physically handicapped.

10.9 FURTHER READINGS

UNIT 11 APPLICATION OF THEORIES OF LEARNING IN TEACHING

Structure
11.0 Introduction
11.1 Objectives
11.2 Classical Conditioning
11.2.1 Social Cognitive Learning
11.3 Connectionism
11.4 Operant Conditioning
11.5 Cognitive Psychology: Perspectives to Learning
11.5.1 Jerome Bruner’s Discovery Learning
11.5.2 David Ausubel’s Meaningful Reception Learning
11.6 Answers to Check Your Progress Questions
11.7 Summary
11.8 Key Words
11.9 Self Assessment Questions and Exercises
11.10 Further Readings

11.0 INTRODUCTION

Learning implies acquiring new or modifying existing knowledge, behaviour, skills, values or preferences and may involve synthesizing different types of information. Humans and animals possess the ability to learn. Human learning may occur as part of education, personal development or training. It may be goal-oriented and may be aided by motivation. Progress of learning over time tends to follow learning curves. Various theories have been proposed to explain the process of learning. We learnt about these theories earlier on in the book. Here, we will briefly recapitulate these theories and discuss their application in detail.

11.1 OBJECTIVES

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

- Discuss the applications of classical conditioning and operant conditioning
- Describe Bruner’s theory of discovery learning
- Explain Ausubel’s meaningful reception learning
11.2 CLASSICAL CONDITIONING

As you learnt previously, classical conditioning was discovered by a Russian physiologist Ivan P. Pavlov around the turn of the present century. He was basically interested in studying the process of gastric secretion in dogs. He got Nobel Prize on his research on digestive process in the year 1904. During his experimental work on dogs, he accidentally noticed a phenomenon of secretion of saliva in dogs on the sight of the food or sound of caretaker’s approaching footsteps. The salivating process, well before the food was put into the mouth of the dog, was called psychic secretion. This psychic secretion was the basis of classical conditioning. He classified reflexes into two broad categories: physiological and psychic reflexes. Physiological reflex is an innate process which controls the amount of gastric secretion, depending on the kind and amount of food in the stomach of the organism. They are invariably shown by all animals of a given species. Psychic reflexes (sometimes called conditioned reflexes) occur only as a result of its particular experience. The dogs in Pavlov’s experiments secreted saliva on the presentation of sound of a buzzer. In our daily life situations we experience that sometimes when we go to market, the perception or smell of sweets, cause salivation in our mouth.

Classical Conditioning Experiments

The basic phenomenon of classical conditioning is simple one. A great variety of responses are classically conditionable in our daily life situations. Pavlov restricted his experimental studies to the process of secretion of saliva in dogs. We will describe an experiment from Pavlov to make certain concepts clear. Food in the mouth of the organism produces saliva. When we put food in the mouth of the dog, the dog salivates. This response, on the part of the dog, is natural and unfailing. Food is called the unconditioned stimulus (UCS) and the salivation by the dog is called unconditioned response (UCR). The stimulus, food, is called UCS because it conveys the meaning that the response depends upon no special condition; unconditioned response (UCR) is unlearned and implies no pre-conditions. During his experimentation on dogs, he introduced sound of the bell, a neutral stimulus which evoked no response on the first presentation. This stimulus is called conditioned stimulus (CS). After a number of pairing of CS and UCS, the CS is presented alone to the dog without UCS. If CS succeeds in eliciting the response (saliva) then we call it a conditioned stimulus and the response (salivation) is called a conditioned response. Model of classical conditioning is given below:

1. UCS .......................................... UCR
   (Food powder) (Saliva)
Classical conditioning may be defined as, "a process in which a neutral stimulus, by pairing with a natural stimulus, acquires all the characteristics of natural stimulus". In the model given above, the sound of bell was neutral stimulus to elicit the response of salivation but by pairing it a number of times with food, it acquired the characteristics of food and succeeded in eliciting the response of salivation when presented alone at the third stage. Classical Conditioning is sometimes called substitution learning because we substitute a neutral stimulus in place of a natural stimulus. Some modern psychologists have interpreted Classical Conditioning as signal learning. Classical Conditioning as a process reflects the facts that in the first phase of the experiment the response is made unconditionally to the UCS: that is, the response is not conditional to any special training but is natural. Response to the conditioned stimulus (CS), on the other hand, depends on pairing it with unconditioned stimulus (UCS). Conditioned stimulus (CS) is a signal that unconditioned stimulus (UCS) is about to appear.

Another type of conditioning which is called higher order conditioning goes one step further as shown below:

1. UCS ................................ UCR
   (Food) (Saliva)
2. CS + UCS ................................ CR
   (Bell + Food)
3. CS1 + CS2 ................................ CR
   (Bell + Light)
4. CS2 ........................................ CR
   (Light) (Saliva)

Pavlov conducted all his experiments under controlled conditions free of distractions in a sound-proof cabin. The theory of conditioning propounded by Pavlov is based on his strong views on mechanistic approach to learning. According to him every action of animal and man depended on machinery. There was no such thing as mind for him. The behaviour must reflect corresponding events in the nervous system of the organism. Explaining the mechanism of conditioning, Frank Restle wrote: "In Pavlov’s thinking, the conditioned stimulus (CS) would set up a
weak centre of excitation in the brain, and the UCS—UCR event would involve a strong centre of activity when one centre of excitation proceeds the other in time, the weaker centre becomes integrated with or drawn into the stronger activity and a pathway of some sort develops in the brain. At that time, presentation of the CS initiates the activity of the UCS-UCR complex and the animal makes the UCR. The theory states that the response originally made to the UCS becomes associated with the CS and what is learned is a CS—CR bond of some kind.

**Application**

Most of the experiments on classical conditioning have been conducted on animals except a few on children. Classical experiments do not have direct application to classroom learning. The principles of classical conditioning can be used in the following areas of animal and human behaviour:

1. **Developing good habits.** Principles of classical conditioning can be used for developing good habits in children such as cleanliness, respect for elders, and punctuality, etc.

2. **Breaking of bad habits and elimination of conditioned fear.** All learning is acquired in the social environment. Acquired learning may be deconditioned by using the principles of classical conditioning. Principles of classical conditioning can be used to deconditioning anxiety and fear in maladjusted children.

3. **Training of the animals.** Animal trainers have been using the principles of classical conditioning since a long time without being much aware of the underlying mechanisms.

4. **Use in psychotherapy.** The principles of classical conditioning are used in deconditioning emotional fears in mental patients.

5. **Developing positive attitudes.** Classical conditioning can be used to develop favourable or unfavourable attitude towards learning, teacher and the school.

6. **Teaching alphabets.** The principles of classical conditioning are used to teach alphabets and four fundamental principles of arithmetic by using some concrete material. For example, ‘A’ is associated with apple, counting is taught with the help of beads, etc.

**11.2.1 Social Cognitive Learning**

Albert Bandura is a social learning theorist who is most concerned with social development and particularly with moral development. He emphasizes the importance of reward and punishment in the development of behaviour. Behaviour is learned through conditioning and observational learning. Children’s responses that are reinforced are more likely to recur than responses that are not reinforced.
There is positive correlation between reward or punishment and their effect on the behavior of the child.

According to Bandura, the child’s behavior is affected by satisfaction and pleasure. In early childhood parental approval and fear or anxiety associated with punishment influence the moral and social development of the child.

Another important mechanism is imitation by which a child learns social and moral development. The child learns many things by imitating the behavior of the model through observation. Imitation follows certain principles such as competency, prestige, power and similarity of the model.

### 11.3 CONNECTIONISM

E.L. Thorndike (1874–1949) was the first American psychologists in Stimulus-Response (S-R) theories who conducted a series of experiments on learning with animals. He introduced the concept of reward in learning. Earlier psychologists had made systematic observation of animals but Thorndike was the first to study the subject of learning systematically using standardized procedures and apparatus. He is considered under reinforcement theorists. Traditionally, there has been less emphasis in reinforcement theories on the control of stimuli than in contiguity theories. In reinforcement theories more emphasis is laid on the control of the consequences that follow a response. Responses which are followed by satisfaction or pleasure are reinforced and become more probable in future. All learning, according to Thorndike, is the formation of bonds or connections between Stimulus-Response (S-R). The process of forming connections depends on a number of variables which operate in the environment and the organism. He conducted several experiments on cats in the puzzle box. He formulated three basic laws and five supplementary principles of learning on the basis of his experimental study of cat’s behavior in the puzzle box.

#### The Puzzle Box Experiment

Thorndike’s classical experiments on cat in the puzzle box are widely known and often quoted in psychology of learning. The experimental set-up was very simple. A hungry cat was confined in a puzzle box and outside the box a dish of food was kept. The cat had to pull a string to come out of the box. The cat, in the box, made several random movements of jumping, dashing and running to get out of the box. At last it succeeded in pulling the string. The door of the puzzle box opened, the cat came out and ate the food. He promptly put the cat in the box for the next trial. The cat again displayed frantic behavior but it soon succeeded in pulling the string. Over a series of successive trials, the cat became increasingly efficient in getting out of the box. The number of errors reduced slowly on subsequent trials.
Thorndike’s cat showed slow, gradual and continuous improvement in performance over successive trials. He concluded that learning of cat in the puzzle box can be explained in terms of formation of direct connection between the stimulus and the response. He analysed the learning of cat in the puzzle box and emphasized two important factors for learning to occur: one is that the cat should be hungry, meaning, that there should be some motivation in the cat for learning and the second factor is food which is also necessary to satisfy the hunger of the cat.

**Basic Laws of Learning**

1. **The Law of Effect**

   Learning occurs if and only if the response has some effect on the environment. The law of effect maintains that when modifiable connection between Stimulus-Response (S-R) has been made, it was strengthened if it resulted in satisfaction and was weakened if it led to annoyance. But later on in 1932 he modified his earlier law of effect as “satisfaction strengthens the bond but annoyance does not weaken it”. The law of effect had been under criticism by psychologists who complained that the law of effect has the flavour of the principle of hedonism using satisfier and annoyer. Thorndike tried to respond the criticism by defining the terms in an objective way: “By a satisfying state of affairs is meant one which the animal does nothing to avoid, often doing things which maintain or renew it. By an annoying state of affairs is meant one which the animal does nothing to preserve, often doing things which put an end to it.”

2. **Classroom Application of the Law of Effect**

   The teacher can use this law in the classroom learning-teaching situations in the following ways:

   (a) The classroom experiences should be satisfactory and pleasant. The teacher must enjoy his teaching work.

   (b) Learning experiences and other activities must be meaningful and understandable in terms of the personal life of the learners.

   (c) School experiences and activities must be arranged in such a way that learners may have some degree of confidence and success in their work.

   (d) School activities should be organized in increasing difficulty order so that the students may progress without any failure.

   (e) Material should be provided in varied ways so that novelty may be maintained.

   (f) Guidance, praise and encouragement that give pleasure and satisfaction of knowing that he is on the right path, should be properly used.
2. The Law of Exercise

The second law is divided into two parts as:

(a) Law of use, (b) Law of disuse.

The law of use states that other things being equal, the more frequently a modifiable connection between Stimulus-Response (S-R) is made, the stronger that connection will be. The law of disuse states that other things being equal, when a modifiable connection between Stimulus-Response (S-R) is not made over a period of time, the strength of that connection is weakened.

Application in Classroom Learning

1. More opportunities should be given to the students to use and repeat the knowledge they get in the class.
2. To maintain the connections for a longer period, review of the learned material is necessary.
3. Drill strengthens the bond between S-R. Drill plays an important role in elementary classes in the learning of multiplication tables, alphabets and meanings of words. According to Thorndike more and more drill should be provided in elementary classes to strengthen the bond between Stimulus-Response.

3. The Law of Readiness

When a modifiable connection is ready to act, to do so is satisfying; when it is not ready to do so is unsatisfying. Readiness is dependent upon both maturation and experience of the learner.

Classroom Implications

1. Teacher must wait till the learner is ready to learn and should give those experiences which help to enhance readiness. Preparatory experiences that will hasten the growth of readiness can be provided in primary classes.
2. Aptitude tests in various subjects may be given to determine the thoroughness of learners.

