ALAGAPPA UNIVERSITY

[Accredited with 'A+' Grade by NAAC (CGPA:3.64) in the Third Cycle and Graded as Category–I University by MHRD-UGC]

(A State University Established by the Government of Tamil Nadu)

KARAIKUDI – 630 003

Directorate of Distance Education

M.A. (Education)

I - Semester

348 12

ESSENTIALS OF EDUCATIONAL PSYCHOLOGY

Reviewer	
Dr. M. Vasimalairaja	Associate Professor in Education, Department of Education, Directorate of Distance Education, Alagappa University, Karaikudi

Authors:

J C Aggarwal, *Former Deputy Director of Education (Retd.), Delhi Administration*
Units (1.0-1.2.2, 1.4-1.8, 2.3-2.8, 3, 4.0-4.2.1, 4.3-4.8, 6.0-6.2, 6.2.3-6.2.4, 6.3, 6.5-6.9, 8.0-8.2, 8.2.2, 8.3.1-8.3.2, 8.4-8.8, 9.2-9.2.1, 9.3-9.3.1, 12.0-12.2, 12.4-12.8, 13.0-13.2.1, 13.4-13.8)

Dr Sushma Suri, *Associate Professor, Department of Psychology, Jamia Millia Islamia University, New Delhi*
Units (1.2.3-1.2.5, 1.3, 6.2.1-6.2.2, 11.0-11.2, 11.3.1, 11.4-11.8)

S.S. Chauhan, *Professor and Dean (Retd.), Faculty of Education, Himachal Pradesh University, Shimla*
Units (2.0-2.2, 4.2.2, 5, 6.4, 7, 8.2.1, 8.3, 9.2.3, 9.3.2, 11.2.1-11.2.3, 11.3, 13.3)

Dr. Nidhi Agarwal, *Principal, Integrated School of Education; Gen Sec CTE, UP*
Prof. Puneet Kumar, *HOD, IIMT, Gr. Noida*
Units (9.0-9.1, 9.2.2, 9.2.4, 9.4-9.8, 12.3)

Neeru Sood, *Freelance Author*
Units (10, 12.2.1, 13.2.2)

Vikas® is the registered trademark of Vikas® Publishing House Pvt. Ltd.

VIKAS® PUBLISHING HOUSE PVT. LTD.
E-28, Sector-8, Noida - 201301 (UP)
Phone: 0120-4078900 • Fax: 0120-4078999
Regd. Office: 7361, Ravindra Mansion, Ram Nagar, New Delhi 110 055
• Website: www.vikaspublishing.com • Email: helpline@vikaspublishing.com

Work Order No. AU/DDE/DE1-238/Preparation and Printing of Course Materials/2018 Dated 30.08.2018 Copies - 500

SYLLABI-BOOK MAPPING TABLE

Essentials of Educational Psychology

Syllabi	Mapping in Book
BLOCK I: INTRODUCTION, METHODS AND GROWTH & DEVELOPMENT OF EDUCATIONAL PSYCHOLOGY	
UNIT I Introduction to Psychology: Meaning - Definitions -Branches of Psychology - Goals of Psychology - Basic Psychological Process - Fields of Psychology - Schools of Psychology - Structuralism, Psychoanalysis, Behaviourism and Humanism.	**Unit 1:** Introduction to Psychology **(Pages 1-17);**
UNIT II Educational Psychology: Meaning - Nature - Aims - Scope - Relation between Psychology and Education- Latest trends in Educational Psychology- Educational Psychologists and their experiments.	**Unit 2:** Educational Psychology **(Pages 18-31);**
UNIT III Methods of Educational Psychology: (a) Introspection method (b) Observation method (c) Clinical method (d) Experimental method (e) Case Study method Principles - Procedure - Merits and Demerits of the Methods.	**Unit 3:** Methods of Educational Psychology **(Pages 32-47);**
UNIT IV Growth and Development: Meaning - Factors Influencing Growth and Development - difference between growth and development - Stages of Development and its characteristics- Adolescence: Problems and solutions- Role of teachers, parents, and peer group in adolescence.	**Unit 4:** Growth and Development **(Pages 48-65)**
BLOCK II: DEVELOPMENTAL THEORIES, PERCEPTION AND CONCEPTS OF MOTIVATION	
UNIT V Dimensions and Theories of Development: Physical, Social, Emotional and Mental-Theories of development - Piaget's Cognitive Development-Freud's Psycho-sexual Development-Erikson's Psycho-Social Development	**Unit 5:** Dimensions and Theories of Development **(Pages 66-77);**
UNIT VI Perception: Sensation and Perception - Law of Perception: errors in perception (Illusion and Hallucination) - Attention- Information Processing- Formation of concepts - Piaget Theory - Remembering and forgetting-Memory-Strategies to enhance memory	**Unit 6:** Perception **(Pages 78-101);**
UNIT VII Motivation: Definition - Functions of Motivation - Classification of Motives - Concept of Motivation - Maslow theory of need hierarchy - Characteristics - McClelland's Achievement Motivation - Strategy for enhancing achievement motivation	**Unit 7:** Motivation **(Pages 102-113)**
BLOCK III: THEORIES OF INTELLIGENCIES, PERSONALITY, META-COGNITION AND LEARNING	
UNIT VIII Intelligence: Meaning, Definition and Types - Theories of Intelligence: Spearman's Two Factor, Thurston Group Factor, Thorndike Multifactor, Guilford Structure of Intellect, Intelligence Quotient-Nature and Types of Intelligence Test - Uses of Intelligence test.	**Unit 8:** Intelligence **(Pages 114-131);**
UNIT IX Personality: Meaning-Determinants of Personality: Type theory - Trait theory and Development Theory - Integrated Personality - Assessment of Personality - Projective, Non-Projective Techniques and Dream analysis.	**Unit 9:** Personality **(Pages 132-155);**
UNIT X Meta-cognition: Meaning - Determinants of meta-cognition - Meta-cognition in learning - The automation of cognitive and meta-cognitive processes - principles of meta-cognitive Instructions and Regulation - Meta-cognition and attention	**Unit 10:** Metacognition **(Pages 156-162);**
UNIT XI Learning: Concept, Principles and factors affecting learning - Theories of Learning: Thorndikes Connectionism, Pavlov's Classical and Skinners Operant Conditioning - Learning by Insight Theory - Transfer of Learning.	**Unit 11:** Learning **(Pages 163-188)**

BLOCK IV: CONCEPTS OF CREATIVITY, GIFTED, MENTALLY REATARDED CHILDREN AND INDIVIDUAL DIFFERENCES

UNIT XII Creativity: Concept of creativity Meaning of creative people

Factors and process of creativity Strategies for fostering creativity Importance of creativity in education Measuring the creativity

UNIT XIII Gifted and Mentally Retarded Children: Meaning and definitions Characteristics of gifted children Characteristics of Mentally retarded children Different types - identification Needs and their Problems.

UNIT XIV Individual Differences: Concept and areas, Determinants: Role of heredity and environment in developing individual differences, Implications of individual difference for organizing educational programmes.

CONTENTS

INTRODUCTION

NOTES

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. The book, *Essentials of 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.

BLOCK - I
INTRODUCTION, METHODS AND GROWTH & DEVELOPMENT OF EDUCATIONAL PSYCHOLOGY

NOTES

UNIT 1 INTRODUCTION TO PSYCHOLOGY

Structure

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.

- **Scientific study:** Psychologists search for answers to the questions What, Where and Why. They develop theories of human functioning, often developing new approaches to current knowledge. As a science, psychology uses systematic methods to observe, describe, predict and explain human behaviour and mental processes. Researchers carefully and precisely plan and conduct their studies in order to get authentic results. For example, if a researcher wants to study the high-risk behaviour among teenagers, he might

NOTES

spend considerable time to get the detailed answer to this question. The researcher may try to predict the high-risk behaviour of teenager influenced by factors like, parental attitude, peer pressure, personality type, etc.

- **Behaviour:** It includes all overt activities that can be directly observed; for example, someone laughing, two people discussing, a teenager riding a motorcycle, etc.
- **Mental process:** It refers to all covert behaviour, such as thoughts, feeling and motives that each of us experiences privately but which cannot be observed directly.

In this unit, you will learn about the basic concept, definition and aim of psychology. You will be familiarized with the school of psychology as well as the scientific methods in psychology. We will discuss the different goals of psychological enquiry, nature of psychological data, and limitation of psychological enquiry. You will study about the ethical issues in research and applications in psychology, psychology in industry, community, family, education, health and self-development, and learn about the psychology behind human relations. You will understand the application of psychology in the 21st century and how it helps in the reduction of violence.

1.1 OBJECTIVES

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

- Discuss the concept of psychology
- Explain the various branches of psychology
- Describe the behavioural approach
- Identify the relationship between counselling and psychotherapy
- Define the humanistic psychology

1.2 PSYCHOLOGY: AN OVERVIEW

Let us study about the concept of psychology.

1.2.1 Meaning and Definitions

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 modem 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 **R S 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.

NOTES

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*

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.'

1.2.2 Branches of Psychology

In modem 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:

1. Abnormal psychology
2. Adult psychology
3. Animal (or Comparative) psychology
4. Child psychology

NOTES

5. Clinical psychology
6. Developmental psychology
7. Educational psychology
8. Experimental psychology
9. General psychology
10. Genetic psychology
11. Individual psychology
12. Industrial psychology
13. Mathematical psychology
14. Military psychology
15. Para psychology
16. Physiological psychology
17. Social (or Group) psychology

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 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,

NOTES

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.

1.2.3 Goals of Psychology

Psychology has the following two goals:

(i) Understanding and explaining the complexity of behaviour

(ii) Contributing to the improvement of the quality of human life

An academic psychologist pursues basic research and tries to test the hypotheses about the diverse aspects of behaviour and mental processes. They develop principles, laws and theories using various methods, viz., observational and

experimental. They make efforts to describe, explain, predict and control behavioural phenomenon.

The second aim is of practicing applied psychologists. They try to use psychological knowledge to solve various human problems. Their activities include counselling, therapy, personnel selection, career guidance, consulting in organizational behaviour (e.g., team building, decision-making, leadership training, consumer survey and psychological assessment and training in various skills).

Psychologists are now seen working not only in academic institution for research and teaching, but also in institution like hospitals, schools, industries, sports complexes, military establishment, community centres, etc. Following are the important aims of psychology:

- To understand how various mental functions operate and how people behave in different conditions
- Psychology is relevant to solving problems in school, family, workplace, playground, hospitals, etc.
- Socializing children at home
- Motivating people in organizations
- Helping people to solve their emotional problems in personal lives
- Selecting people for jobs
- Assessing abilities and aptitudes of people
- Providing training for developing skills
- Setting goals and motivating people to achieve them
- Improving one's lifestyle for better health

Understanding the growth and development of a person or function of a group are important.

1.2.4 Basic Psychological Process

Psychology is the study of the mind and behaviour. This can include many things, from how children learn a native language to how one finds a car in a crowded parking lot. Even the simplest human activities involve complex psychological processing.

Let's take a look at five of the most basic psychological processes - sensation, perception, attention, learning, and memory - and how they contribute to the mind and human behaviour. All these five basic psychological processes have been discussed in detail in various units of this book.

1.2.5 Fields 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 the existing conditions. Important branches of psychology are as follows:

NOTES

Abnormal Psychology: The scope of abnormal psychology is limited to the study of abnormal individuals only.

Adult Psychology: It studies the behaviour of adult humans. An adult is a mature person and his emotional, social and intellectual behaviour is not like the behaviour of a child. So it is totally a separate branch of psychology.

Animal Psychology or Comparative Psychology: It may be named as Animal Psychology also as it is a comparative study of the behaviour of man and various animals. Animals cannot express themselves. Therefore, we can study their behaviour with the help of experiments only. It is very difficult to do some experiments on human beings. Therefore, some of the experiments are first tried on animals and then the results are applied to human beings. The laws of learning, now applied with much success to pupils in schools, were discovered in this way.

Biological Psychology: Biological psychology is a branch of science, which pertains to behavioural, cognitive, and clinical neuroscience. it can be stated as the scientific study of biological mechanisms underlying the observable aspects of behaviour and covert behaviour (i.e., the non-observable aspects of behaviour such as learning, memory, thinking, motivation, perception and emotion). It is also popularly known as psychobiology, behavioural biology or behavioural neuroscience.

Child Psychology: It deals with the development of behaviour of the child. The child differs from the adult very much. His urges, his emo-tions, his sentiments, his intelligence and his aspirations — all differ from those of the adult. Therefore, child psychology is a full-fledged science itself.

Clinical Psychology: It primarily deals with problem children.

Developmental Psychology: It deals with the development of human beings from conception through various stages till death. Development cov-ers various aspects i.e. emotional language, motor, physical, social, etc.

Educational Psychology: It is the most important branch of applied psychology. It is the study of the psychological aspects of educational situations. It is a study of educational problems with reference to psychological facts. Psychology is the science of behaviour and education aims at modify-ing the behaviour in the most desirable way. But modification of behaviour depends on some fundamental psychological laws and limitations. Educa-tional psychology studies those facts and limitations. It covers the develop-ment of the child from early childhood to maturity—general facts of psy-chology which may have any 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.

Experimental Psychology: It studies mental processes and behaviour in laboratories with the help of experiments. It is more a methodology rather than an academic branch of psychology. This methodology uses a number of tools and

research techniques to analyse human behaviour. Some techniques used frequently in experimental psychology are correlational research, case studies, and naturalistic observation.

NOTES

Largely, all these techniques of experimental psychology include random assigning of individual subjects to a number of groups and defining variables, formulating a hypothesis, controlling the independent variables, and examining the effect of all these activities on the depending variables.

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

Genetic Psychology: It is concerned with development stages of an individual.

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

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

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

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

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

Quantitative Psychology: The definition of Quantitative Psychology gives by the American Psychological Association is: 'the study of methods and techniques for the measurement of human attributes, the statistical and mathematical modeling of psychological processes, the design of research studies, and the analysis of psychological data.' As per the concept of Quantitative psychology, psychological theories can be denoted in the form of mathematics and statistics. However, detailed explanation and description of existing psychological methods as well as development of new concepts is necessary for psychological research for quantitative psychology because it is more than mere representation or application of statistics and mathematics.

Quantitative Psychology is further sub-divided into two more fields, namely, mathematical psychology and psychometrics. Mathematical psychology is dedicated to developing fresh and unique mathematical models for explaining psychological processes. Psychometrics is dedicated to developing new methods of applying and investigating psychological measurement. For instance, a

questionnaire to test learning skills, and fresh techniques for examining the data provided in the questionnaire.

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

NOTES

Counselling

One other important aspect of psychology is counselling. Counselling is a process intended to help people take effective control of their daily lives. It is a process of sharing thoughts and feelings in confidence with someone who is objective and who is a good listener. Counselling is a cooperative exercise where counsellors do not solve people's problems, but rather serve to enhance the efforts the person is already making by discussing new approaches to solving a problem, by giving needed information, by helping to clarify thoughts and feelings, or just through listening.

Counselling has become easier with the emergence of communication media, like telephones and the Internet. There are several definitions of 'counselling' formulated by the professionals. The term 'counselling' covers the multiple aspects of discussion and other activities with individuals, who may need guidance, crisis support, psychotherapy, problem solving, or developmental counselling.

The task of counselling is to give the 'client' an opportunity to explore, discover and clarify ways of living more satisfyingly and resourcefully (BAC, 1984).

Counselling is, practically speaking, a professional relationship between a patient/client and a trained counsellor. Counselling is usually done on an individual basis, but may also sometimes be conducted in groups. The key objective of counselling is three-fold—to guide clients to comprehend life and become better aware of the perspective with which they can live a happier life, to learn how to accomplish the goals they set for themselves, in a more meaningful, educated manner, and to resolve emotional or interpersonal problems.

In counselling, the relationship between the patient/client and the professional is conducted on the basis of a standard set of communication principles and skills and one or more psychological theories. The sessions and the treatment are customized for the patient based on experience, intuition and other interpersonal aspects, in order to treat the client's personal problems, wishes and concerns. The basic premise of counselling is that it is centered on facilitation rather than giving advice or intimidation. The number, duration, and setting of the counselling sessions depend on the client's requirements and may or may not be in combination with medical treatment. Counselling can take place effectively only if both the counsellor and the client are willing and ready. Largely, counselling is offered to those people who are facing distress of some kind, personal or professional and are unable to resolve matters with help only from family and friends. Counselling provides to such a relationship which is more disciplined and confidential than

friendship, and also less likely to cause a stigma in the mind of the client than medical or psychiatric help.

From the above definitions, it is observed that counselling has different meanings for different people; for instance, experts advocate the idea of the 'professional' relationship that a client and the counsellor share, and the client himself/herself outlining their own goals. In other words, exploration and understanding are more important than action.

NOTES

There are many similarities between counselling and other kinds of help provided to distressed persons, such as social work, nursing and even ordinary friendship. The contrasting interpretations of the scope of counselling can be attributed to the manner in which the practice of counselling has emerged and evolved in the 20th century. Today, counselling comprises of a range of varied themes, emphases, practices and schools of thought.

Relationship between Counselling and Psychotherapy

There can be many similar products available in the market that offer the client almost the same service. One version of counselling is 'psychotherapy'. It is provided by people who have a background in medicine. They are highly trained professionals. Though psychotherapy is a lengthy process, nowadays people are interested in a 'brief' form of psychotherapy. These consist of a series of ten or twelve sessions. Freudian classical psychoanalysis is the most expensive and exclusive version of psychotherapy.

Psychotherapy and counselling are different in the sense that psychotherapy refers to a more fundamental, deeper process of change when clients are more disturbed. Though counsellors and psychotherapists use similar approaches and techniques to solve the problem, they have to use different titles depending upon the demands of the agencies they are working for. Moreover, the term psychotherapy is mostly used in medical settings like hospitals, psychiatric units, whereas the term counselling has been designated for the experts working in educational settings such as schools, colleges or student counselling centers, etc.

Counselling and psychotherapy are also different on the basis of the experts involved. Counselling is mostly carried out by volunteers who are willing to serve the society. But psychotherapy is an exclusively professional occupation.

The term *counselling psychologist* is also widely used to refer to the same profession. Here the counsellor possesses the degree and training in psychology and counselling. A counselling psychologist is a person who uses psychological techniques and models to remedy his or her client's problems. These practitioners are different from others in the sense that they have specialized training and expertise in their particular field with a general counselling training. It is systematic and scientific in nature because it involves principles of science.

Counselling can also be offered by parents, teachers, relatives or close friends; for example, a student may confide in a teacher with whom he feels safe

NOTES

and comfortable to share his problems and anxieties. A doctor may find himself giving emotional support to the spouse of a patient who is terminally ill. In these cases, it can be seen that a teacher and a doctor are using counselling skills without being professional counsellors. It is important to clarify that in counselling or psychotherapy there is a formal contract with the client who is not related to the counsellor otherwise.

Human beings are defined by their personalities. Therefore, the study of personality acquires prime position in the field of psychology. Personality can be defined as the distinctive and characteristic pattern of thought, emotion and behaviour which make them to interact with the environment. Description of a man's personality is not a simple task. Personality itself is very complex. It consists of many layers and diverse elements. The elements of personality are called the traits of personality. It is the trait of a person which makes one person's behaviour different from another. Shyness and sociability are the different traits of personality. The traits of personality cannot be directly observed. Personality is the organization of the traits of an individual. The traits are interrelated. The personality of an individual is unified whole of his traits which is dynamic.