Supplementary Principles of Learning

E.L. Thorndike, in addition to his three basic laws of learning, developed five principles of learning which are as follows:

1. The Principle of Multiple Response

This principle states that animal or man may try many responses before attempting the right response through the process of trial and error. Trial and error learning involves many factors as motives, a difficulty or barrier and sometimes aimless
attempts to achieve the goal, a successful trial, elimination of unproductive responses
and consolidation of successful responses.

The significance of trial and error learning in education is that the learners
get wide experience and a chance to experiment themselves. They learn from their
own errors. The teacher provides help to the students when they need it.
Psychologists now agree that all experiences are educative including the committing
of errors. According to Keel (1965) all teachers of Arts have realized the importance
of independent selection of theme by learners.

2. The Principle of Mental Set
Mental set refers to the predisposition to act in a given way. It is more or less
temporary condition of one’s attitudes, feelings and interests. For learning to occur,
positive mental set in pupils is an essential condition. The teacher can prepare
students for various activities in advance. He can encourage them for participating
in different activities in home, school and community. The material to be taught
must be meaningful. The emotional atmosphere of the classroom should be
congenial. Students must feel that they have control over their future activities.
Teacher’s assistance to develop positive attitudes is very helpful for pupils. Pupils
have been known to develop favourable attitudes towards learning merely on the
basis of knowing that the teacher is concerned about them and that the teacher
desires to be of assistance.

3. Principle of Partial Activity
According to Thorndike, a response made only to parts or aspects of a total
matter than to the totality is the principle of partial activity. In responding part of
total situation is prepotent, for example, a baby will respond to his mother whether
she is in night clothes or evening dress, whether at home, or on the street.

4. Principle of Analogy or Assimilation
This principle states that when an individual is faced with a new situation for which
he has no natural or learned response, the response he makes will resemble an
earlier response to a similar situation. The teacher can make use of this principle in
his classroom teaching in the following manner:

(i) The teacher must provide similarities between the new and the old, the
importance of leading from the known to the unknown and the usefulness
of bringing textbook abstraction to life by relating them to the experiences
of the learners.

(ii) The teacher must provide identity between historical and present-day events.

(iii) The principle of analogy is explained in unit approach. The unit approach:
individual learner makes decisions, grows and develops democratic point
of view.
5. The Principle of Associative Shifting

This principle states that if a response can be kept intact through a series of gradual changes in the stimulating situation, it may finally be given to a totally new situation. The stimulating situation is changed firstly by adding some elements, then by subtracting other elements, until nothing of the original situation remains. A common school example would be reading where certain combinations of letters through repetition and reinforcement call to mind highly specific things. The letters H O R S E are attached to a large solid, hoofed grass-eating animal. Associative shifting may then cause these same letters to mean a device on which wood may be held while it is being sawed. The teacher can use this principle in the following ways:

(i) Habits, attitudes and interests that children develop in school inevitably from the working equipment with which they will perform their functions as adults.

(ii) Respect for objective viewpoint, systematic methods of problem solving, concern for others and effective work habits should be developed in students.

Check Your Progress

1. Define classical conditioning.
2. State the law of use.

11.4 OPERANT CONDITIONING

We have already discussed that the history of operant conditioning begins with Professor B.F. Skinner (1904–1990) of Harvard University. When he was a graduate in the department of Psychology of Harvard University, he wrote his dissertation in 1931 entitled *The Concept of the Reflex in the Description of Behaviour*. He made historical survey of previous studies and an operational analysis of the concept of the reflex. He emphasized that the basic datum for the student of behaviour is simply an observed correlation between stimulus-response (S-R) connection. Reflex was adopted by him as the basic unit for analysing behaviour of the organism. He held that it is necessary to study something simpler, i.e., the relationship of a part of behaviour (a response) to a part or modification of the part of environment (stimulus).

B.F. Skinner is a practical psychologist who conducted several experiments on different reflexes in rats and pigeons. Finally he selected eating as the subject of his experiments because of its simplicity and ease of collecting huge data in short period of time.

He developed his own apparatus and method of observation to study and analyse behaviour in a systematic objective way. After some time his approach to analyse behaviour became so increasingly visible and viable force within psychology that most of the American psychologists adopted his method of research in their studies.
Two Types of Learning

Skinner found that the procedure he was using to conditioning lever pressing in rat did not conform to the paradigm used by Pavlov to condition the secretion of saliva in dogs. He recognized two types of conditioning that are produced by different experimental procedures. In Pavlovian conditioning, the reinforcing stimulus was paired with a neutral stimulus that acquired properties of natural stimulus. This procedure was referred by Skinner as type ‘S’ conditioning or respondent conditioning. He called his own procedure as type ‘R’ conditioning or operant conditioning in which a response occurs spontaneously in the absence of any stimulation with which it may be specifically correlated. He called his procedure operant conditioning which can be defined as any learning which is based on response contingent reinforcement and does not involve choice among experimentally defined alternatives. The term operant emphasizes the fact that behaviour operates upon the environment to generate its own consequences.

An operant is a response which is emitted by ‘S’ without any particular forcing stimulus rather than elicited by a reinforcing stimulus (U.C.S.) as in classical conditioning. An important distinction between two types of learning is that classically conditioned reflex may have zero strength in the beginning but the operant cannot have zero strength because it has to occur at least once before it can be reinforced. Operant behaviour is external. It can be observed. Respondent behaviour is internal and personal. A corresponding distinction between two types of conditioning has been given at the end of this chapter in detail.

A System of Behaviour

Prof. B.F. Skinner is known for his researches of collecting facts and description of purely empirical relations. He is specifically interested in controlling those responses that seem to occur with no direct stimulation. Such responses are emitted rather than elicited by obvious environmental stimulus.

He was interested in developing a science of behaviour. He had made frequent references to science of behaviour in his writings as the object of his efforts. His published work in the beginning was highly technical and was beyond the understanding of ordinary reader. It was just after the Second World War that he made his findings and theory of behaviour non-technical. During the same period he was making attempts to spell out some of the implications of principles of operant conditioning for the society. He wrote a novel ‘Walden Two’, a fictional description of a Utopian society in which education and social regulations were based on positive reinforcement rather than on the technique of aversive control. The same year, he came to Harvard University and taught a course dealing with human behaviour. He wrote a book *Science and Human Behaviour* in 1953. The book summarizes the basic principles arising from the laboratory experiments.
Application of Theories of Learning in Teaching

NOTES

B.F. Skinner originally conducted a series of experiments on animals in controlled laboratory conditions. He formulated certain laws of behaviour on the basis of his extensive experimental studies. He prepared grounds for the application of those laws in human behaviour. He was fully convinced that the principles of operant conditioning promise equal success in school learning. He developed a system of learning known as Programmed Learning or Programmed Instruction which has greatly influenced teaching-learning process in recent years all over the world. Programmed Instruction is being used in various areas of education at different levels with success. A detailed treatment to Programmed Instruction has been given in the subsequent chapter on Programmed Learning.

B.F. Skinner noted certain weaknesses in the educational system of America and developed a new system of learning. If we examine our own system of education we find that our system also suffers from the same weaknesses. The most characteristic weaknesses of our teaching-learning system are:

1. Behaviour is dominated by aversive stimulation. The whole atmosphere of our schools is dominated by fear and unpleasant experiences. Though legally corporal punishment is prohibited, still teachers use punishment of various varieties. Students work to avoid punishment from teachers and parents. They work out of fear. The schools can use the principles of operant conditioning to eliminate the element of fear from school atmosphere by using positive reinforcement.

2. Wide gap between behaviour and reinforcement. The desirable behaviour of a learner is not immediately reinforced. The delay of reinforcement destroys the effect of reinforcing stimuli. Suppose a child scores high marks in the test and his behaviour is not immediately reinforced by the teacher but reinforcement comes after a day or two. This reinforcement will have no effect on the behaviour of the child. Generally, in our schools, the desirable conducted by him. His findings generated a number of research activities in the USA. By the middle of forties, research using operant methods had become more than one man’s enterprise. Skinner at Minnesota and Indiana Universities worked with some talented students on the theory of operant conditioning. So huge amount of research data was produced in a short period that it needed some medium of communication to coordinate the findings of research studies conducted at various centres in the Universities. The first conference was convened in Indiana in 1946 on the theme of “Experimental Analysis of Behaviour”. Every year annual conference is held to exchange views and to co-ordinate research findings of various centres. Many researches are being conducted on operant conditioning in USA and other countries of the world.
behaviour of the learners is not immediately reinforced to raise the probability of the recurrence of the same behaviour in future. Reinforcing stimuli should follow the response immediately for an effect on the behaviour. Though in present teaching-learning system where a teacher handles 50 to 70 students at a time it is not possible for the teacher to reinforce the behaviour of each student in the class, but the use of programmed material in the form of a book or machine makes provision for immediate reinforcement.

3. **Absence of a programme of serial reinforcement.** Our programme of teaching-learning does not proceed forward step by step by reinforcing a series of progressive approximations to the final or terminal behaviour. We reinforce behaviour in classroom teaching in a haphazard way. The Programmed Instruction proceeds in a serial order from initial behaviour to terminal behaviour by reinforcing behaviour at each step.

4. **Objectives are vague.** The greatest weakness of our present system of education is that objectives of the courses have not been defined in operational terms. In Programmed Instruction objectives are defined in observable and measurable way. The initial and the terminal behaviour which the teacher wants to instil in the final repertoire of the learners are defined in operational terms.

5. **Lack of receptivity to new innovations among teachers.** The teacher can use the principles of operant conditioning in his classroom teaching for efficient and effective learning. But in our country, every innovative idea is resisted by traditional teachers and educationists. The same attitude is applicable to programmed instructional methods. They criticize it that for being costly and time consuming affair to develop programmes on Programmed Instructional model. Leaving aside the business of developing programmes, we can at least use the basic principles of operant learning in our teaching. The teacher can plan his work in advance, specify the terminal behaviour and survey all the conditions of school environment which can provide reinforcement to the students. The teacher may plan contingencies of reinforcement and provide reinforcement at the most appropriate time to the learners. He may involve the students in teaching-learning process so that students’ interest may be maintained in learning activities.

### 11.5 COGNITIVE PSYCHOLOGY: PERSPECTIVES TO LEARNING

1. Cognitive learning theory aims to be a comprehensive theory of learning. Some psychologists refer the term cognitive process to problem solving and concept learning theory and exclude all other types of learning from
cognitive theory. But on the contrary cognitive theory attempts to deal with all types of learning from the simplest to the most complex, occurring in the organism.

2. Cognitive learning theory includes behavioural and subjective data. Cognitive theorists have emphasized the importance of subjective experiences of the learner in contradiction to behaviourists who emphasize the importance of overt, objective and measurable experience of the learner. Cognitive psychologists use behavioural data and subjective experiences of the learner to solve the problem of learning.

3. Cognitive learning theory is not a theory basically in terms what the person knows: Neal Miller and other psychologists have attempted to explain learning in terms of what the person knows. Neal Miller said, “S-R theorists are confronted with the problem of explaining man’s obviously intelligent behaviour; cognitive theorists are confronted with the problem of explaining obvious stupidity. Although recognizing that much of man’s behaviour involves cognition, I have preferred the strategy of trying to explain such behaviour as the outgrowth of simpler, non-cognitive mechanisms. It is hard to conceive of cognitive insight as the sole means of acquiring maladaptive neurotic symptoms or those many motor skills that seem to be almost entirely unconscious.”

Cognitive learning theorist uses the terms like believe or perceive. The empirical foundations of cognitive learning theory include many matters where the perceptions or beliefs of the individual are incorrect yet where they are very compelling anyway.

The term ‘know’ could be used for those beliefs of the person that rest on adequate evidence and on highly efficient construct systems. Cognitive learning theory is not a theory basically in terms of what the person knows. But the individual responds or functions in terms of what he perceives or believes and the explanation of this functioning must be sought in terms of the factors and relation which govern such perception.

4. The fundamental interest of cognitive learning theory is an interest in (a) perceptual or representational processes as the main functional unit in terms of which the psychological functioning proceeds, and (b) in the background factors and processes that produce these perceptual or representational processes.