Carver and Scheier (2000) proposed that the term personality indicates a sense of uniformity, intrinsic causality, and individual uniqueness. This matter of individual uniqueness is significant. However, there are some general traits seen in human beings and specific features of people. For instance, we all feel stress and the heightened cortisol level that accompanies it, and as a result we all go through the immune suppressive effects. But at the same time, our reactions are different because each of us is unique.

Check Your Progress

1. Why is psychology important?
2. What is the most important branch of applied psychology?
3. What are the two main aims of psychology?
4. Define the term 'counselling'.

1.3 SCHOOLS OF PSYCHOLOGY: STRUCTURALISM, PSYCHOANALYSIS, BEHAVIOURISM AND HUMANISM

In this section, we will discuss the various schools of psychology in detail.

Behaviourism

During the first half of the 20th century, the behavioural approach by J.B. Watson (1878–1958) and B.F. Skinner (1904–90) emphasized the scientific study of

observable behaviour. The behavioural approach focusses on human interaction with the environment that can be seen and measured.

They argued that all behaviour is the result of conditioning and the environment shapes behaviour by reinforcing specific habit. The conditional response was viewed as the smallest unit of behaviour that could be created. All type of complex behaviour pattern coming from special training or education was regarded as nothing more than an interlinked fabric of conditional response. Behaviourists tend to discuss psychological phenomena in laws of stimuli and response, giving rise to the term S-R psychology, a set of terms that can be used to communicate psychological information.

NOTES

Behavioural approach studies take place in experimental laboratories under fully controlled conditions. It also takes place outside the laboratories in natural setting; for example, school, house church, streets, playground, etc. B.F. Skinner emphasized that what we do is the ultimate test of who we are. He believed that reward and punishment determine our behaviour; like a student might study hard because this hard work rewards him with good marks.

Contemporary behaviourists still emphasized the importance of observing behaviour to continue to use the rigorous sorts of experimental methods advocated by John B. Watson and B.F. Skinner (Martin and Pear, 2003; Miltenberer, 2004; Watson and Tharp, 2003). They also continue to stress upon the importance of environmental determinates of behaviour (Baldwin and Baldwin, 2001; Spiegler and Guevremout, 2003)

Psychoanalysis

Psychoanalysis is both a theory of personality and method of psychotherapy originated by Sigmund Freud (1856–1939) around the turn of 20th century. The psychotherapy approach proposed unconscious thought, attitude, impulse, wishes, motivation and emotions of which we were unaware.

Freud believed that psychological development is instinctual, unacceptable wishes in the childhood that are driven out of conscious awareness, become part of the unconscious thoughts and are expressed in dreams, slips of the tongue and physical mannerism. Freud (1917) theory was the basis for the therapeutic technique that he termed psychoanalysis. His approach was controversial at the beginning of the 20th century. Today, the psychodynamic theory tends to place less emphasis on sexual instincts and more on cultural experience as determinants of behaviour.

Gestalt Psychology

The Gestalt approach was proposed by Max Wertheimer, Kurt Koffka and Wolfgang Kohler of Germany. *Gestalt* is a German word meaning form or configuration which focusses on studying whole patterns rather than small pieces of them. The Gestalt psychologists primarily focussed on perception, but they believe that perceptual experience depends on the patterns formed by stimuli and

on the organization of experience. The whole is different from the sum of its parts because the whole depends on the relationships among the parts; for example, refer Figure 1.1.

NOTES

Fig. 1.1 *Two Large Triangles as Two Different Forms or Two Gestalt*

We perceive a single large triangle as a single form or Gestalt rather than as three small dots. Perception of motion was the key interaction of Gestalt psychologists; for example, how people judge size and the appearance of colour under change in illumination. Today, Gestalt idea are part of the study of cognitive psychology—a field emphasizing not only on perception, but also on learning, memory, thought process and problem solving. The basic Gestalt principle of perception are still taught within this newer field (Ash, 1998; Kohler 1992; Wertheimer 1982) to understand interpersonal phenomena (Johes, 1998). S.E. Asch (1946) extended the Gestalt notion that people see whole rather than isolated parts from the simple care of the object perception to more complex care of person perception (Taylor, 1998). They also saw the process of imposition meaning and structure on incoming stimuli as automatic and outside conscious awareness. The Gestalt approach has also become the basis for a major therapeutic technique called Gestalt therapy.

Humanistic Psychology

The humanistic movement was really a reaction to both psychodynamic theory and behaviour, often called the third force in psychology. The humanistic movement emphasized a person's positive quality, the capacity for positive growth and its freedom to choose any destiny. Humanistic psychologists held the view that people have the ability to control their lives and free will (Maslow, 1971; Rogers, 1961). They believed that being driven by unconscious impulses (as the psychodynamic), or by the external reward (as the behavioural approach emphasized) could not lead to a better understanding of this human potential for self-actualization, which Maslow termed as this achieving of one's full potential. Also, actual self-humanistic psychologists think that people have a tremendous potential for self-understanding and that way help others to achieve self-understanding by being warm, nurturing and supportive.

1.3.1 Humanism

The humanistic movement was really a reaction to both psychodynamic theory and behaviour, often called the third force in psychology. The humanistic movement

emphasized a person's positive quality, the capacity for positive growth and its freedom to choose any destiny. Humanistic psychologists held the view that people have the ability to control their lives and free will (Maslow, 1971; Rogers, 1961). They believed that being driven by unconscious impulses (as the psychodynamic), or by the external reward (as the behavioural approach emphasized) could not lead to a better understanding of this human potential for self-actualization, which Maslow termed as this achieving of one's full potential. Also, actual self-humanistic psychologists think that people have a tremendous potential for self-understanding and that way help others to achieve self-understanding by being warm, nurturing and supportive.

Check Your Progress

5. What is the main focus of the behavioural approach?
6. What do you understand by the concept of psychoanalysis?

1.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. 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.
2. Educational psychology is the most important branch of applied psychology.
3. Psychology has the following two goals:
   (i) Understanding and explaining the complexity of behaviour
   (ii) Contributing to the improvement of the quality of human life
4. Counselling is a process intended to help people take effective control of their daily lives. It is a process of sharing thoughts and feelings in confidence with someone who is objective and who is a good listener.
5. The behavioural approach focusses on human interaction with the environment that can be seen and measured.
6. Psychoanalysis is both a theory of personality and method of psychotherapy originated by Sigmund Freud (1856–1939) around the turn of 20th century. The psychotherapy approach proposed unconscious thought, attitude, impulse, wishes, motivation and emotions of which we were unaware.

1.5 SUMMARY

- 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.

NOTES

- The term 'behaviour' is used in a very broad sense. It expresses the entire life of an individual.
- An academic psychologist pursues basic research and tries to test the hypotheses about the diverse aspects of behaviour and mental processes.
- Psychology is the study of the mind and behaviour.
- One other important aspect of psychology is counselling. Counselling is a process intended to help people take effective control of their daily lives.
- Counselling has become easier with the emergence of communication media, like telephones and the Internet.
- In counselling, the relationship between the patient/client and the professional is conducted on the basis of a standard set of communication principles and skills and one or more psychological theories.
- Psychotherapy and counselling are different in the sense that psychotherapy refers to a more fundamental, deeper process of change when clients are more disturbed.
- The behavioural approach focusses on human interaction with the environment that can be seen and measured.
- The Gestalt approach was proposed by Max Wertheimer, Kurt Koffka and Wolfgang Kohler of Germany.
- The humanistic movement was really a reaction to both psychodynamic theory and behaviour, often called the third force in psychology.
- The humanistic movement emphasized a person's positive quality, the capacity for positive growth and its freedom to choose any destiny.

1.6 KEY WORDS

- **Psychology:** Psychology is the combination of three important terms, viz., science, behaviour and mental process.
- **Clinical psychology:** It primarily deals with children who have problems relating to development, behaviour, learning or interacting with others.
- **Developmental psychology:** It deals with the development of a human being right from time he is conceived, through various stages, and till his death.
- **Experimental psychology:** It studies mental processes and behaviour in laboratories with the help of experiments.
- **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.

- **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.
- **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.

1.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions

1. Mention the various aims of psychology.
2. Write a short note on the role of counsellor.
3. What do you understand by Freud's psychoanalytic theory?
4. What are the advantages and disadvantages of Gestalt psychology?

Long Answer Question

1. Discuss the concept of psychology.
2. Explain the various branches of psychology.
3. Describe the behavioural approach.
4. Explain the relationship between counselling and psychotherapy.
5. Describe the humanistic psychology.

1.8 FURTHER READINGS

Colman, Andrew. 2016. *What is Psychology?* United Kingdom: Routledge.

Eysenck, W. Michael. 1994. *Perspectives on Psychology*. United Kingdom: Psychology Press.

Carr, Alan. 2012. *Clinical Psychology: An Introduction*. United Kingdom: Routledge.

Nevid, S. Jeffrey. 2012. *Psychology: Concepts and Applications*. United States: Cengage Learning.

Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. United Kingdom: Psychology Press.

UNIT 2 EDUCATIONAL PSYCHOLOGY

NOTES

Structure

2.0 INTRODUCTION

Educational psychology is the branch of psychology concerned with the scientific study of human learning. The study of learning processes, from both cognitive and behavioural perspectives, allows researchers to understand individual differences in intelligence and cognitive development. The field of educational psychology relies heavily on quantitative methods, including testing and measurement, to enhance educational activities related to instructional design, classroom management, and assessment, which serve to facilitate learning processes in various educational settings across the lifespan.

Educational psychology borrows a lot of theories from another subfield called developmental psychology, which studies how people change over the course of their life, from infancy to old age.

2.1 OBJECTIVES

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

- Define the scope of educational psychology
- Mention the various aims of educational psychology
- Discuss the relationship between education and psychology
- Explain the nature of educational psychology
- Describe the latest trends in educational psychology

2.2 MEANING, NATURE, AIMS AND SCOPE OF EDUCATION PSYCHOLOGY

NOTES

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.

2.2.1 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

NOTES

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 accepted by the world. He influenced educative process for more than 2000 years.

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*.

NOTES

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, L.M. Terman, Weschler, Hull, and B.F. Skinner, etc., worked in specific areas of educational psychology.

NOTES

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.

2.2.2 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.

Check Your Progress

1. What is educational psychology?
2. What do you understand by the learning situation?

2.3 EDUCATIONAL PSYCHOLOGISTS AND THEIR EXPERIMENTS

The following is the list of great psychologists and the experiments they conducted.

Great Psychologists

1. **Adler, Alfred** (1870–l937). He was an Austrian psychiatrist and psychologist. He founded the School of Individual Psychology. He became openly critical of Freud's over emphasis on sexual factors and broke with him in 1911. He thought that human behaviour was determined not by the biological forces of instinct but by social forces and social attitudes and

NOTES

interests that in turn were determined through learning experiences. While Freud emphasized the unconscious, Adler laid more stress on the conscious. Freud stressed the role of the past while Adler on that of anticipations of the future goals that influence the present behaviour. His two major works are: *The Practice and Theory of Individual Psychology* (1927) and *Social Interest* (1933).

2. **Allport, Gordon W** (1897–1968). Allport attempted to develop a systematic study of personality. He recognized the *uniqueness* of each individual personality despite the many common elements that exist among different people. His important publications include: *Personality: A Psychological Interpretation* (1937); *The Nature of Personality: Selected Papers* (1950); and *Pattern and Growth in Personality* (1961), etc.
3. **Binet, Alfred** (1857–1911). A French experimental psychologist, he did very useful work in the field of test construction. In collaboration with T Simon, he produced in 1905 the first intelligence test known as the Binet Simon Scale. The Scale was revised in 1908 and 1911. The Binet Simon Scale will always remain as a pioneer effort in the measurement of intelligence.
4. **Burt, Cyril** (1883–1971). An English educationist and psychologist, Cyril has made noteworthy contribution in education in general and mental testing in particular. He translated Binet's tests and modified them to suit English children. He published pioneering works on delinquency and backwardness in children. His important publications include: *The Factors of the Mind* (1941); *The Young Delinquent* (1965); *The Backward Child* (1950) and *Causes and Treatment of Backwardness* (1953).
5. **Carr, Harvey A** (1873–1954). An American psychologist, he played an important role in the development of functional psychology. He held that psychology is concerned with mental activity, like memory, perception, feeling, judgment and will. He recognized the validity of both introspective and objective observation as methods of studying mental activity. His important publication is *Psychology* (1925).
6. **Claparede, Edouard** (1873–1940). A physician, psychologist, educator and reformer, he became the director of the first psychological laboratory in 1904. He felt that the development of general psychology must depend on child psychology and educational psychology as these provide contact with children and that the knowledge of child psychology is necessary if one wants to teach children.
7. **Darwin, Charles** (1809–1882). Founder of the famous Darwinian theory of the evolutionary doctrine; he published *The Origin of Species by Natural Selection* (1859) and *The Descent of Man* (1871) in which he argued that man had descended from an ape-like ancestor. The Darwinian theory greatly influenced psychology and education. He also wrote *The Expression of the Emotions in Man and Animals* (1872).

NOTES

8. **Drever, James** (1873–1950). A British psychologist, he gave much thought to the problem of 'how best to teach psychology'. His publications include: *The Psychology of Everyday Life; The Psychology of Practical Life* and *A Dictionary of Psychology* (1952).
9. **Ebbinghaus, Hermann** (1850–1909). One of the pioneers in the study of experimental psychology, he founded the first important psychological journal in 1890 in Germany. His most important contribution was the application of quantitative measurement to mental phenomena, especially memory.
10. **Fechner, Gustav Theodor** (1801–1887). A German physiologist, physicist, philosopher and psychologist, his research led the way to experimental quantitative psychology, without which the scientific study of educational problems would not have been possible.
11. **Groos, Karl** (1861–1946). *German* psychologist whose *anticipatory theory* of play is a solid contribution to education.
12. **Guthrie, Edwin Ray** (1886–1959). An American psychologist and ardent behaviourist, he formulated an extremely simple learning theory based on one principle—*contiguity.*
13. **Hall, G Stanley** (1846–1924). An American psychologist, he studied with Wundt at Leipzig. He stimulated the psychological study of children and the problem of training and teaching. He published *Adolescence*: *Its Psychology* (1904).
14. **Isaacs, Susan** (1885–1948). A British psychologist who wrote her two famous books: The Intellectual Growth of Young Children and the Social Development of Young Children.
15. **Jung, Carl Gustav** (1875–1961). A Swiss psychologist, he founded the school known as Analytical Psychology. He worked as a collaborator of Freud for a number of years. He did not give much significance to childhood experiences. He is the founder of the introvert and extrovert concepts of personality. His important publications are: *Psychological Types* (1923); *Psychology of the Unconscious* (1931) and *Modern Man in Search of Soul* (1933).
16. **Kellogg, Winthrop N** (1898–1972). An American psychologist, he specialized in research on conditioning and learning. He wrote *The Ape and the Child (1933), An Experimental Comparison of Psychological Methods (1936), and First Course in Experimental Psychology (1938).*
17. **Koffka, Kurt** (1886–1941). One of the original three Gastalt psychologists during World War I, he worked with brain-damaged patients at a psychiatric clinic. He published: *The Growth of the Mind* (1921) and *Principles of Gestalt Psychology* (1935).

NOTES

18. **Kohler, Wolfgang** (1887–1967). The youngest of the three Gastalt psychologists, he wrote *Gestalt Psychology* (1929) and *Dynamics in Psychology* (1940).
19. **Lashley, Karl** (1890–1958). A physiological psychologist and ardent supporter of behaviourism, he carried out long investigations on the brains in the learning process. He summarized his findings in *Brain Mechanisms and Intelligence* (1929).
20. **McDougall, William** (1871–1938). A great psychologist and a prolific writer, he conducted a number of experiments especially on the effects of muscular activity on the fading of visual expressions. He is famous for his theory of instincts. His important publications include: *Physiological Psychology* (1905); *Outline of Psychology* (1923); *The Group Mind* (1926) and *The Frontiers of Psychology* (1934).
21. **Muller, George Elias** (1850–1934). A physiologist, philosopher and experimental psychologist, he did considerable work on visual perception, learning and memory. He demonstrated that it is often more efficient to learn *wholes* as contrasted with *parts*. He trained the first generation of psychologists in Europe including Wundt.
22. **Munsterberg, Hugo** (1863–1916). A pioneer in applied psychology, he published about 30 books on criminology, education and psychology.
23. **Murphy, Gardner** (1895–1979). A psychologist and a profound writer, he came to India in 1950 as a consultant of UNESCO to the Ministry of Education, Government of India. He worked extensively on three major projects—the psychotherapy research project, the perception project and the infancy project. Several of his books are being used as textbooks on personality and social psychology. His principal works are: *Personality. A Bio-Social Approach to Origins and Structures* (1947); *Human Personality* (1958); *Historical Introduction to Modern Psychology* (1929); *Experimental Social Psychology* (1931) and *General Psychology* (1933).
24. **Myers, Charles S** (1873–1946). A British psychologist, Myers was a leading spirit in the psychic research movement in England. He taught and used statistics in psychology. His *Textbook of Experimental Psychology* (1909) was the first book to include an introduction to the use of statistics in psychology.
25. **Parson, Frank** (1854–1908). An American educator and a pioneer in guidance movement, he pleaded for vocational guidance in his book *Our Country's Needs (1894).*
26. **Pavlov, Ivan Petrovich** (1849–1936). A Russian physiologist, his theory of automatic responses in important activities of life had a great influence on psychology. His laboratory—controlled experiments including presentation

of food to a dog at the ringing of a bell and further conditioning have great bearing on learning. He won the Nobel Prize in Physiology and Medicine in 1904 for his work on the digestive glands.

NOTES

27. **Piaget, Jean** (1896–1980). One of the greatest pioneers in psychological investigation of childhood, he revolutionized thinking and understanding about the intellectual growth of young children. His investigations show that the young child finds everything revolving round himself, that his development may be retarded, if not allowed a fairly wide ***sensory*** and ***motor experience*** in his first four years; that around the age of seven, the child becomes ego-centred and can think logically while solving concrete simple problems; that between the ages of 11 and 14, the child develops abstract reasoning and that children learn by constant interaction with the environment. His important publications are: *The Language and Thought of the Child* (1926); *Judgement and Reasoning in the Child* (1928); *The Child's Conception of the World* (1929); *The Origins of Intelligence in Children; Play, Dreams and Imitation in Childhood* (1962) and *The Psychology of the Child* (1969).
28. **River, W H R (**1864–1922). British psychologist, he introduced psycho-analytical ideas in Britain. He spent some time in India doing research. His publications include: *Instinct and the Unconscious* (1920) and *Conflict and Dream* (1921).
29. **Rogers, Carl R** (1902–1987). An American psychologist and psychotherapist, he is the originator of the 'non-directive child-centred' theory of psychotherapy. Important publications are: *Counselling and Psychotherapy* (1942); and *On Becoming a Person: A Therapist's View of Psychotherapy* (1961).
30. **Schonell, Fred** (1900–1969). An Australian psychologist, he did very useful work in evaluation, measurement and testing. His major publications are: *Essentials in Teaching and Testing Spelling* (1932); *Backwardness in the Basic Subjects* (1942); *The Psychology and Teaching of Reading* (1945); *Diagnostic and Attainment of Testing* (1949); *The Subnormal Child at Home* (1959) and *Failure in School* (1962).
31. **Seguin, Edouard** (1812–1880). French educator and psychologist, he was a pioneer in the education of idiots. He believed that their body and the senses should be trained as part of the personality of the idiots. He founded the first school for the training of the feeble-minded children in Paris in 1839. His chief publications include: *New Facts and Remarks Concerning Idiocy* (1870) and *Psycho-Physiological Training of an Idiotic Eye* (1880).
32. **Skinner, B Frederic** (1904–1990). An American psychologist, he was greatly interested in the study of behaviour. He popularized *teaching machines* in learning in 1954. His noted books are: *The Behaviour of*

NOTES

Organisms (1938); *Science and Human Behaviour* (1953); *Verbal Behaviour* (1957); *Cumulative Record* (1959); *Beyond Freedom and Dignity* (1971) and *About Behaviourism* (1974).