11.5.1 Jerome Bruner’s Discovery Learning

Bruner’s theory on constructivism proposes that the idea of learning is an active process in which the people who are learning are able to form new ideas on the
A cognitive structure is defined as the mental process which offers the learner the ability to organize experiences and derive meaning from them. These cognitive structures help the learner to construct their new concepts. The learner takes pieces of their past knowledge and experiences and organizes them so as to make sense of what they know. A learner then bases further concepts and solve additional problems on the basis of the combination of what they already processed and what they think should be processed next.

The resources used by a teacher should focus on encouragement, aiding and allowing the student to understand the main principles on their own. Communication between the learner and teacher is mandatory. Socratic learning is suggested as the best method of communication in this theoretical framework. Socratic learning allows the teacher to actively engage with the students, take note of the things that the learner verbalizes, their frustrations and their progression.

The four major principles of Bruner’s theory on constructivism includes; first, a predilection toward learning. The second, how a grouping of knowledge is constructed so that it can be best understood by the learner. The third is effective manners for the teacher to present required material to the learner, and the fourth aspect is the progression of rewards as well as punishments.

Bruner is poignant about language and how this affects cognition within this theory of learning development. It is important to identify the differences between the language of an adult and the language used by children. Children need time to progress in the conceptual learning and language as well. Thus, parents and teachers alike are encouraged to envelop the “scaffolding” method of communication. Scaffolding is a strategy which aims at simplifying the tasks by taking smaller steps, all of which lead to the final outcome.

### 11.5.2 David Ausubel’s Meaningful Reception Learning

Meaningful learning emphasizes on intentional, or “school,” learning. The primary theorist of this theory was David Ausubel. His theory suggests that knowledge is hierarchically organized: new information is meaningful to the extent that it can be related (attached, anchored) to what is already known. Ausubel’s theory is important because it emphasizes meaningful learning, as opposed to rote learning or memorization; reception, or received knowledge, rather than discovery learning.

#### Process

Ausubel proposed four processes by which meaningful learning can occur:

- **Derivative subsumption:** This describes the situation in which newly learned information is an instance or example of a concept previously learned. For example, let us look at the tree as a concept. A learner knows that a
tree has a trunk, branches, green leaves, and may have some kind of fruit, and that, when fully grown is likely to be very tall. Let us suppose now that the student learns about a new type of tree. This new knowledge of the tree is attached to the student’s concept of tree, without substantially altering that concept in any way. So, an Ausubelian would say that the student learned about persimmon trees through the process of derivative subsumption.

- **Correlative subsumption:** Let us suppose that the student encounters a new kind of tree that has red leaves, rather than green. In order to accommodate this new information, the student will have to alter or extend his or her concept of tree to include the possibility of red leaves. The student learns of this tree through the process of correlative subsumption. One could state that this is more important learning than that of derivative subsumption, since it enriches the higher-level concept.

- **Superordinate learning:** Let us suppose that the student is knowledgeable about maples, oaks, apple trees, and so on, but did not know, until he was taught, that these were all examples of deciduous trees. In this case, the student already knew a lot of examples of the concept, but did not know the concept itself until it was taught to him. This is superordinate learning.

- **Combinatorial learning:** This learning describes a process by which the new idea is derived from another idea that is neither higher nor lower in the hierarchy, but at the same level (in a different, but related, “branch”).

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### Check Your Progress

3. List one way in which the principles of operant conditioning can be used in schools.

4. What does cognitive learning theory include?

5. What does meaningful learning emphasize?

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### 11.6 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Classical conditioning may be defined as, “a process in which a neutral stimulus, by pairing with a natural stimulus, acquires all the characteristics of natural stimulus”.

2. The law of use states that other things being equal, the more frequently a modifiable connection between Stimulus-Response (S-R) is made, the stronger that connection will be.
3. The schools can use the principles of operant conditioning to eliminate the element of fear from school atmosphere by using positive reinforcement.

4. Cognitive learning theory includes behavioural and subjective data. Cognitive theorists have emphasized the importance of subjective experiences of the learner in contradiction to behaviourists who emphasize the importance of overt, objective and measurable experience of the learner.

5. Meaningful learning emphasizes on intentional, or “school,” learning.

### 11.7 SUMMARY

- Classical conditioning was discovered by a Russian physiologist Ivan P. Pavlov around the turn of the present century.
- The basic phenomenon of classical conditioning is simple one. A great variety of responses are classically conditionable in our daily life situations. Pavlov restricted his experimental studies to the process of secretion of saliva in dogs.
- The theory of conditioning propounded by Pavlov is based on his strong views on mechanistic approach to learning.
- Albert Bandura is a social learning theorist who is most concerned with social development and particularly with moral development.
- According to Bandura, the child’s behaviour is affected by satisfaction and pleasure. In early childhood parental approval and fear or anxiety associated with punishment influence the moral and social development of the child.
- E.L. Thorndike was the first American psychologists in Stimulus-Response (S-R) theories who conducted a series of experiments on learning with animals.
- Thorndike’s classical experiments on cat in the puzzle box are widely known and often quoted in psychology of learning.
- B.F. Skinner is a practical psychologist who conducted several experiments on different reflexes in rats and pigeons.
- An operant is a response which is emitted by ‘S’ without any particular forcing stimulus rather than elicited by a reinforcing stimulus (U.C.S.) as in classical conditioning.
- B.F. Skinner originally conducted a series of experiments on animals in controlled laboratory conditions. He formulated certain laws of behaviour on the basis of his extensive experimental studies.
Cognitive learning theory aims to be a comprehensive theory of learning. Some psychologists refer the term cognitive process to problem solving and concept learning theory and exclude all other types of learning from cognitive theory.

- Bruner’s theory on constructivism proposes that the idea of learning is an active process in which the people who are learning are able to form new ideas on the basis of their current and past knowledge.
- Ausubel’s theory suggests that knowledge is hierarchically organized: new information is meaningful to the extent that it can be related (attached, anchored) to what is already known.

**11.8 KEY WORDS**

- Classical Conditioning: It is a learning process that occurs when two stimuli are repeatedly paired: a response which is at first elicited by the second stimulus is eventually elicited by the first stimulus alone.
- Operant Conditioning: It is a learning process through which the strength of a behaviour is modified by reinforcement or punishment. It is also a procedure that is used to bring about such learning.
- Stimulus: It refers to a thing that arouses activity or energy in someone or something.

**11.9 SELF ASSESSMENT QUESTIONS AND EXERCISES**

**Short Answer Questions**

1. Write a short-note on social cognitive learning.
2. What was the puzzle box experiment?
3. Discuss Skinner’s two types of learning.
4. What is cognitive learning theory?

**Long Answer Questions**

1. Examine Thorndike’ laws of learning and their application in classrooms.
2. Discuss the applications of the principles of operant learning.
3. Describe Bruner’s theory of constructivism.
11.10 FURTHER READINGS


Block - IV

Behaviour Modification

Unit 12 Effective Teaching
Learning and Evaluation

Structure
12.0 Introduction
12.1 Objectives
12.2 Self-Evaluation in Learning and Meaning, and Self-Regulated Learning Cycle
12.3 Group Work and Cooperation in Learning
12.3.1 Strategies for Collaborative and Co-Operative Learning
12.4 Classroom Management and Creating Effective Learning Environment
12.5 Methods and Technical Issues in Assessment of Students
12.6 Effective Teaching Strategies and Technology Based Teaching Strategies
12.7 Answers to Check Your Progress Questions
12.8 Summary
12.9 Key Words
12.10 Self Assessment Questions and Exercises
12.11 Further Readings

12.0 Introduction

Student’s progress is one of the primary aims of teachers in a classroom. The teacher is trained with and must be up-to-date with the latest teaching methods to make student learning fruitful. Another aspect which is crucial for teachers is the evaluation of the level of learning that has been attained by the students. There are many methods available and technical issues which can be addressed to ensure that the evaluation is accurate. There is also a way of evaluation where the students themselves can use self-reflection to find the areas they are lacking in and where improvement can be made. This is known as self-evaluation and the self-regulated learning cycles. It has many benefits. Learning can also be enhanced by promoting cooperative learning and creating an effective learning environment. There are also newer mediums of learning, that which includes technology, which can be utilized by teachers to engage the students. In this unit, you will learn about the concept of self-evaluation, cooperation, collaborative learning, classroom management, methods of assessments and technology based teaching strategies.
12.1 OBJECTIVES

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

- Explain the meaning of self-evaluation in learning and self-regulated learning cycle
- Describe group work and cooperation in learning
- Examine strategies for cooperative and collaborative learning
- Explain the concept of classroom management and creating effective learning environment
- Discuss the methods and technical issues in assessment of students
- Evaluate effective teaching strategies and technology-based teaching strategies

12.2 SELF-EVALUATION IN LEARNING AND MEANING AND SELF-REGULATED LEARNING CYCLE

Self-evaluation is the process of self-assessment. This is regarded as one of the major steps for assessment of learning outcomes. Without self-evaluation, an individual cannot understand the difference between right and wrong. Evaluation helps in the assessment of our abilities and aptitudes. Just like a child comes in next class after the assessment of previous class studies, in a similar way, self-evaluation helps in overcoming our shortcomings so as to prevent the barriers in the learning process.

Need and importance of self-evaluation for students:

- Focus their attention on learning
- Assist in tracking their own progress
- Helps in understanding which work needs more
- Makes an individual disciplined
- Assists in setting self-realistic goals
- Helps in revising their work
- Makes an individual more confident and goal-oriented
- Helps in understanding the weakness of the child/individual and overcoming it
- Develops creativity and enhances knowledge of an individual
- Promotes the overall development of an individual
- Provides rank and grades to an individual
- Helps in providing better remedial solutions anytime when required
- Assesses strengths and weakness at different intervals of time
- Advances flexibility in nature

This process helps students stay involved and motivated and encourages self-reflection and responsibility for their learning.
Self-regulated learning is a cyclical process, wherein the student plans for a task, monitors their performance, and then reflects on the outcome. The cycle then repeats as the student uses the reflection to adjust and prepare for the next task. The process is not one-size-fits-all; it should be tailored for individual students and for specific learning tasks (Zimmerman, 2002).

Self-regulated learning cycle consists of the following steps:

(i) Plan and set goals
(ii) Use strategies and monitor performance.
(iii) Reflect on performance

These steps are performed by the student, but instructors play a vital role in guiding and coaching students through each step. The bullet points below provide additional information, and are drawn from Zimmerman (2002) and Zumbrunn et al. (2011).

- **Plan and set goals**

  This step involves planning of both the short term and long term goals. This is the initial stage of self-evaluation. The goal is divided into sub-steps and stages. These sub-steps and stages have to be understood by the individual properly. The time management of the different sub-steps and stages is to be done. It is the responsibility of the individual to complete every sub-step and stage in a specific period of time so as to achieve the required objectives. As this step is the major step in determining the objectives and making a concept map so as to achieve the goal.

- **Use strategies and monitor performance**

  In this phase, students carry out the plan that was outlined in the forethought phase. Ideally, students can proceed with confidence because they have already established a detailed plan of action. Here are some key points you can use to coach students through this phase. Use self-observation to reflect on the actions taken by the student and the effectiveness of the results. For example, when I studied in a quiet location in the library, I completed the reading more quickly than when I read at home. Because things don’t always go smoothly, have students make a plan for what to do when obstacles arise (Flanagan, 2014).

  For example, if I get stuck on the math in this assignment, I will go to the TA’s weekly help session as it will prompt students to stick with the strategies, even though it may be tempting to revert back to known (but ineffective) strategies. Unfamiliar approaches may feel inefficient at first, but learning the method can be as important as learning the material. Have the students monitor their progress on the intermediate goals, and the strategies they are using. At the same time, you can also monitor their progress and offer feedback.

- **Reflect on performance**

  Many students focus solely on the extrinsic outcome of their grade. While grades are important, you can help students reflect on how they think they did on a
particular assignment, and why. This self-reflection can help them understand why they earned a certain grade and how to improve their performance. Activities like an exam wrapper can solidify this process. Ask students to evaluate their own performance and their results.

(i) Students should compare their performance to their original goal, rather than comparing themselves to others.

(ii) Reflect on the effectiveness of strategies used. Did they select an appropriate strategy?

(iii) Did they follow through with the selected strategy?

Encourage students to attribute poor outcomes to the effort made and/or the strategy used. Students should be coached to not attribute failure to lack of ability. Help students manage their emotions, and in time, direct them toward productive lines of thinking about how they can improve their performance. Even if their outcome is not what they had hoped, they can still learn from the experience. A key part of this process is that students use this reflection to plan for the next task.

12.3 GROUP WORK AND COOPERATION IN LEARNING

There are many advantages to working in a group:

(i) Groups have more information than a single individual. Groups have a greater well of resources to tap and more information available because of the variety of backgrounds and experiences.

(ii) Groups stimulate creativity. In regard to problem solving, the old adage can be applied that “two heads are better than one.”

(iii) People remember group discussions better. Group learning fosters learning and comprehension. Students working in small groups have a tendency to learn more of what is taught and retain it longer than when the same material is presented in other instructional formats (Barkley, Cross & Major, 2005; Davis, 1993).

(iv) Decisions that students help make yield greater satisfaction. Research suggests that students who are engaged in group problem solving are more committed to the solution and are better satisfied with their participation in the group than those who were not involved.

(v) Students gain a better understanding of themselves. Group work allows people to gain a more accurate picture of how others see them. The feedback that they receive may help them better evaluate their interpersonal behaviour.

(vi) Team work is highly valued by employers. Well-developed interpersonal skills were listed by employers among the top 10 skills sought after in university graduates (Graduate Outlook Survey, 2010).
Although working in groups has its advantages, there are also times when problems arise. Beebe and Masterson (2003) list the following four disadvantages:

(i) There may be pressure from the group to conform to the majority opinion. Most people do not like conflict and attempt to avoid it when possible. By readily acquiescing to the majority opinion, the individual may agree to a bad solution just to avoid conflict.

(ii) An individual may dominate the discussion. This leads to members not gaining satisfaction from the group because they feel too alienated in the decision making process.

(iii) Some members may rely too heavily on others to do the work. This is one of the most salient problems that face groups. Some members do not pitch in and help and do not adequately contribute to the group (Freeman & Greenacre, 2011). One solution to this problem is to make every group member aware of the goals and objectives of the group and assign specific tasks or responsibilities to each member.

(iv) It takes more time to work in a group than to work alone. It takes longer to accomplish tasks when working with others. However, the time spent taking and analyzing problems usually results in better solutions. Overall, effective student participation in group work is an important learning outcome for higher education courses (Elgort, Smith & Toland, 2008).

Although many students feel as though they can accomplish assignments better by themselves rather than in a group, instructors find that group work helps the students apply knowledge (Elgort, Smith & Toland, 2008). However, merely assigning a group does not itself create critical thinking outcomes. Therefore, the instructor must be cognizant of how best to facilitate effective collaborative learning environments.

There are four stages of group work. First, the instructor must decide that he/she wants to incorporate group work into the class. The group work should be designed into the syllabus. The second stage involves teaching the students to work in a group. Instructors cannot assume that students know how to work together, structure time, and delegate tasks. The instructor must be able to teach the students how to work proactively in groups. This leads to the third stage, which involves monitoring the groups. The last stage, and the most important to the students, is the assessment of the group. The instructor must develop a concrete rubric for grading the students.

Cooperative Learning

Cooperative learning is the learning process in which individuals learn in a small group with the help of each other. Cooperative learning gives importance to cooperation as against our present educational system, which is based on competition. Cooperation rather than competition is the predominant characteristics of human beings. People are bonded together by love and cooperation and it is this quality on which the survival of human kind is based.
One of the most popular methodologies of promoting learning is through students cooperation rather than competition. It is also one of the most effective methodologies of promoting students groups in the classroom. There are certain characteristics of cooperative learning which are as follows:

- **Positive Interdependence**: Team members are obliged to rely on one another to achieve their goal.
- **Accountability**: All the students are held accountable for doing their work.
- **Face to face interaction**: Group assignments are constructed so that group work is done.
- **Appropriate Collaborative Skills**: Students are helped to develop trust, honesty, decision making, communication and conflict management.

### 12.3.1 Strategies for Collaborative and Co-Operative Learning

**Establish clear group goals**: Effective collaborative learning involves the establishment of group goals, as well as individual accountability. This keeps the group on task and establishes an unambiguous purpose. Before beginning an assignment, it is best to define goals and objectives to save time.

**Keep groups midsized**: Small groups of 3 or less lack enough diversity and may not allow divergent thinking to occur. Groups that are too large create ‘freeloading’ where not all members participate. A moderate size group of 4-5 is ideal.

**Establish flexible group norms**: Research suggests that collaborative learning is influenced by the quality of interactions. Interactivity and negotiation are important in group learning. In the 1960s studies by Jacobs and Campbell suggested that norms are pervasive, even deviant norms were handed down and not questioned. If you notice a deviant norm, you can do two things: rotate group members or assist in using outside information to develop a new norm. You may want to establish rules for group interactions for younger students. Older students might create their own norms. But remember, given their durable nature, it is best to have flexible norms. Norms should change with situations so that groups do not become rigid and intolerant or develop sub-groups.

**Build trust and promote open communication**: Successful interpersonal communication must exist in teams. Building trust is essential. Deal with emotional issues that arise immediately and any interpersonal problems before moving on. Assignments should encourage team members to explain concepts thoroughly to each other. Studies found that students who provide and receive intricate explanations gain most from collaborative learning. Open communication is key.

**For larger tasks, create group roles**: Decomposing a difficult task into parts to save time. You can then assign different roles. A great example in my own classroom was in science lab, fifth grade student assumed different roles of group leader, recorder, reporter, and fact checker. The students might have turns to choose their own role and alternate roles by sections of the assignment or classes.
Create a pre-test and post-test: A good way to ensure the group learns together would be to engage in a pre and post-test. In fact, many researchers use this method to see if groups are learning. An assessment gives the team a goal to work towards and ensures learning is a priority. It also allows instructors to gauge the effectiveness of the group. Changes can be made if differences are seen in the assessments over time. Plus, you can use Bloom’s taxonomy to further hone in on specific skills. Individuals should also complete surveys evaluating how well the group functioned. ‘Debriefing’ is an important component of the learning process and allows individuals to reflect on the process of group learning.

Consider the learning process itself as part of assessment: Many studies such as those by Robert Slavin at Johns Hopkins have considered how cooperative learning helps children develop social and interpersonal skills. Experts have argued that the social and psychological effect on self-esteem and personal development are just as important as the learning itself. In terms of assessment, it may be beneficial to grade students on the quality of discussion, student engagement, and adherence to group norms. Praise younger groups for following (for digital collaborative learning, for example) standards. This type of learning is a process and needs explicit instruction in beginning stages. Assessing the process itself provides motivation for students to learn how to behave in groups. It shows students that you value meaningful group interactions and adhering to norms.

Consider using different strategies, like the Jigsaw technique: The jigsaw strategy is said to improve social interactions in learning and support diversity. The workplace is often like a jigsaw. It involves separating an assignment into subtasks, where individuals research their assigned area. Students with the same topic from different groups might meet together to discuss ideas between groups. This type of collaboration allows students to become ‘experts’ in their assigned topic. Students then return to their primary group to educate others. There are other strategies such as using clusters, buzz groups, round robin, leaning cells, or fish bowl discussions which can be beneficial for cooperative learning.

Allow groups to reduce anxiety: When tackling difficult concepts, group learning may provide a source of support. Groups often use humor and create a more relaxed learning atmosphere that allow for positive learning experiences. Allow groups to use some stress-reducing strategies as long as they stay on task.

Establish group interactions: The quality of discussions is a predictor of the achievement of the group. Instructors should provide a model of how a successful group functions. Shared leadership is best. Students should work together on the task and maintenance functions of a group. Roles are important in group development. Task functions include: initiating discussions, clarifying points, summarizing, challenging assumptions/devil’s advocate, providing or researching information, and reaching a consensus. Maintenance involves the harmony and emotional well-being of a group. Maintenance includes roles such as sensing group feelings, harmonizing, compromising and encouraging, time-keeping, relieving tension, bringing people into the discussion, and more.
Use real-world problems: Experts suggest that project-based learning using open-ended questions can be very engaging. Rather than spending a lot of time designing an artificial scenario, use inspiration from everyday problems. Real-world problems can be used to facilitate project-based learning and often have the right scope for collaborative learning.

Focus on enhancing problem-solving and critical thinking skills: Design assignments that allow room for varied interpretations. Different types of problems might focus on categorizing, planning, taking multiple perspectives, or forming solutions. Try to use a step-by-step procedure for problem-solving. Mark Alexander explains one generally accepted problem-solving procedure: identify the objectives, set criteria or goals, gather data, generate options or courses of action, evaluate the options using data and objectives, reach a decision and implement the decision.

Keep in mind the diversity of groups: Mixed groups that include a range of talents, backgrounds, learning styles, ideas, and experiences are best. Studies have found that mixed aptitude groups tend to learn more from each other and increase achievement of low performers. Rotate groups so students have a chance to learn from others.

Consider demographics: Equally, balanced gender groups were found to be most effective. Some research suggests that boys were more likely to receive and give elaborate explanations and their stances were more easily accepted by the group. In majority male groups, girls tended to direct questions to the boy who often ignored them. You may also want to specifically discuss or establish gender equality as a norm. This may seem obvious, but it is often missed. It may be an issue you may want to discuss with older students.

Use scaffolding or diminished responsibility as students begin to understand concepts: At the beginning of a project, you may want to give more direction than the end. Serve as a facilitator, such as by gauging group interactions or at first, providing a list of questions to consider. Allow groups to grow in responsibility as time goes on. In your classroom, this may mean allowing teams to develop their own topics or products as time goes on. After all, increased responsibility over learning is a goal in collaborative learning.

Include different types of learning scenarios: Studies suggest that collaborative learning that focuses on rich contexts and challenging questions produces higher-order reasoning. Assignments can include laboratory work, study teams, debates, writing projects, problem-solving, and collaborative writing.

Technology makes collaborative learning easier: Collaboration had the same results via technology as in person, increased learning opportunities. Try incorporating free savvy tools for online collaboration such as Stixy, an online shared whiteboard space, Google groups, or Mikogo for online meetings. Be aware that some research suggests that more exchanges related to planning rather than challenging viewpoints occurred more frequently through online interactions.
This may be because the research used students that did not know one another. If this is your scenario, you may want to start by having students get to know each other’s backgrounds and ideas beforehand on a blog or chat-board.

Avoid ‘bad group work’: As with any learning strategy, it’s important to have a balanced approach. Cynics usually have a valid point. A recent New York time article, cites some criticism of collaboration for not allowing enough time for individual, creative thinking. You may allow some individual time to write notes before the groups begin. This may be a great way to assess an individual grade.

Be wary of “group think”: While collaborative learning is a great tool, it is always important to consider a balanced approach. At times, group harmony can override the necessity for more critical perspectives. Some new research suggests that groups favoured the more confident members. Changing up groups can help counter this problem.

Value diversity: Collaborative learning relies on some buy-in. Students need to respect and appreciate each other’s viewpoints for it to work. For instance, class discussions can emphasize the need for different perspectives. Create a classroom environment that encourages independent thinking. Teach students the value of multiplicity in thought. You may want to give historical or social examples where people working together were able to reach complex solutions.

Classroom setup is an important component in a learning environment because it is an essential piece of classroom management to support both teaching and learning. The physical atmosphere of the classroom can help prevent behaviour issues as well as promote and improve learning.

The structuring of the learning environment is essential for teachers and students. In fact, studies show that the physical arrangement of the classroom can affect both student and teacher behaviour, and that a well-structured classroom management plan of design has the ability to improve learning and behaviour.

In order to create an inviting and safe, supportive learning environment, using classroom management for the way you arrange your desks matters.

A supportive learning environment can mean the difference between having a good day and a bad day. Your classroom arrangement is the physical foundation of where your students will learn. This means that every square foot of it needs to be used for activities that support learning. The spatial structure of the classroom; where students will be seated, how the students will move about the classroom, and the whole classroom atmosphere needs to be considered, as well as how the classroom will be structured to address the academic, social, and emotional needs of the students. The physical arrangement of the classroom should also be reflective of the student body and must be consistent with the needs of all learners.
In addition to the way your classroom is physically arranged, the classroom environment as a whole needs to be considered. What you put on your walls, the classroom materials you will use, and where, and how you will set up your activities. All attributes of a structured learning environment need to be considered when setting up your classroom.