33. **Spearman, Charles** (1863–1945). A British psychologist, he experimented with school children. He propounded his 'Two Factor Theory of Intelligence'. His famous publications are: *The Principles of Cognition and the Nature of Intelligence* (1924) and *The Abilities of Man* (1927).
34. **Stout, G F** (1860–1944). A British psychologist, he moved from mental philosophy to strictly empirical psychology. His *Manual of Psychology* (1898) was a popular textbook and his *Analytic Psychology* (1896) is still considered to be a major work on the philosophy of mind.
35. **Strang, R** (1895–N.A.). American educator, she is internationally known in the field of student counselling. Among her numerous publications are: *The Role of the Teacher in Personnel Work* (1953); *An Introduction to Child Psychology* (1959) and *Helping Your Gifted Child* (1960).
36. **Sully, James** (1842–1923). A British psychologist, he established a psychological laboratory in 1897. *Studies in Childhood* is an important publication of James Sully. His other works are: *Outline of Psychology* (1884) and *Human Mind*. William McDougall was one of his assistants.
37. **Terman, Lewis, Madison** (1881–1955). An American psychologist, he is linked with the Binet Test. He published the revised Stanford Binet Test in 1934. His 'Group Test of Mental Ability' was widely used in schools. His famous books are: *The Intelligence of School Children* (1921) and *Genetic Studies of Genius, Mental and Physical Traits of 1000 Gifted Children* (1925).
38. **Thorndike, Edward Lee** (1874–1949). An American psychologist, he was the first to apply methods of quantitative research to educational problems. He devised several widely used intelligence tests. His 'Laws of Learning' are often quoted. He published more than 50 books singly or jointly. Among his distinguished works are *Animal Intelligence* (1911); *Educational Psychology* (1913); *Introduction to the Theory of Mental and Social Measurement* (1914); *Fundamentals of Learning* (1932) and *Human Nature and The Social Order* (1940).
39. **Thurstone, L L** (born 1927). An American psychologist, he is known for the 'Factor Analytic Theory in the field of intelligence. His major publications are: *Vectors of Mind* (1935) and *Multiple Factor Analysis* (1947).
40. **Tolman, E C** (1886–1959). An American psychologist, he experimented on learning with rats. His school of psychology may be termed as 'Purposive Behaviourism'. His most important publication is *Purposive Behaviour in Animals and Man* (1932).

41. **Weber, Ernst** (1795–1875). A German psychologist, he for the first time subjected purely psychological phenomenon to experimental manipulation and gave precise quantitative definitions.
42. **Woodworth, R S** (1869–1962). A functional psychologist, he was engaged in research for over 70 years. He was primarily concerned with the *driving* forces that activate the organism. His major publications are: *Dynamic Psychology* (1918); *Dynamics of Behaviour* (1958); *Experimental Psychology* (1954) and *Contemporary Schools of Psychology* (1931, revised in 1964)

Check Your Progress

3. Who founded the School of Individual Psychology?
4. List some of the important publications of Gordon W. Allport.

2.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Educational psychology is the branch of psychology concerned with the scientific study of human learning.
2. The learning situation 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.
3. Alfred Adler founded the School of Individual Psychology.
4. Some of the important publications include: *Personality: A Psychological Interpretation* (1937); *The Nature of Personality: Selected Papers* (1950); and *Pattern and Growth in Personality* (1961), etc.

2.5 SUMMARY

- Educational psychology is the branch of psychology concerned with the scientific study of human learning.
- The field of educational psychology relies heavily on quantitative methods, including testing and measurement, to enhance educational activities related to instructional design, classroom management, and assessment, which serve to facilitate learning processes in various educational settings across the lifespan.
- Educational psychology is a compound word which consists of two words: education and psychology.
- Education in a narrow sense is the modification of behaviour of children in a controlled environment.

NOTES

- 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.
- History of educational psychology is as old as the process of education on earth.
- The pioneer work in the development of educational psychology was done by Herbart and Froebel, German professors
- Alfred Binet was the first psychologist who contributed by devising the first widely used individual intelligence scale.
- Educational psychology is a continuously growing discipline adding new dimensions to its field of study.
- 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.
- Psychology effect education in every field of teaching learning process Modern educators cannot plan an educational method without psychology.

2.6 KEY WORDS

- **Physiologist:** A physiologist is an expert in or student of the branch of biology that deals with the normal functions of living organisms and their parts.
- **Physicist:** A physicist is a scientist who studies and is trained in physics, which is the study of nature, especially how matter and energy behave.
- **Psychologist:** A psychologist is a person who studies the human mind and tries to explain why people behave in the way that they do.

2.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions

1. What is the scope of educational psychology?
2. Mention the various aims of educational psychology.
3. Write a short note on the brief history of educational psychology.
4. State Alfred Binet contributions to psychology.

Long Answer Question

1. Discuss the relationship between education and psychology.
2. Explain the nature of educational psychology.
3. Describe the latest trends in educational psychology.
4. Write a detailed note on the Darwinian theory of evolutionary doctrine.

NOTES

2.8 FURTHER READINGS

Colman, Andrew. 2016. *What is Psychology?* United Kingdom: Routledge.

Eysenck, W. Michael. 1994. *Perspectives on Psychology*. United Kingdom: Psychology Press.

Carr, Alan. 2012. *Clinical Psychology: An Introduction*. United Kingdom: Routledge.

Nevid, S. Jeffrey. 2012. *Psychology: Concepts and Applications*. United States: Cengage Learning.

Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. United Kingdom: Psychology Press.

NOTES

UNIT 3 METHODS OF EDUCATIONAL PSYCHOLOGY

Structure

3.0 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.

3.1 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

3.2 A BRIEF HISTORY OF THE METHODS OF EDUCATIONAL PSYCHOLOGY

A brief review of the development of the methods that we will discuss in this unit will be helpful to have a wider perspective of the subject. 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.

3.3 METHODS OF EDUCATIONAL PSYCHOLOGY

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.

NOTES

- 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.

NOTES

- 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.

NOTES

- 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

NOTES

- 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.

NOTES

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
- Direct observation of the individual during interview or play
- Psychological examination with the help of certain tests and techniques

Preparing 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.

NOTES

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

NOTES

- 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'.

NOTES

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:
  - 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.

NOTES

- 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.

3.4 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. Clinical approach involves the following steps:
   - Preparation of case history
   - Study of the environment
   - Direct observation of the individual during interview or play

3.5 SUMMARY

- Educational psychology employs various methods to improve the teaching-learning process in the classroom.
- 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.

NOTES

- 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.

3.6 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.

3.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions

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

Long Answer Question

1. Discuss the importance of the methods of educational psychology.
2. Explain the process of introspection.
3. Identify the various limitations of introspection method.
4. Write a detail note on clinical method.
5. Describe the steps involved in clinical approach.
6. Explain some limitations of case study method.

3.8 FURTHER READINGS

Colman, Andrew. 2016. *What is Psychology?* United Kingdom: Routledge.

Eysenck, W. Michael. 1994. *Perspectives on Psychology*. United Kingdom: Psychology Press.

Carr, Alan. 2012. *Clinical Psychology: An Introduction*. United Kingdom: Routledge.

Nevid, S. Jeffrey. 2012. *Psychology: Concepts and Applications*. United States: Cengage Learning.

Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. United Kingdom: Psychology Press.

NOTES

UNIT 4 GROWTH AND DEVELOPMENT

NOTES

Structure

4.0 INTRODUCTION

Education aims at all-round and harmonious development of an individual. The development of a nation depends largely upon the development of its children and there is no doubt that childhood is the foundation upon which the development of an individual depends. Every child is unique. There are individual differences in children that have a great bearing on their development. Needs of each individual child must be attended to for his optimum development. To a great extent, development of proper attitudes, habits and patterns of behaviour that are formed during the early years determine how successfully an individual will adjust to the environment as he grows older. It is, therefore, imperative that the teachers who are charged with the responsibility of the development of the child should be acquainted with the meaning and characteristics of various facets of development.

The United Nations International Children Fund (UNICEF) is an important organization of the United Nations, which measures the progress of a nation on the yardstick of the development of its children. It is of interest to note that this organization gives secondary importance to per capita income.

Under the auspices of UNICEF, an Italian Committee organized a workshop at Rome in 1990 for promoting the movement of child growth and development. The workshop prepared the Development Tree, which represents the rights of children that must be taken into consideration. The roots of the tree represent the basic needs of children, (health, food, water, etc.), the trunk represents the right to social and economic development, the branches represent the complementary rights (the right to information, to play, to live in peace, etc.) In this unit, you will study about the growth and development.

4.1 OBJECTIVES

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

- Discuss the major stages of development
- Differentiate between development, growth and maturation
- Describe the major characteristics of intellectual development

NOTES

4.2 MEANING OF AND DIFFERENCE BETWEEN GROWTH AND DEVELOPMENT

In the words of E B Hurlock (1959), the term development means 'a progressive series of changes that occur in an orderly predictable pattern as a result of maturation and experience.'