Check Your Progress
1. Why is self-regulated learning called a cyclical process?
2. State one of the most salient problems that face groups.
3. What is the ideal size of groups in collaborative learning?
4. What is the jigsaw strategy said to improve?

12.5 METHODS AND TECHNICAL ISSUES IN ASSESSMENT OF STUDENTS

Assessment methods are the strategies, techniques, tools and instruments for collecting information to determine the extent to which students demonstrate desired learning outcomes. Several methods should be used to assess student learning outcomes.

In order to know how far the students have previous learning, to get the knowledge of the effectiveness of instructional objectives, and to diagnose the problems on the way of achievement of students, the teachers use four types of evaluation. These four classifications of evaluation are as follows:

(i) Placement evaluation: Through this evaluation, the entire behaviour of the student is assessed. It is like round peg in the round hole and square peg in the square hole. In this case, the students are given admission to new courses according to their intelligence, attitude, motivation, aptitude, etc.

This type of evaluation questions: Does the student possess the knowledge and skills needed to begin the planned instruction? To what extent has the student already developed the understanding and skills that are the goals of the planned instruction? To what extent do the student’s interests, work habits and personality characteristics indicate that one mode of instruction might be better than the other? The goals of placement assessment are to determine for each student the position in the instructional sequence and the mode of instruction that is most beneficial. For example, the B.Ed. entrance test is conducted to give admission to the students in B.Ed. course. This type of evaluation is called ‘placement evaluation’.

(ii) Formative evaluation: It aims at the evaluation of a student’s learning progress during the period of instruction. Formative evaluation views evaluation as a process, and thus, it is an integral part of the learning process. It is not terminal in character. Formative evaluation is concerned with both
achievement of students during a course of instruction and its improvement. Formative evaluation is a tool for providing feedback to the teaching-learning process. It is concerned with the teacher, content, instructional objectives and provision of learning experiences. Formative evaluation also helps the teacher to modify the instructional objectives and the methods of teaching, if necessary. Formative assessment depends heavily on specially prepared tests and assessments for each segment of instruction (e.g., unit, chapter). The unit tests, the weekly tests, monthly tests, etc., are examples of formative evaluation.

(iii) **Diagnostic evaluation:** It is concerned with the persistent learning difficulties that are left unresolved by the corrective prescriptions of formative assessment. It aims at identifying or diagnosing the weaknesses of students in a given course of instruction. Diagnostic evaluation involves the use of specially prepared diagnostic tests and various observational techniques. The aim of diagnostic assessment is to determine the causes of persistent learning problems of students and to formulate a plan for remedial action. When a teacher finds that in spite of the use of various alternative methods and techniques, the student still faces learning difficulties, he takes recourse to a detailed diagnosis. This type of evaluation includes vision tests, hearing tests and other tests used to determine how the student approaches to a reading assignment, such as, whether the student relies on pictures, sound out words, use context clues, skip over unfamiliar words, etc.

(iv) **Summative evaluation:** This evaluation comes at the end of a course of instruction. It is designed to determine the extent to which the instructional goals have been achieved, and is used primarily for assigning course grades or for certifying student mastery of the intended learning outcome. Summative evaluation’s chief functions are: ‘crediting’ and ‘certifying’ the level of achievement of the students, and selecting the students for different courses. It is judgmental and terminal in character. Summative evaluation judges the achievement of students and the efficacy of school programmes, and guides whether the programme or the system is to be accepted or not. University annual examination is an example of summative evaluation.

The evaluation process produces the data for cognitive, affective and psychomotor objectives. The traditional examinations confine to cognitive objectives only. In this way, the evaluation is a more broad process. Various types of techniques are used in it. These are as follows:

(a) The oral, written, essay type, objective type, practical examination and observation techniques are used for the evaluation of cognitive objectives.

(b) The interest inventory, attitude scale, values test and observation techniques are employed for appraising the affective objectives.

(c) The performance test, practical examination and observation techniques are employed for assessing the psychomotor objectives.
The criterion test is different from the more traditional achievement test. This is because criterion test is concerned with objectives of teaching and instruction, whereas achievement test concerns with content coverage. There are three major characteristics of a criterion test or techniques of evaluation. These are as follows:

(i) Appropriateness: The criterion test must cover the terminal behaviour of teaching or instruction. Each item of criterion behaviour should represent the total terminal behaviour.

(ii) Effectiveness: The items of the criterion test must have difficulty value and discriminative power. The test should be reliable and valid.

(iii) Practicability: The test can be administered easily and the scoring procedure should be simple. The obtained data may be interpreted and may be made meaningful. It should be acceptable to the teacher and the students.

Classification of Evaluation Techniques

All techniques of evaluation can be broadly classified into two categories: (a) quantitative techniques of evaluation and (b) qualitative techniques of evaluation. A brief description of these techniques is as follows:

(a) Quantitative techniques: The quantitative techniques are mainly used in educational evaluation. These are highly reliable and valid. They possess all three characteristics and can be classified into three types: (i) Oral, (ii) Written and (iii) Practical.

(i) Oral techniques: This technique of evaluation is used at a lower level in organizing and leading teaching activities. The oral questions, debate and drama are used for this purpose.

(ii) Written techniques: In this type of evaluation, the written questions are asked and students have to write their answers. The written tests are more effective than oral. The written tests are usually of two types: essay type and objective type. The objective-type tests are now preferred for construction of the criterion test because they are highly objective and reliable.

(iii) Practical techniques: In this type of evaluation, some work is assigned to the student to accomplish it. Such techniques are based to assess the skill or psychomotor objectives. This technique is used in Science, Geography, Home Science, Agriculture, etc.

(b) Qualitative techniques: The qualitative techniques are used in schools and colleges for internal assessment. These techniques are subjective and less reliable, but they are used for assessing the affective objectives. These techniques are classified into five categories as given below:

(i) Cumulative records: Such records are prepared in the schools for each student. The cumulative record of the student includes the educational progress, results of monthly, half yearly test, attendance, participation in games, sports, co-curricular activities and physical
health. The cumulative record of the students provides the awareness about their progress and weakness of the parents, teachers and principal.

(ii) Anecdotal records: This type of record maintains the description of significant event and work or performance of the students. A merit list is prepared in schools. The correct information is obtained regarding incident and performance of the students in anecdotal records. The interest and learning of the students can be assessed with the help of such records. Such records can also be used to provide the guidance to students.

(iii) Observation technique: This technique is indispensable in school evaluation. It is used at all the stages of education, but it is very useful in evaluating the performance of small children at primary stage. It is used for evaluating cognitive, affective and psychomotor objectives. The student of higher class can make use of this technique for self-evaluation. The classroom interaction can be evaluated only by the observation technique.

(iv) Checklist: The technique is used for evaluating interest, attitudes and values of the students. It includes certain statements of ‘yes’ and ‘no’ type. The student has to check either of the two.

Each statement of the checklist evaluates a specific objective of learning. Some examples are as follows:

- Are you interested in the steps of teaching?
- Do you take interest in lesson planning?
- Do you really enjoy during classroom presentation?
- Are you interested in encouraging the student activities?

The above checklist may be used for evaluating teaching interest of teachers.

(v) Rating scale: The rating technique is used for assessing the attitude of the students towards teaching and subjects. It consists of some statements which can be rated on three, five and seven points scale. It is used for higher classes because it requires the power of judgment of the students. A teacher can make use of this technique for evaluating the effectiveness of this instructional procedure, teaching strategy, tactics and aids. The statements of the scale are concerned with the specific objectives of learning.

Technical Issues which might affect the assessment methods can be judged through three categories:

- **Validity**: Validity of a test refers to its truthfulness; it refers to the extent to which a test measures what it intends to measure. Standardization of a test requires the important characteristic viz., validity. If the objectives of a test
are fulfilled, we can say that the test is a valid one. Validity of a test measures the truthfulness of a test. The validity of a test is determined by measuring the extent to which it matches with a given criterion. Let us take an example. Suppose we want to know whether an ‘achievement test in mathematics’ is valid. If it really measures the achievement of students in mathematics, the test is said to be valid, or else not. So ‘validity’ refers to the very important purpose of a test, and hence, it is the most important characteristic of a good test. A test may have other merits, but if it lacks validity, it is valueless. Freeman states, ‘An index of validity shows the degree to which a test measures what is purports to measure when compared with the accepted criteria’. American educational psychologist Lee J. Cronbaeh held the view that validity ‘is the extent to which a test measures what it purports to measure’.

Factors Affecting Validity

(i) Lack of clarity in directions: Instructions that do not clearly indicate to the student how to respond to the tasks and how to record the responses decreases validity of a test. If the directions are not clear, the students will misunderstand the purpose of the test, and this in turn will hamper the validity of the test.

(ii) Ambiguity: Ambiguous statements lead to confusion and misinterpretation. Ambiguity sometimes confuses the good students more than it does the poor students. So no question of the test should be ambiguous.

(iii) Length of the test: Lengthening of a test not only increases its reliability but also its validity. If a test is too short to provide a representative sample of the performance we are interested in, its validity will suffer accordingly.

(iv) Nature of the group: A test may be valid for one group, but may not be valid for another. In heterogeneous groups, the scores are widely distributed and the validity coefficients are likely to be higher.

(v) Difficult reading vocabulary and sentence structure: Vocabulary and sentence structure that are too complex for the students taking the assessment, result in the assessment’s measuring reading comprehension and aspects of intelligence, which will lessen the validity of a test.

(vi) Inadequate time: Sometimes, the importance is given upon speed test instead of power test. In the field of achievement test, if sufficient time will not be given to the students, it reduces the validity of interpretations of results. However, assessments of achievement should minimize the effects of speed on student performance.

(vii) Poorly constructed test items: Sometimes, the test items are very subjective, vague, unclear, not objective, etc., and this affects the validity of a test.
(viii) **Improper arrangement of items:** The items in a test should be arranged according to the difficulty order. It means the items should be arranged from easy to difficult. If difficult items are placed first, it will take time and makes the student confused. So the items of a test should be arranged properly in order to develop the validity of a test.

(ix) **Identifiable pattern of answers:** Correct answers in some systematic order enables a student to guess the right answers more easily, and it affects the validity of a test.

(x) **Factors in administration and scoring:** In the case of teacher-made tests, the factors like insufficient time, unfair aid to individual students who ask for help, cheating and unreliable scoring by students tend to lower validity. In case of a standardized test, failure to follow the standard directions and time limits, or giving students unauthorized assistance or errors in scoring similarly contribute to lower validity. So, all these factors should be checked for ensuring validity of a test.

(xi) **Cultural influences:** Cultural influence, socio-economic status, social class structure, etc., affect the test scores as well as validity of a test.

(xii) **Criterion correlated to the test:** The criterion, for which the validity is assessed, should be a reliable one and free from bias, or else it will affect the validity.

- **Reliability:** Reliability refers to consistency of scores obtained by some individuals when re-tested with the test on different sets of equivalent items or under other variable examining conditions. It refers to the consistency of scores obtained by the same persons when they are re-examined with the same test on different occasions or with different sets of equivalent items or under different examining conditions. Reliability paves way for consistency that makes validity possible and identifies the degree to which various kinds of generalizations are justifiable. It refers to the consistency of measurement, i.e., how stable test scores or other assessment results are from one measurement to another. Reliability refers to the extent to which a measuring device yields consistent results upon testing and retesting. If a measuring device measures consistently, it is reliable. The reliability of a test refers to the degree to which the test result obtained is free from error of measurement or chance errors. For instance, we administer an achievement test in mathematics for students of class IX. In this test, Paresh scores 52. After a few days, we administer the same test. If Paresh scores 52 marks again, we consider the test to be reliable, because we feel that this test accurately measures Paresh’s ability in mathematics. American psychologist and segregationist H. E. Garrett stated, ‘the reliability of test or any measuring instrument depends upon the consistency with which it gauges the ability to whom it is applied’. The reliability of a test can also be defined as ‘the correlation between two or more sets of scores on equivalent tests from the same group of individuals’.
Factors Affecting Reliability

(i) **Length of the test:** There is positive correlation between the number of items in a test and the reliability of a test. The more the number of items the test contains, the greater is its reliability. In several tests, the scores of sub-tests and whole tests are calculated separately and their reliability is also calculated separately. The reliability of the whole test is always more than the sub-test, because whole test means more items, which is better representation of the content.

(ii) **Construction of the test:** The nature of items, their difficulty level, objectivity of scoring, item interdependence and alternative responses are factors which affect the reliability. More alternative responses will increase the reliability of the test.

(iii) **Nature of the group:** Reliability of a test will be more if the test is administered to a heterogeneous group. The more the variability, the higher the reliability coefficient.

(iv) **Testing conditions:** If the testing conditions are not similar at all the places, then differences in scores are obtained. The physical conditions of the tests and the environmental factors around the test-taker affect the reliability of a test.

(v) **Guessing and chance errors:** Guessing paves the way to increase error variances and it reduces reliability. If there are more opportunities for guessing in the test, the test will yield less reliable results.

(vi) **Test instructions:** If instructions in the test are complicated or difficult to understand, there will be less consistency in the scores. If the test-taker will not understand the instruction properly, his way of response will be wrong and this will hamper the reliability of test.

(vii) **Too easy or too difficult items:** Too easy or too difficult items fail to distinguish between good and bad students which otherwise affects the reliability of a test.

The other factors which affect the reliability of tests are: subjectivity of the examiner, clerical error, interval between testing, effect of practice, etc.

- **Objectivity:** Objectivity is an important characteristic of a good test. Without objectivity, the reliability and validity of a test is a matter of question. It is a pre-requisite for both validity and reliability. Objectivity of a test indicates two things: item objectivity and scoring objectivity.

- **Usability:** Usability of a test refers to the practicability of a test. It refers to the degree to which the test can be successfully used by the teachers/evaluators. Usability of a test depends on certain aspects which are expressed in the following manner:
  
  **i. Comprehensibility:** The test items should be free from ambiguity and the direction to the test items and other directions to the test must
be clear and understandable. The directions for scoring and the interpretation of scores must be within the comprehension of the user.

**ii. Ease of administration:** If the directions for administration are complicated or if they need more time and labour, the users may lag behind to use such tests. The directions for administration must be clear and concise. The test paper should be constructed according to the availability of time. Lengthy tests involving more time may not be preferred for use.

**iii. Availability:** If a test is not available at the time of necessity, it lacks its usability. Most of the standardized tests are of high validity and reliability, but their availability is very less. So it is desirable that in order to be reliable, the tests must be readily and easily available.

**iv. Cost of the test:** The cost of the test must be cheap, so that the schools and teachers can afford to purchase and use them. If it is costly, then every school cannot avail it. So a good test should be of reasonable price.

**v. Ease of interpretation:** A test is considered to be good if the test scores obtained can be easily interpreted. For this, the test manual should provide age norms, grade norms, percentile norms and standard score norms like standard scores, T-scores, Z-scores, etc. So ‘interpretability’ of test refers to how readily the raw scores of test can be derived and understood.

**vi. Ease of scoring:** A test in order to be usable must ensure ease of scoring. The scoring procedure must be a simple one.

### 12.6 EFFECTIVE TEACHING STRATEGIES AND TECHNOLOGY BASED TEACHING STRATEGIES

In this section, you will learn about some of the effective teaching strategies and strategies based on assistance from technology.

- **Use of Multimedia:** Vivid images, videos, instantaneous information, all of this capture attention from students easily. Use of various multimedia resources adds zing to your classroom sessions. Students enjoy distinctive resources and a variety of these resources keep students engaged and interested in the classrooms throughout the lecture. Multimedia can stimulate more than one sense at a time, and in doing so, educators reach all different types of learners and hold student’s attention longer. Giving students the ability to create and utilize different types of multimedia creates a more collaborative classroom and allows students communicate and actually apply what they are learning, enhancing the overall educational experience.
**Utilization of Social Media:** Every kid, every teacher in fact everybody uses and enjoys social media. So when this social media is used for teaching purposes, it turns out to be of great use. Students love being social, collaborating, sharing and exchanging ideas. Various important aspects that are integral part of teaching like collaboration and interaction can happen seamlessly via social media. Not just that it is being used by all but it also enables you to keep things all checked up and helps you in assigning tasks, assignment and other class related activities effortlessly. Social media also plays an important role when you talk about keeping guardians updated about the students’ performance and other school activities. Various platforms like Facebook and Twitter are being used by educators worldwide and are enjoyed by the masses.

**Use of Variety of Resources:** Mix things up and add some engagement. The source of the information is not just limited to books in 21st century instead you can use podcasts, videos, OERs, blogs and other resources to deliver knowledge. Kids enjoy exploring various resources and widening their horizons. A mix of various resources is enjoyed by students and is refreshing. It even caters to the different learning needs of the students, as one same resource may not be apt for all.

**Make the Most of Games and Perks of Gamification:** Maybe this is the best part about tech integration. The thing that students get to learn while gaming is the best thing. No doubts about the thing that how much love kids have for the games and here educational games are there to help kids learn their important lessons while playing amazing games. Students can get motivated by challenging each other and if done on a mobile device, students are more likely to continue learning outside of the classroom. Using educational games is one of the best ways to use technology in the classroom to make students eager for learning. And gamification can be used as a framework for education that can be used anywhere and in any level of complexity. It can be directly applied to contents, to the pedagogical framework (usually constructivism), or even to other complementary frameworks.

**Use of Technology to Empower Students and Reach Out:** Technology nurtures artistic expression. Engaged students are those who actively express opinions, and don’t just passively ‘receive wisdom’. Technology can give them a platform to explain their ideas, not just regurgitate facts. Apart from this you can help students reach out and learn more. Social media helps you connect to people around the world and you can get in touch with experts. Modern technology-based art forms have encourage artistic expression among our diverse student population. These tools provide forms of artistic communication for those students who have been constrained by the traditional options of verbal and written communication. You should also help students to have a ‘voice’. One way to do this, for example, is to get
them to each set up a blog or participate in other ways to demonstrate their learning. But remember that not everyone’s the same: introvert students might find Twitter intimidating, for instance. Instead, offer multiple choices: podcasting, YouTube etc. To make this work, students need to be aware of ethics of online world and the principles of digital citizenship. You should help with this on priority before starting up!

Check Your Progress

5. What is formative evaluation?
6. List some of the techniques employed for assessing the psychomotor objectives.
7. Mention the constituents of cumulative records for students.
8. List some of the sources of information in the 21st century.

12.7 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Self-regulated learning is a cyclical process, wherein the student plans for a task, monitors their performance, and then reflects on the outcome. The cycle then repeats as the student uses the reflection to adjust and prepare for the next task.
2. Some members may rely too heavily on others to do the work. This is one of the most salient problems that face groups.
3. Small groups of three or less lack enough diversity and may not allow divergent thinking to occur. Groups that are too large create ‘freeloading’ where not all members participate. A moderate size group of 4-5 is ideal.
4. The jigsaw strategy is said to improve social interactions in learning and support diversity.
5. Formative evaluation aims at the evaluation of a student’s learning progress during the period of instruction. Formative evaluation views evaluation as a process, and thus, it is an integral part of the learning process.
6. The performance test, practical examination and observation techniques are employed for assessing psychomotor objectives.
7. Cumulative records are prepared in the schools for each student. The cumulative record of the student includes the educational progress, results of monthly, half yearly test, attendance, participation in games, sports, co-curricular activities and physical health.
8. The source of the information is not just limited to books in 21st century instead you can use podcasts, videos, OERs, blogs and other resources to deliver knowledge.
12.8 SUMMARY

- Self-evaluation is the process of self-assessment. This is regarded as one of the major steps for assessment of learning outcomes. Without self-evaluation, an individual cannot understand the difference between right and wrong. Evaluation helps in the assessment of our abilities and aptitudes. Just like a child comes in next class after the assessment of previous class studies, in a similar way, self-evaluation helps in overcoming our shortcomings so as to prevent the barriers in the learning process.

- Self-regulated learning is a cyclical process, wherein the student plans for a task, monitors their performance, and then reflects on the outcome. The cycle then repeats as the student uses the reflection to adjust and prepare for the next task.

- Students should be coached to not attribute failure to lack of ability. Help students manage their emotions, and in time, direct them toward productive lines of thinking about how they can improve their performance. Even if their outcome is not what they had hoped, they can still learn from the experience. A key part of this process is that students use this reflection to plan for the next task.

- There are many advantages to working in a group. Groups have more information than a single individual. Groups have a greater well of resources to tap and more information available because of the variety of backgrounds and experiences. Students gain a better understanding of themselves. Group work allows people to gain a more accurate picture of how others see them. The feedback that they receive may help them better evaluate their interpersonal behaviour.

- Cooperative learning is the learning process in which individuals learn in a small group with the help of each other. Cooperative learning gives importance to cooperation as against our present educational system, which is based on competition. Cooperation rather than competition is the predominant characteristics of human beings. People are bonded together by love and cooperation and it is this quality on which the survival of human kind is based.

- The following are some of the strategies for collaborative and co-operative learning include: Establish clear group goals, Keep groups midsized, Establish flexible group norms, Build trust and promote open communication, For larger tasks, create group roles, Consider the learning process itself as part of assessment, Establish group interactions, Include different types of learning scenarios, Avoid ‘bad group work’, etc.

- Classroom setup is an important component in a learning environment because it is an essential piece of classroom management to support both teaching and learning. The physical atmosphere of the classroom can help prevent behaviour issues as well as promote and improve learning.
The structuring of the learning environment is essential for teachers and students. In fact, studies show that the physical arrangement of the classroom can affect both student and teacher behaviour, and that a well-structured classroom management plan of design has the ability to improve learning and behaviour.

Assessment methods are the strategies, techniques, tools and instruments for collecting information to determine the extent to which students demonstrate desired learning outcomes. Several methods should be used to assess student learning outcomes.

These four classifications of evaluation are as follows: Placement evaluation, Formative evaluation, Diagnostic evaluation, and Summative evaluation.

All techniques of evaluation can be broadly classified into two categories: (a) quantitative techniques of evaluation and (b) qualitative techniques of evaluation.

Validity of a test refers to its truthfulness; it refers to the extent to which a test measures what it intends to measure. Standardization of a test requires the important characteristic viz., validity. If the objectives of a test are fulfilled, we can say that the test is a valid one. Validity of a test measures the truthfulness of a test.

Reliability refers to consistency of scores obtained by some individuals when re-tested with the test on different sets of equivalent items or under other variable examining conditions. It refers to the consistency of scores obtained by the same persons when they are re-examined with the same test on different occasions or with different sets of equivalent items or under different examining conditions.

Objectivity is an important characteristic of a good test. Without objectivity, the reliability and validity of a test is a matter of question. It is a pre-requisite for both validity and reliability. Objectivity of a test indicates two things: item objectivity and scoring objectivity.

Usability of a test refers to the practicability of a test. It refers to the degree to which the test can be successfully used by the teachers/evaluators.

Some of the effective teaching strategies and strategies based on assistance from technology include: Use of Multimedia, Utilization of Social Media, Use of Variety of Resources, Making Most of Games and Perks of Gamification, and Use of Technology to Empower Students and Reaching Out.

12.9 KEY WORDS

- Exam wrapper: It refers to the quick quiz-type questionnaires to help students reflect on what they got wrong on the test and create a plan to improve on the next one.
Bloom’s Taxonomy: It is a classification system used to define and distinguish different levels of human cognition—i.e., thinking, learning, and understanding.

Assessment Methods: It refers to the strategies, techniques, tools and instruments for collecting information to determine the extent to which students demonstrate desired learning outcomes.

Reliability: It refers to consistency of scores obtained by some individuals when re-tested with the test on different sets of equivalent items or under other variable examining conditions.

Validity of a Test: It refers to the extent to which a test measures what it intends to measure. Standardization of a test requires the important characteristic viz., validity.

12.10 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions
1. What is the need and importance of self-evaluation for students?
2. List the advantages of working in a group.
3. What is a supportive learning environment? Why is it important for classroom management?
4. Mention the classification of evaluation techniques.