According to J E Anderson (1950), 'Development does not consist merely of adding inches to one's height or improving one's ability. Instead, development is a complex process of integrating many structures and functions'. Robert M Liebert, R W Poulos and G S Marmor (1979) state, 'Development refers to a process of change in growth and capability over time, as function of both maturation and interaction with the environment'. Thus, development of an individual includes:

1. Growth
2. Capability
3. Maturation
4. Interaction with the environment

Harold Stevenson (1968), a prominent development psychologist has explained the concept of development as, 'Developmental psychology is concerned with the study of changes in behaviour throughout the life span'. G W Allport (1948) thinks, 'The developing individual cannot be thought of a thing in himself. Development, insofar as it is considered to be produced from within the individual himself alone, is only a convenient abstraction'. A Angyal (1941) is of the view, 'Development cannot be considered in terms of the mind alone but rather in terms of the individual as a whole in relationship with his experience with others'. Thus development is concerned with the biological total process taking place in the subject-object interrelation.

To sum up, development is a series of orderly progression of change towards maturity. 'Orderly' refers to the arrangement of the changes. Therefore, each change at each stage is dependent upon what preceded it and thereafter, it affects what comes after. Development does not take place haphazardly. The term 'progressive' signifies that changes are leading forward and that the direction is towards adaptation which is conducive to survival of the individual.

NOTES

Development has four basic elements as given below:

1. Growth
2. Maturation
3. Experience
4. Social transmission (Learning through language, schooling or training by parents)

Difference between Development, Growth and Maturation

Development, growth and maturation are terms that are commonly used to convey the same meaning, but there is great difference between them.

Arnold Gessel (1929) wrote, 'Growth is a function of the organism rather than that of the environment as such. The environment furnishes the foil and the milieu for the manifestation of development, but these manifestations come from inner compulsion and are primarily organized by inherent inner mechanics and by an intrinsic physiology of development. The very plasticity of growth requires that there be limiting and regulator mechanisms. Growth is a process so intricate and so sensitive that there must, be powerful stabilizing factors, intrinsic rather than extrinsic, which preserve the balance of the total pattern and direction of the growth trend. Maturation is, in a sense, a name for this regulatory mechanism'.

L D Crow and A Crow (1962) suggest that growth refers to structural and physiological changes, and development is concerned with growth as well as those changes in behaviour that result from environmental situations.

Essentially, growth takes place when a child grows taller, and his bones, muscles and other parts of the body increase in size. Maturation is the unfolding of the characteristics with which the individual is endowed. As the child grows, his mind and body mature and he is able to function at a higher level. Development is a product of maturation and learning.

Growth refers to change in size.

Maturation involves qualitative change.

Development involves a series of progressive, orderly and meaningful changes leading to the goals of maturity. Usually, growth contributes to development but not always. A person can develop even after physical growth ceases and maturity is attained.

NOTES

Table 4.1 *Growth and Development Compared*

S.No.	*Growth*	*Development*
1.	The term growth is used in a purely physical sense. It generally refers to an increase in size, length, height and weight. Changes in the quantitative aspects come into the domain of growth.	Development implies an overall change in shape, form or structure resulting in improved working or functioning of an individual. It indicates the changes in the quality or character of a person rather than in quantitative aspects.
2.	Growth is one of the parts of the developmental process. In a strict sense, development in its quantitative aspect is termed as growth.	Development is a wider and comprehensive term. It refers to the overall changes in an individual. Growth is one of its parts.
3.	Growth describes the changes that take place in particular aspects of the body and the behaviour of an organism.	Development describes the changes in the organism as a whole and does not list the changes in the body.
4.	Growth does not continue throughout life. It stops when maturity has been attained.	Development is a continuous process. Simply put, it goes from womb to tomb. It does not stop at the attainment of maturity. The changes, however small they may be, continue throughout the lifespan of an individual.
5.	The changes produced by growth can be subject to measurement and can be quantified.	Development, as said earlier, implies improvement in functioning and behaviour and hence brings qualitative changes that are difficult to measure directly. They can be assessed through keen observation in behavioural situations.
6.	Growth may or may not bring forth development. For example, a child may grow (in terms of weight) by becoming fat but this growth may not bring any functional improvement (qualitative change) or development.	Development is also possible without growth as we see in some children who do not gain quantitatively in terms of height, weight or size but who experience functional improvement or development in physical, social, emotional or intellectual aspects.

Growth does not always contribute to development. A child or an adult may grow very fat and heavy, but such growth can hardly be considered development in the sense of advancement to a higher level of maturity. Actually, a person has developed if he is physically healthier and/or has more sensorimotor skills so that his physical condition is conducive to greater personal effectiveness. Thus, by improving his sensorimotor skills and thereby better utilizing the capacities he has inculcated from about two decades of growth, a person can develop even after physical growth stops. Physical growth is quantitative in nature and is usually measured in inches and pounds or their equivalents.

Physical development is both qualitative and quantitative and implies increasing capacities and abilities, maturing, functional improvement and progress towards higher levels of potentiality and effectiveness. Growth can be 'measured', development can be observed by noting changes in shape as they occur and modes of behaviour as their maturation is completed.

4.2.1 Factors Influencing Growth and Development

The factors that influence growth and development may be divided broadly into:

1. **Internal factors**
   - Heredity factors
   - Biological or physical factors, e.g., deformities, damages to internal body organs

- Intelligence
- Emotional factors like emotional adjustability and maturity

2. **External factors**

NOTES

Environment in the womb of the mother; includes the mother' age, nutritional condition, teratogens (disease, drug or other environmental agents that can harm the developing fetus), multiple children in the womb, delivery, damage, or accident to the baby in the womb.

Environment available after birth like accidents, quality of environment, care, and nourishment, and facilities.

The development of a child is not dependent upon a single factor. In fact, a number of factors affect its development in a cumulative manner. All these factors are associated with one another. It has not yet been possible to say anything about their relative merits.

By not giving proper attention and care to the physical development of the child, we may be guilty of causing serious handicaps to the total development of the child, including his/her emotional, intellectual and social, even ethical and spiritual well-being. Knowledge of the process of the physical growth of the child and development will equip the teacher to set curricula according to the needs of the children.

Physical growth and development refers to a process which brings about bodily and physiological changes—internal as well as external—in an organism from the conception till his death. Generally, these changes take place in the following dimensions:

a) **Gross physical structure or physique:** It involves changes in height, weight, body proportions and general physical appearance.

b) **Internal organs:** It involves changes in the functioning of glands, nervous system and other body systems—circulatory, respiratory, digestive, muscular, lymphatic and reproductive.

The emotions become stable during adulthood. The individual becomes mature and has a control over his/her emotions and feelings. Sudden outburst of emotions becomes rare. An adult mostly takes decisions based on facts and experience rather than emotions.

Following are the important effects of emotions on the developing individual:

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

NOTES

There is a close relationship between the physical and emotional factors. An imbalance or disturbance in the child's physical growth is most likely to be reflected in his/her intellectual functioning and personality adjustment. An unhealthy emotional climate is likely to affect the physical health of the child and it may hinder his/her normal physical growth. A child under emotional strain is likely to be physically unhealthy and show signs of physical ailments.

4.2.2 Stages of Development and Its Characteristics

Following are the major stages of development:

1. Birth to 2 years: infancy.
2. 2 years to 6 years: early childhood.
3. 6 years to 12 years: later childhood.
4. 12 years to 19 years: adolescence.

Here in this chapter we will describe the developmental characteristics of children from 2 years to 12 years of age and in the subsequent chapter adolescence will be described.

Early Childhood (2 years to 6 years)

1. **Physical development:** Growth in physical dimension during the period of 2 to 6 years of age is not as accelerated as that experienced in infancy. The child begins to assume the body proportions of an adult. Growth of legs is rapid and the legs represent about half of one's total height. The head growth is slow and trunk growth is intermediate. Generally the weight of a three-year-old male child is about 33 pounds and is 38 inches tall. The girls are a bit lighter and shorter. By age of five years the average height for boys is 43 inches and the average weight is 43 pounds. The height and weight are affected by a number of variables such as height of parents, nutrition, and illness, etc.

   In addition to size and weight, the child undergoes other physical and physiological changes. The muscles develop at a very rapid speed. Larger muscles are far better developed than the small and fine ones. Physiological changes occur in respiration, heart rate slows down and blood pressure goes up steadily. Brain has developed 90% of its adult weight. Nerve fibres in the brain areas come close to maturity level by the end of preschool period.

2. **Perceptual development:** The child in early childhood develops a variety of motor skills which are repeated. Self-feeding, self-dressing, bathing, brushing the hair, playing with toys, use of pencil, jumping, hopping, etc. develop at the age of 5 to 6 years.

   The perceptual development begins from mass movements to differentiation and integration. Following is the table of norms for children from 2 years to 5 years of age.

NOTES

Developmental Norms (Bulher, Gessell Terman)

Motor	2 years	3 years	4 and 5 years
Development	Walks without help, jumps, runs.	Skips, hops	Free and active movement, responds to music.
Fine motor coordination	Copying.	Can match shapes, sees similarities and differences	Can name colours.
Perceptual	Identifies self, matches colours.	Can fit nets, boxes.	Matches shapes and colours, distinguishes names.
Vocalization	200 words, uses few words.	900 words, follows commands.	Can repeat 4 digits—2000 to 3000 words, can define familiar words.
Adaptive behaviour	Bowel control.	Builds blocks, can draw a man.	4 digits, draws body with details.

3. **Language development:** The language development of the infant begins from birth cry. The ten-month-old child is able to use one word but by the end of the first year, his vocabulary increases to 3 or 4 words. Good home environment and early childhood training help in the development of vocabulary. It has been reported by several studies that there is positive correlation between intelligence and language development. The following table shows the development of vocabulary:

Age in year	Vocabulary	
	Smith	Terman
1. year	3	
2.	272	
3.	896	
4.	1560	
6.	2562	
8.		3600
12.		900

4. **Intellectual development:** The intellectual development of the child is accelerated after the age of two because now he begins to explore his social environment and acquires new experiences.

   Following are the major characteristics of intellectual development:

   (*a*) Child begins to form concepts of physical and social reality.

   (*b*) By the age of six the child develops perception of size, shape, colour, time and distance, etc.

   (*c*) Memory increases at a very rapid speed. The child can learn by rote memorization.

   (*d*) Creativity develops in children and imagination begins to grow.

NOTES

(*e*) Thinking and reasoning develops in relation to concrete material.

(*f*) Span of attention increases from seven minutes to twenty minutes and interest in exploring the environment increases.

(*g*) The child is now able to use symbols in language, draw symbolic play and engage in problem solving.

(*h*) The child asks questions about his environment.

5. **Social development:** A child is born in a social environment where his personality development is shaped in accordance with the norm of the society:

(*a*) Sense of trust and mistrust develops in children themselves and their environment.

(*b*) Feeling of autonomy develops in children. They begin to explore their environment independently.

(*c*) Social environment expands beyond home.

(*d*) Children of both sexes play together without any discrimination. They actively participate in group games in which physical energy is used such as hide and seek.

(*e*) They learn to cooperate with others and make friends on shared interests and similar personality traits.

(*f*) Children take interest in fairy tales and animal stories.

(*g*) Negativism increases between the years three to six. It is a product of social situations. It is said that the more the child is frustrated by adult interference, the more negativistic his behaviour will be.

(*h*) Girls are more dominating than boys in play situations.

(*i*) The child seeks social approval of his action.

6. **Emotional development:** Emotions play an important role in life and contribute in the personal and social adjustment of the individual provided they are directed into wholesome expression. Emotions have the following effects on the developing individual:

(*a*) Emotions give us energy to face a particular situation in life.

(*b*) They work as motivators of our behaviour.

(*c*) Emotions add pleasure to our everyday experiences in life.

(*d*) They maintain our interest in work.

(*e*) They influence our adjustment in the society.

(*f*) Highly emotional conditions disturb our mental equilibrium; our reasoning and thinking are disrupted.

(*g*) Emotions serve as a media of communication between individuals and guide the individual to modify in order to conform to the social standard.

(*h*) Emotional deprivation leads to personality maladjustment.

NOTES

Characteristics of Emotions

(*a*) Emotions are frequent.

(*b*) They are expressed in relation to the concrete objects.

(*c*) They are temporary. It means that the child shifts his emotions very rapidly. As for example, a child of 3 years who is weeping, if given a toffee, will become happy.

(*d*) Emotional expressions in early childhood are intense irrespective of the intensity of the stimulus.

(*e*) Children fail to hide their emotions but express them indirectly through different activities as crying, nail-biting, thumb-sucking and speech difficulties.

(*f*) Emotions change in strength. Emotions which were very strong at a certain age become weak as the child grows while others which were weak become stronger. This change may be due to change in drive strength, child's intellectual development and changes in interests and values.

Later Childhood (6 years to 12 years)

Later childhood is an important phase of life. Redl has characterised this period as the time, 'when nicest children often begin to behave in the most awful way'. The parents and teachers are annoyed with children and vice-versa. It is a period which requires proper guidance and counselling by parents and teachers for the adequate adjustment of children in the society.

G. Stanley Hall in his book *Adolescence* has given the following description of children from 8 to 12 years of age.

'The years from 8 to 12 years constitute the unique period of human life the brain has acquired nearly its adult size and weight, health is almost at its best, activity is greater and more varied than even before or than it will ever be again and there is peculiar endurance, vitality, and resistance to fatigue. The child develops a life of his own outside the home circle and its natural interests are never so independent of adult influence.'

1. *Physical development*: There is slow increase in weight and height during late childhood. Girls are ahead of boys by two years. Changes are shown in all general proportions of the body. Children are free from diseases at this age. Physiologically, the girls at the age of 11 are a full year ahead of the boys. Shedding of milk teeth and growth of permanent teeth changes the appearance of mouth; flattening of forehead, sharpening of the nose, broadening of the chest, and motor skills develop through play. Following are the marked changes:
   (*a*) increased manual dexterity;
   (*b*) increased strength;
   (*c*) increased resistance to fatigue; and

(*d*) accuracy and endurance increase in relation to games.

W.F. Dearborn writes, 'There is organic need for strenuous physical activity. Skeletal muscles are developing and require exercise. Nine to eleven years old dash breathlessly from place to place, never walk when they can run, never run when they can jump or do something more strenuous.'

NOTES

2. *Intellectual development*. The following changes in the intellectual development occur during the period—six years to twelve years of age.
   (*a*) The child begins to make clear distinction between himself and the outer world. He seeks reality in his environment.
   (*b*) The concept of natural laws becomes almost fully developed by12 years of age.
   (*c*) It is the time for eager absorption of information and ready accumulation of ideas. Learning and memory become more efficient because the child enters formal schooling.
   (*d*) Capacity for logical thinking increases. The child becomes increasingly efficient in selecting, developing and applying cognitive operations in relation to concrete objects.
   (*e*) Interest in science stories and mechanical operations reaches its height at this age.
   (*f*) Courage and loyalty increase. Children show courage in doing things.
   (*g*) Imaginative plays are given preference to.
   (*h*) Use of reading of factual material, scientific and mathematical information and fiction, with a realistic theme increases.
   (*i*) Use of causal relationship in thinking about physical, mechanical and natural phenomena in the environment increases.
   (*j*) Early imaginative fears disappear by the age of 12.
   (*k*) High ability to generalize is shown by children of ten to twelve years of age. Children are more concerned with immediate cause-and-effect relationship and current happenings.
   (*l*) Flavell (1977) has suggested that the mind of the child during this period has a better general understanding of problems. He has a much better sense of what a conceptual problem is. He can rationally analyse a problem. He is able to deal with the environment in a flexible, efficient and symbolic manner. He has at his disposal a set of operations or rules that are logical although concrete.
3. *Emotional development.* Emotions are very important for life. Without emotions life becomes monotonous and dull. They change with the age of the child. Following are the characteristics of emotional changes during this period:

NOTES

(*a*) Early pattern of emotional expression changes. By the end of late childhood the child learns to control his emotional expression in social situations.

(*b*) The emotional responses of the child become less diffuse, random and undifferentiated.

(*c*) Emotions are expressed even in the absence of concrete objects.

(*d*) Emotions are most contagious during childhood, because children are highly suggestible and dependable on others.

(*e*) Early childhood fears of animals, high places and noise disappear and fear of supernatural, imaginary creatures, fear of failing, being ridiculed and being different appear.

(*f*) Anger is caused by thwarting, teasing, making unfavourable comparisons with other children, interruption of activities in progress, ridicule by peers or elders, and negligence, etc.

(*g*) Parental favouritism causes jealousy in childhood.

(*h*) Girls are more jealous than boys in their classes because of preferential treatment given to boys.

(*i*) Joy, pleasure, love, curiosity, grief and affection appear in childhood.

4. *Social development*. The process of socialization confines to home and neighbourhood environment in early childhood but as the child enters school his social circle widens. Following are the major changes:

(*a*) It is the period when children form peer group of their own sex and remain outside the home. Peer group becomes an important agent of socialization.

(*b*) It is the period of peak unruliness in school and home.

(*c*) Complaints of disobedience are highest in percentage during this period.

(*d*) Children reject adult standards and circle of friends widens.

(*e*) Delinquency begins more during this period than adolescence.

(*f*) Sex differentiation becomes sharp. Girls play with girls and boys play with boys. There is sex difference in play activities. Girls are more antagonistic towards boys.

(*g*) Boys are more rebellious than girls and their groups are more organized than the groups of girls.

(*h*) Children take interest in group games. Boys and girls form their own groups. Group consciousness develops and the child becomes less selfish, self-centred and aggressive but more cooperative and outgoing.

(*i*) Social consciousness develops very rapidly. It is called 'gang age' period when the child associates himself with the peer group of the same age who feel and act together. The child shows great loyalty to his gang. He conforms to the stand of his gang.

Check Your Progress

1. Define the term development according to E B Hurlock.
2. What are the four basic elements of development?

NOTES

4.3 ADOLESCENCE: PROBLEMS AND SOLUTIONS AND ROLE OF TEACHERS, PARENTS, AND PEER GROUP IN ADOLESCENCE

Let us begin by looking at the problems faced by adolescents.

Common Adjustment Problems in Adolescents and the Role of School

I. **Lack of Interest in School Work:** Many a time, the school is unappealing to adolescents. The best way to help a student who lacks interest in school work is to identify his interests and to link them up with his school work. Research has proved that by giving a disinterested student something he likes to do, the school not only accords him recognition and approval, but also stimulates his efforts and widens his interests.

   In the selection of the various school subjects, undue emphasis should not be laid on school marks or parents' wishes. The interests of the child should be taken in to consideration. If students are placed under a wrong teacher, then changing the teacher is advisable.

II. **Lack of Proper Study Schedule:** There is a great need to guide the adolescents in preparing their study schedules. The following principles may be kept in view while planning study schedules:

   (*i*) The same subject may be studied at the same time and place every day.

   (*ii*) Some time for review must be provided daily.

   (*iii*) The same topic must be studied on the same day it is taught in the class.

III. **Insufficient Study Habits:** Some of the basic study principles with which an adolescent should be familiar with are as follows:

   1. Study the same subject at the same time and at the same place.
   2. Know and keep in mind the purpose of the lesson assigned.
   3. Practise recall while reading.
   4. Take notes as you proceed.
   5. Raise questions while reading.
   6. Learn the material in the way in which it will be used later
   7. Keep attention focused on the job at hand.

NOTES

IV. Adjustment to Emotional Disturbances: The nature of emotions must be understood by them and by their elders. The weight, stature and sexual maturation are the chief sources of an adolescent's emotional maladjustment.

Since preaching and lecturing are to be avoided by the counsellor, he would need a great deal of skill for establishing rapport with the adolescent and encouraging him to help himself.