Long Answer Questions
1. Describe the strategies for collaborative and co-operative learning.
2. Discuss the four major classifications of evaluations.
3. Examine the factors affecting validity and reliability of tests.
4. Assess the different effective technology-based teaching strategies.

12.11 FURTHER READINGS

UNIT 13 USE OF BEHAVIOUR MODIFICATION IN SCHOOL SETTING

Structure
13.0 Introduction
13.1 Objectives
13.2 Rewarding Principles of Differential Reinforcement
   13.2.1 Modelling and Shaping
13.3 Answers to Check Your Progress Questions
13.4 Summary
13.5 Key Words
13.6 Self Assessment Questions and Exercises
13.7 Further Readings

13.0 INTRODUCTION

In the previous unit, you learnt about various methods of effective teaching, learning and evaluation. In this unit, we will discuss the use of behaviour modification in the classroom. We will discuss differential reinforcement. Modelling, shaping, contingency management and contracting.

13.1 OBJECTIVES

After going through this unit, you will be able to:
- Describe the principles of differential reinforcement
- Discuss concept so modelling, shaping, contingency management and contracting

13.2 REWARDING PRINCIPLES OF DIFFERENTIAL REINFORCEMENT

Differential reinforcement is the implementation of reinforcing only the appropriate response and applying extinction to all other responses. Extinction refers to the discontinuing of a reinforcement of a previously reinforced behaviour. Differential reinforcement means that reinforcement is provided for behaviours when these behaviours occur at certain times and places, whereas reinforcement is not provided when the behaviours do not occur during other times and places (Wolery & Fleming, in Bailey & Wolery, 1992).
The fundamental principle of differential reinforcement is the concept of discrimination. Discrimination is established through differential reinforcement by defining when reinforcement is and is not applicable. An example of differential reinforcement is rewarding a child for completing the task on time and withdrawing the reward when the child does not submit their assignment on time.

Discrimination develops as a result of differential reinforcement. Most of the behaviours exhibited by individuals in daily lives are the consequences of differential reinforcement. For example, stopping of one's vehicle at red lights and proceed through the intersection on green lights, initiating conversation with those whom we wish to talk, and so on.

**Differential Reinforcement of Other Behaviours (DRO)**

This type of reinforcement is also known as omission training procedures—an instrumental conditioning procedure in which a positive reinforcement is periodically delivered only if the participant does something other than the target response.

DRO is a procedure where positive reinforcement is provided only when the target behaviour is not displayed for a specified period of time. Thus, when using a DRO procedure, reinforcement is provided for the zero occurrence of the target behaviour (it is sometimes also called differential reinforcement of zero rates of behaviour). DRO is the most fundamental of all behaviour reduction procedures.

It is of prime importance to determine whether or not the undesired target behaviour occurred during a specified interval of time. If it occurred, reinforcement is withheld. If the target behaviour did not occur, reinforcement is provided at the end of the designated interval. In either case, DRO involves differential delivery of reinforcement for not displaying certain predetermined target behaviours.

There are two advantages of using a DRO procedure:

(i) It is easy for teachers to use in most classrooms and school settings.

(ii) Working directly with the undesired target behaviour by reinforcing its absence.

**Limitations of DRO**

The limitations of DRO are as follows:

- It does not teach or increase any particular desirable behaviour.
- While implementing a standard DRO procedure, a probable risk of reinforcing undesired behaviours is there since reinforcement is given at the end of an interval provided that the targeted undesired behaviour has not occurred. This leads to using other types of reinforcing methods for inappropriate behaviours.

**Differential Reinforcement of Alternate Behaviours (DRA):** It refers to the reinforcement of behaviours which serve as alternatives to problem or inappropriate behaviour, especially alternative means of communication.
Use of Behaviour Modification in School Setting

Differential Reinforcement of Incompatible Behaviours (DRI): It means to the reinforcement of behaviours which are incompatible with problem or inappropriate behaviours that are behaviours which the child cannot be doing simultaneously.

Differential Reinforcement of Lesser Rates of Behaviour (DRL): It is the reinforcing of periods of time in which the child exhibits the behaviour at a predetermined lesser rate.

Variations When Using Differential Reinforcement

1. Reinforcement is made contingent on the non-occurrence of the target behaviour throughout the specified period of time. Reinforcement is given only after no instances of the target behaviour occur during the entire interval.
2. In many instances, it is desirable to break down sessions into smaller intervals of time.
3. The teacher may want to use DRO for completing specified academic work.

Advantages of Differential Reinforcement

The advantages of differential reinforcement are as follows:

- This is a very flexible and appropriate technique for managing undesired and inappropriate behaviour.
- It puts emphasis on positive reinforcement to develop skills and appropriate behaviours.
- It has been used with a wide assortment of problem behaviours including self-injury, off-task behaviours, anti-social and disruptive behaviours.

13.2.1 Modelling and Shaping

Shaping refers to the reinforcement of behaviours that approximate or come close to the desired new behaviour. The steps entailed are often called successive approximations because they successively approximate or get closer and closer to the desired behaviour. On the other hand, modelling is an instructional strategy in which the teacher demonstrates a new concept or approach to learning to students who learn by observing the teacher. Through this technique, a teacher is able to reach the learning needs of most students. Modelling entails breaking down a task into specific tasks, and demonstrating each task numerous times for the students.

Contingency Management (CM)

Contingency management is an operant conditioning technique that employs stimulus control and positive reinforcement to change behaviour. It is primarily used in the field of drug abuse to change behaviour of addicts.
Use of Behaviour
Modification in
School Setting

Notes

Contracting

Contracting or the behaviour contract is a simple positive-reinforcement intervention that is employment by teachers to change errant behaviour of students. The behaviour contract spells out in detail the expectations of student and teacher (and sometimes parents) in carrying out the intervention plan, making it a useful planning document. And since the learner usually has inputs into the conditions that are established within the contract for earning rewards, he or she is more likely to be motivated to abide by the terms of the behaviour contract than if those terms had

Check Your Progress

1. What is the fundamental principle of differential reinforcement?
2. What is contingency management?

13.3 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. The fundamental principle of differential reinforcement is the concept of discrimination.
2. Contingency management is an operant conditioning technique that employs stimulus control and positive reinforcement to change behaviour.

13.4 SUMMARY

- Differential reinforcement is the implementation of reinforcing only the appropriate response and applying extinction to all other responses.
- The fundamental principle of differential reinforcement is the concept of discrimination.
- Discrimination is established through differential reinforcement by defining when reinforcement is and is not applicable.
- DRO is a procedure where positive reinforcement is provided only when the target behaviour is not displayed for a specified period of time.
- Shaping refers to the reinforcement of behaviours that approximate or come close to the desired new behaviour. On the other hand, modelling is an instructional strategy in which the teacher demonstrates a new concept or approach to learning to students who learn by observing the teacher.
- Contracting or the behaviour contract is a simple positive-reinforcement intervention that is employment by teachers to change errant behaviour of students.
13.5 KEY WORDS

- **Differential Reinforcement**: It refers to the implementation of reinforcing only the appropriate response and applying extinction to all other responses.
- **Contracting**: It is a simple positive-reinforcement intervention that is employment by teachers to change errant behaviour of students.

13.6 SELF ASSESSMENT QUESTIONS AND EXERCISES

**Short Answer Questions**

1. Define Differential Reinforcement of Alternate Behaviours.
2. What is shaping?

**Long Answer Questions**

1. The fundamental principle of differential reinforcement is the concept of discrimination. Discuss.
2. Describe Differential Reinforcement of Other Behaviours. What are its advantages and limitations?

13.7 FURTHER READINGS


UNIT 14 ROLE OF THE COLLEGE COUNSELLOR

Structure
14.0 Introduction
14.1 Objectives
14.2 Career Counselling
14.3 Individual Counselling in Personal Growth
14.4 Answers to Check Your Progress Questions
14.5 Summary
14.6 Key Terms
14.7 Self Assessment Questions and Exercises
14.8 Further Readings

14.0 INTRODUCTION

In the previous unit, you learnt about the use of behaviour modification in a school setting. In this unit, we will discuss the role of the college counsellor. Counselling is an indispensable part of not only educational guidance but also of society. Students need guidance to facilitate positive changes in their lives. This unit sheds light on the very nature of counselling, counselling for personal problems, adjustment problems, substance abuse and overall personality development.

14.1 OBJECTIVES

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

- Discuss career counselling for college students
- List the adjustment problems faced by students in college
- Explain the role of counsellors in tackling issues like substance abuse and suicide

14.2 CAREER COUNSELLING

With the rise in opportunities for employment after the completion of education, it is eminently important for students to have correct and appropriate knowledge about the prospects of profession. Due to advancements in technological sector and globalization, there has been a tremendous growth in prospects for higher education.

The students have right to have correct information about their future. Career counsellors’ act as guides in facilitating students in choosing the right option among various options available in employment as well as higher education opportunities.
Career counselling can be defined as a process that helps an individual to gain information and gaining comprehension about oneself and the professional world for making decisions related to their career, educational, and life.

**Theories Related to Career Counselling**

Frank Parsons is considered as the father of modern counselling. According to him, the interaction with an individual with simultaneous observation of him/her leads to the selection of the best compatible profession.

Some of the theories of career counselling are discussed as below:

- **(I) Trait-and-Factor Theory**

  This theory puts emphasis on compatibility between people’s personalities and careers. Under this proposition, the abilities or aptitude, personal values, and occupational interests of individuals are taken into consideration. The process includes three main steps:
  1. Study and observation of individuals
  2. Survey of career options
  3. Using “true reasoning” to match individuals with an occupation

- **(II) Theory of Person-Environment Fit**

  The fundamental of this theory is the assumption that positive relationship of an individual with their work environment leads to job satisfaction. The theorists Dawis and Lofquist proposed that work includes relationships, interactions, reward, stress and other psychological variables. These psychological variables must be adequately fulfilled by the work environment. Additionally, the individual must be able to meet the requirements of the work environment.

  **Four Key Points of Person-Environment Fit**

  1. Work personality and work environment should be a good match.
  2. Individual’s needs are more important when deciding if the environment is a good fit.
  3. The degree of matching of needs of an individual with the environment and vice versa is a good indicator of satisfaction.
  4. Job placement is best done by matching the individual’s personality with the requirements of the work environment.

- **(III) Learning Theory of Career Counselling**

  Learning theory was first proposed by Krumboltz, Mitchell, and Gelatt in 1975. There are two main components of this theory. The first part focuses on explaining the origin of career choices. The second part of the theory talks about the role of career counsellors in helping people in solving career or job related problems.

  According to the learning theory, there are four factors that dictate how someone selects a career. These include, special abilities or genetic endowments,
environmental conditions and events, learning experiences, and task approach skills. The main takeaway is that there is not one thing that dictates someone’s career choice. This theory also stresses that there is not one career that is best for a person. Instead, the theorists emphasize that someone can grow into a career as long as they are willing to expand their skills and interests.

Here, the role of a career counsellor is not so much in job selection as it is helping people deal with career or job problems. It is an approach where individual therapy and career counselling might overlap. This is because career counsellors using this theory will address issues like burnout, change, relationships, obstacles to career development and more.

(IV) Social Cognitive Career Theory

Social cognitive career theory was first described by Lent, Brown, and Hackett in 1996. The theory blends some aspects of social learning theory and cognitive theories. There are three key components to this theory.

1. Self-efficacy
2. Outcome expectations
3. Personal goals

Counselling is concentrated around assisting people in developing self-efficacy. Outcome expectations are also addressed by counsellors as well. These are the personal beliefs people have about what will happen as a result of their career actions. Finally, counsellors help people address personal goals so that these goals can help guide and sustain someone’s behaviour. Even just the process of generating goals is thought to be helpful for building up a sense of efficacy. Essentially, this theory is all about helping clients create a sense of agency related to career choices and issues.

14.3 INDIVIDUAL COUNSELLING IN PERSONAL GROWTH

In the contemporary scenario, learners face a lot of dilemma in their life as there are many sources of knowledge. It is essential for the stakeholders in education to provide adequate effective directions in the scenario. The main focus of education is to bring holistic development among the learners. Personal growth includes the development of physical, intellectual, emotional and spiritual aspects of the learners.

Individual counselling can be defined as a personal opportunity for receiving support and experience for growth during difficult times in life. Individual counselling can help one deal with many personal topics in life such as anger, depression, anxiety, substance abuse, marriage and relationship challenges, parenting problems, school difficulties, career changes, etc.

It helps individuals in exploring, understanding and processing their feelings, beliefs, and behaviours, work through challenging or influential memories. The main focus of individual counselling is the concerns of individuals in the short term and immediate results.
Role of the College Counsellor

According to the American Counselling Association (ACA), professional counselling is the process of building relationships with individuals that empower them to accomplish mental health and wellness, education, and career goals. It is a collaborative relationship between the counsellor and their client.

Process of Counselling

The process of counselling is as follows:
1. Developing Rapport between the Counsellor and the Counselee: It is one of the most significant parts of the process. It helps in understanding the person seeking counselling.
2. Comprehension of the Client’s Understanding: In this step, the past concerns are evaluated for the understanding of present situations.
3. Opening: In this step, efforts are done for knowing about the client and their past experiences.
4. Exploring Counselee Understanding: The exploration process helps in understanding the client. Their past experiences are explored and current concerns are evaluated.
5. Intervention: The intervention process is about choosing the appropriate counselling techniques that will encourage growth within your client.
6. Exploring Problems: Exploration is the process of learning more about the counselee and the reason for them to come for counselling.
7. Empower to Create Own Solutions: Empowering the counselee is not about providing them with all the answers. It is about empowering them so that they find their own solutions.

Counselling Skills

The following are the different counselling skills.

- **Listening/Observing**: Listening is one of the most treasured skills in the therapeutic relationship. It can be used in three ways:
  - (i) Attending: Attending is the ability to be physically present for the counselee. It means giving them undivided attention and making appropriate eye contact, mirroring body language, and nodding.
  - (ii) Active listening: Active listening occurs when one is listening with all of the senses.
  - (iii) Verbal listening: This is a form of showing one is listening through the words that one uses. These verbal cues are used to show attention and to encourage more exploration from the counselee. This can be as simple as ‘yes’, or ‘go on’. It can also be in the form of paraphrasing or repeating a word of emotion that the client has just said.

- **Asking Questions**: Questions are helpful in the therapeutic environment because they help in learning more about the counselee. The type of questions asked sets the nature of the session and the entire counselling process. Questions occur in two forms.
Role of the College Counsellor

i. Closed: A closed question is the practice of asking a question that can be answered as a 'yes' or 'no'. Closed questions should generally be avoided in the counselling relationship, as they do not encourage deeper exploration.

ii. Open: An open question is necessary to gather information. An open question is one that cannot be answered with a simple 'yes' or 'no' and it requires reflection or exploration on the counselee's end. Every open question should be intentional and therapeutic.

- **Reflection:** Reflections are used in the counselling process to accurately describe the client’s state from their verbal or nonverbal cues.
- **Feelings reflections:** Reflections allow counselee’s to hear the feelings they have just expressed. It can also be helpful to look at his or her nonverbal feeling cues.
- **Restating/Rephrasing:** Restating and rephrasing can build a stronger counselee-counsellor relationship. Rephrasing a counselee’s statement allows in better understanding of what he or she client has just said and to gain further clarity.
- **Affirmation:** Affirmation is a form of encouragement that is used to affirm behaviours or life choices. Affirmation is important for empowering counselees. A few common affirmations include affirming progress that a counselee has made toward a goal or encouraging a client to do what is important to them.
- **Empathy:** Empathy is the ability to put yourself in someone else’s shoes. It is much more than sympathy in that one is able to show understanding of the counselee’s feelings surrounding an experience.
- **Genuineness:** Begin genuine is creating congruence between yourself and your words. Every counsellor is different and will provide a different therapeutic process. It is important to remain genuine in all counselling techniques and verbal and nonverbal cues.
- **Unconditional Positive Regard:** Demonstrating unconditional positive regard is the idea of accepting the counselee for who they are. It is a means of expressing warmth and respect.
- **Counsellor Self-Disclosure:** This is a tricky counselling skill to manoeuvre. A general rule to follow is to only share personal information that is beneficial to the therapeutic process. It might also be used to help the counsellor relate better with their counselee.

Adjustment Problems at College

There are various problems faced by students at college especially by students who are living apart from their family members in hostels. These problems are listed as below:

- Lack of healthy environment for the students.
- Ragging done by the seniors.
Role of the College Counsellor

- Emotional adjustment in the colleges.
- Change in the structure of education after school system.
- Lack of home environment for the students who reside in hostels.
- Peer pressure among students.
- Poor transaction of curriculum leading to lack in confidence among students.
- Non congenial environment for students in the institution.
- Lack of co-curricular activities for students.
- Lack of job opportunities after completion of education in the relevant field.
- Pursuing course in which students is not interested due to some kind of pressure.
- Prejudicial behaviour practices by students or teachers.
- Unhealthy atmosphere at the home environment.
- Ineffective leadership in the institution.
- Personality of the students.
- Lack of opportunities for students leading to biasness among them.
- Intragroup conflict among students.
- Biased evaluation by the stakeholders.
- Substance abuse by students.
- Physiological Reasons.

Role of Counsellors

- Active Participation of students in decision making process.
- Active guidance and counselling cells in the institution providing services to students, parents.
- Redressal of the grievances of students through mentoring process or meeting with the class representatives.
- Provision of club activities, co-curricular activities in the institution with the feasible time.
- Improvement and enrichment of curriculum for providing education with the changing employment dynamics and needs of the society.
- Effective curriculum transaction which develops critical thinking among learners.
- Training of proper time management for students.
- Building tie–ups with industries for better employment opportunities.
- Taking action / Discouraging unhealthy behaviour in the classrooms.
- Providing motivation to students.
- Practicing and preaching self-discipline among classroom students.
- Proper educational and vocational guidance in the relevant fields.
- Improvement in the infrastructure of the institution within the feasible economic limits.
- Emphasis on emotional intelligence of students.
Interpersonal Relationship Issues and Love Failures
Counsellors also help college students overcome any relationship issues they may have in their personal lives.

Substance Abuse Training to Students for Life Skills
The role of counsellors is important in training students in dealing with the problems of substance abuse. The prevention programs must include skills training to help children and adolescents struggle drugs, toughen personal commitments against drug use, enhance social competency (e.g., communications, peer relationships, self-efficacy, and assertiveness), and highlight attitudes against drug use. These programs should include interactive methods (e.g., group discussion) rather than didactic teaching methods alone.

The counsellors should have expertise in the following categories:

- **Theories and techniques:** The theories including traditional psychodynamic methods, cognitive-behavioural modes, and systems theory. These theories facilitate in developing applications that pertain to a wide variety of settings and particular client populations.
- **Observation:** The observer can sit in on group therapy sessions, study videotapes of senior counsellors leading group sessions (ordinarily followed by a discussion), or watch groups live through one way mirrors as experienced therapists lead groups.
- **Experiential learning:** With this approach, a counsellor may participate in a training group offered by an agency, become a member of a personal therapy group (these are often process oriented), or join in group experiences at conferences.
- **Supervision:** A large part of this type of training is ongoing work with groups under the supervision of an experienced counsellor. Supervision may be dyadic, that is, supervisor and supervisee, but while simple and easy, this setting does not allow opportunities for actual group work. Supervision of group therapists ideally is conducted in a supervisory group format.

Study Skills
Study skills are the skills required for learning in an efficient manner. These skills are learned by the individuals on the basis of their individual needs. The counsellor has to make sure that the students develop study skills which are important for their growth.

Study skills are not subject specific - they are generic and can be used when studying any area. It is essential for the learners to gain an understanding of the concepts, theories and ideas surrounding their specific subject area.

The counsellor has to make sure that the students develop and practice their skills by giving them the suitable assignments. This practice will help in development of imparted study skills. Once mastered, study skills will be beneficial throughout their life.
Role of the College Counsellor

NOTES

Self-Instructional Material

Attempted Suicide

College counsellors as they have almost daily interactions with students are the most equipped to effectively help students combat suicidal tendencies, and healthily cope with problems they face at this trying stage in their life. Because of their age, adolescents and young adults are particularly at risk for suicide. There are a number of things that counsellors can do in order to accomplish these objectives. Part of the counsellor’s job is to be aware, and to help others be keenly aware of the risk factors associated with teen suicide. For some, these risk factors are genetic, while others may present themselves when students experience physical or mental distress.

The most common risk factors for suicide in college students are as follows:

- Previous suicide attempts
- Psychological and mental disorders, especially depression and other mood disorders, schizophrenia, and social anxiety
- Substance abuse and/or alcohol dependency
- Family history of suicide or mental health disorders
- Feelings of hopelessness
- Physical illness
- Impulsive or aggressive tendencies
- Financial or social issues
- Relationship loss or death
- Isolation and lack of social support
- Easy access to methods/means of suicide
- Exposure to media or others who have committed suicide

In addition, experts in suicide prevention have noted that there are a number of signs which indicate suicidal behaviour in the near future. Those can encompass:

- Talking about or making plans for suicide
- Expressing hopelessness about the future
- Displaying severe/overwhelming emotional pain or distress
- Showing worrisome behavioural cues or marked changes in behaviour
- Withdrawal from or changes in social connections
- Changes in sleep (increased or decreased)
- Anger or hostility that is out-of-character
- Increased agitation

In addition to recognizing the risk factors and warning signs associated with teen suicide, counsellors are also responsible for maintaining an environment that adequately meets the needs of college learners who may be suffering from mental health issues.

Overall Personality Development

The role of schools and colleges has increased from instructional imparting institution to a major stakeholder in the overall development of the personality of the students. This has led them to become more responsible for the development of the students.
School or college counsellors, also known as guidance counsellors, were first primarily responsible for facilitating career development. Today, their role is multifaceted and may vary greatly.

<table>
<thead>
<tr>
<th>Check Your Progress</th>
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<tbody>
<tr>
<td>1. Who first proposed the learning theory?</td>
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<tr>
<td>2. Define professional counselling.</td>
</tr>
<tr>
<td>3. What are the components of social cognitive career theory?</td>
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### 14.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Learning theory was first proposed by Krumboltz, Mitchell, and Gelatt in 1975.
2. Professional counselling is the process of building relationships with individuals that empower them to accomplish mental health and wellness, education, and career goals.
3. There are three key components to the social cognitive career theory:
   - Self-efficacy
   - Outcome expectations
   - Personal goals

### 14.5 SUMMARY

- With the rise in opportunities for employment after the completion of education, it is eminently important for students to have correct and appropriate knowledge about the prospects of profession.
- Career counsellors’ act as guides in facilitating students in choosing the right option among various options available in employment as well as higher education opportunities.
- Trait-and-factor theory puts emphasis on compatibility between people’s personalities and careers.
- The fundamental of personal environment fit theory is the assumption that positive relationship of an individual with their work environment leads to job satisfaction.
- Learning theory was first proposed by Krumboltz, Mitchell, and Gelatt in 1975.
- There are two main components of the learning theory. The first part focuses on explaining the origin of career choices. The second part of the theory talks about the role of career counsellors in helping people in solving career or job related problems.
- Individual counselling can be defined as a personal opportunity for receiving support and experience for growth during difficult times in life.
- Counsellors also help college students overcome any relationship issues they may have in their personal lives.
The role of counsellors is important in training students in dealing with the problems of substance abuse.

- The role of schools and colleges has increased from instructional imparting institution to a major stakeholder in the overall development of the personality of the students.

14.6 KEY TERMS

- **Empathy**: It means the capacity to understand or feel what another person is experiencing from within their frame of reference, that is, the capacity to place oneself in another’s position.
- **Substance Abuse**: It means a patterned use of a drug in which the user consumes the substance in amounts or with methods which are harmful to themselves or others, and is a form of substance-related disorder.
- **Self-Efficacy**: It is an individual’s belief in their innate ability to achieve goals.

14.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

**Short Answer Questions**

1. What is the learning theory of career counselling?
2. Write a short-note on how counsellors can help prevent suicide by college students.
3. List the adjustment problems faced by students in college.

**Long Answer Questions**

1. What are some of the theories related to career counselling? Discuss.
2. Describe the process of counselling.
3. Explain the various counselling skills.

14.8 FURTHER READINGS


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ELECTIVE I:
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