V. Sex Adjustment: Generally speaking, all adolescents are intrigued by sex. Certain kinds of sexual behaviour may have serious impact on any; be it a girl or a boy. To save them from such a situation, it is essential that information about sex is given to adolescents in a scientific manner. Counsellors chosen should be compassionate and considerate so as to act as the confidants of the confused or troubled young people.

VI. Adjustment with the School Discipline: Strict discipline in schools to follow and obey teachers who at times could be overbearing, lead to adjustment problems. Schools should not expect unquestioned obedience, which in turn inhibits the growth of young people towards true independence.

VII. Vocational Adjustment: Miserable is the man who has a job in which he is not interested. The tragedies and the wastes that come from unaided or inadequately aided efforts to decide this important question are evident to anyone. The school should assume the responsibility for vocational guidance.

Adolescents and the Role of Teachers

The following points may be helpful to teachers in dealing with students at this stage.

1. *Understanding the Nature of Adolescents:* Teachers must try to understand the influences that change the behaviour of students. They should be able to differentiate between the serious and the trivial aspects of behaviour.
2. *Becoming Good Counsellors:* Teachers should try to develop a friendly relationship with adolescents. They may be permitted to take some of their own decisions, and also helped to see the results of lack of judgement or hasty and impetuous conduct and also given opportunities for assuming responsibilities. But such cases should be watched very carefully.

   The adolescent is usually a hero worshipper and anyone with character who gives him attention, sympathy and is able to establish friendship, is in a position to influence him. It should be the endeavour of each member of the staff to look out for students whose admiration or liking he has already won, and should then gain their confidence and give them sympathetic encouragement and direction.
3. *Maintenance of Emotional Balance:* It is true that good mental health is an essential requisite for good teaching. Lack of emotional balance is a

frequent cause of disturbance and discord between teachers and students.

Maladjustments between teachers and pupils are caused when teachers administer punishments in anger or without sufficient cause, or lose temper or indulge in sarcasm, or are exceedingly strict.

NOTES

Role of the School in the Optimum Development of Adolescents

Transformation into Activity Schools: Secondary and senior secondary schools must be transformed into 'activity schools' because activity has an irresistible appeal on every normal child and on knowledge and culture. The Secondary Education Commission (1952–53) observed, 'We do *not* visualize that these schools will have dull, routine-ridden formal lessons in the class *plus* a number of independent unrelated extra-curricular activities which have no intrinsic relationship with them either in contents or methods. The entire programme of the school will be visualized as a unity and inspired by a psychologically congenial and stimulating approach; the so called 'work' being characterized by the feeling of joy and self-expression usually associated with play and hobbies, and these having something of the meaningful and purpose which are normally considered a special feature of academic work Thus by planning a coherent programme of these different activities rich in stimuli, the school will not be frittering away either the time or the energy of the pupils but will be heightening their intellectual powers also side by side while training them in other fine qualities.'

Training in the Art of Living Together: The commission said, 'We do not visualize the school as merely a place of formal learning, whose main concern is to communicate a certain prescribed quantum of knowledge but rather as a living and organic community which is primarily interested in training its pupils in what we have called the gracious 'art of living.'

Development of the Child's Entire Personality: 'We would like the school to see if it can provide a richly varied pattern of activities to cater to the development of its children's entire personality. It has to formulate a scheme of hobbies, occupations and projects that will appeal to draw out the powers of children of varying temperaments and aptitudes,' according to the commission.

Provision of a Stimulating Environment: The primary concern of the school should be to provide for its pupils a rich, pleasant and stimulating environment which would evoke their manifold interests and make life a joyful experience. This can be done by providing the following:

Opportunities for the full development of adolescents: The school must be child-centred rather than being subject-centred. The approach followed should be psychological and not logical. The school must aim at producing the highest type of personality possible. The personality of the adolescent is an indivisible whole and he is to be educated in body, mind and spirit. A progressive school should aim at providing opportunities to adolescents to develop all the three in co-ordination with one another so as to develop the whole personality.

NOTES

Recognition of individual differences: Individual differences among adolescents must be respected and opportunities should be provided for the growth of individual talents in accordance with their capacities. As no two adolescents are alike, the school should provide each adolescent suitable opportunities to use and develop his natural aptitude in the course of studies chosen by him.

Responsibility for moral education: In past, moral education was given by the church and family. In modem times, the school has been called upon to cater for moral education. An increasing importance is given to character-building aspects in schools at present.

Responsibility for vocational education: Apprenticeship system provided vocational education in ancient and medieval times. In ancient India, vocation was on family basis, i.e., the son learnt the vocation by working with the father. In the present complicated economic society, neither of the system is helpful. It has, therefore, become necessary for schools to impart vocational education to students.

Freedom for self development: For the development of a creative mind, freedom for self-development and freedom for activity must be given in school. 'This freedom will not be the license it is sometimes supposed to be. It will be the controlled freedom of an individual, living in a community of which he is one part, and his fellow pupils and teachers are other parts. It will be a freedom from an exaggerated force or undue influence on the part of the teacher, a freedom for the particular pupil to use his particular talents and capabilities and to develop his personality along his own line, under the guidance of the teacher,' Ryburn observed.

Development of a scientific attitude: The school should develop a spirit of scientific enquiry in adolescents. Their ability to use information should be developed. They may be given training to apply information, to judge, to be able to see the consequences of courses of action, to bring an active forward looking intelligence to bear on a solution, and to think creatively.

School life closely connected with life outside: The school life should be closely related to the real life of the community so that adolescents may be trained to tackle the problems which they face in later life. KG Saiyidain wrote, 'No school in the countryside can capture the loyalty or the imagination of the villagers, if it is divorced from the realities of their life and their main interests and preoccupations.'

Value of interdependence: Social relationships hold an important place in real life. A school must provide situations in which adolescents may be gradually led to understand the relationships that exist in community, country, and in the world at large.

Satisfaction of the urge for practical activity: Dr Zakir Husain observed, 'The future Indian school will not perpetuate the stupid tyranny of requiring its boys and girls, bursting with active energy, to sit silent and sombre, brooding over books and swallow irrelevant, unwanted, unassimilated information, getting passively educated by others. The prevalence of a certain peculiarity, namely,

urge for practical activity, makes this stage comparatively easy for the organizer of education and a fairly uniform type of school based on hand work can serve the needs of the vast majority of children.'

Programme of Educational and Vocational Guidance

It is absolutely essential that every secondary and senior school has a comprehensive programme of guidance, especially educational and vocational.

NOTES

Check Your Progress

3. State some principles that may be kept in view while planning study schedules.
4. What are the chief sources of an adolescent's emotional maladjustment?

4.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. In the words of E B Hurlock (1959), the term development means 'a progressive series of changes that occur in an orderly predictable pattern as a result of maturation and experience.'
2. The four basic elements of development are as follows:
   - Growth
   - Maturation
   - Experience
   - Social transmission
3. The following principles may be kept in view while planning study schedules:
   (i) The same subject may be studied at the same time and place every day.
   (ii) Some time for review must be provided daily.
   (iii) The same topic must be studied on the same day it is taught in the class.
4. The weight, stature and sexual maturation are the chief sources of an adolescent's emotional maladjustment

4.5 SUMMARY

- Education aims at all-round and harmonious development of an individual.
- The development of a nation depends largely upon the development of its children and there is no doubt that childhood is the foundation upon which the development of an individual depends.

NOTES

- The United Nations International Children Fund (UNICEF) is an important organization of the United Nations, which measures the progress of a nation on the yardstick of the development of its children.
- In the words of E B Hurlock (1959), the term development means 'a progressive series of changes that occur in an orderly predictable pattern as a result of maturation and experience.'
- Harold Stevenson (1968), a prominent development psychologist has explained the concept of development as, 'Developmental psychology is concerned with the study of changes in behaviour throughout the life span'.
- Development, growth and maturation are terms that are commonly used to convey the same meaning, but there is great difference between them.
- L D Crow and A Crow (1962) suggest that growth refers to structural and physiological changes, and development is concerned with growth as well as those changes in behaviour that result from environmental situations.
- Physical development is both qualitative and quantitative and implies increasing capacities and abilities, maturing, functional improvement and progress towards higher levels of potentiality and effectiveness.
- Emotions are very important for life. Without emotions life becomes monotonous and dull.
- Many a time, the school is unappealing to adolescents. The best way to help a student who lacks interest in school work is to identify his interests and to link them up with his school work.
- Secondary and senior secondary schools must be transformed into 'activity schools' because activity has an irresistible appeal on every normal child and on knowledge and culture.

4.6 KEY WORDS

- **Developmental psychology:** Developmental psychology is concerned with the study of changes in behaviour throughout the life span.
- **Social development:** Social development theory attempts to explain qualitative changes in the structure and framework of society that help the society to better realize aims and objectives.
- **Adolescence:** Adolescence is a transitional stage of physical and psychological development that generally occurs during the period from puberty to legal adulthood (age of majority).

4.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

NOTES

Short Answer Questions

1. Differentiate between development, growth and maturation.
2. Write a short note on the concept of development.
3. List the factors that influence growth and development.
4. Mention some characteristics of emotions.

Long Answer Question

1. Discuss the major stages of development.
2. Describe the major characteristics of intellectual development.
3. Identify some common adjustment problems in adolescents and the role of school.
4. Explain the role of school in the optimum development of adolescents.

4.8 FURTHER READINGS

Colman, Andrew. 2016. *What is Psychology?* United Kingdom: Routledge.

Eysenck, W. Michael. 1994. *Perspectives on Psychology*. United Kingdom: Psychology Press.

Carr, Alan. 2012. *Clinical Psychology: An Introduction*. United Kingdom: Routledge.

Nevid, S. Jeffrey. 2012. *Psychology: Concepts and Applications.* United States: Cengage Learning.

Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. United Kingdom: Psychology Press.

NOTES

BLOCK - II
DEVELOPMENTAL THEORIES, PERCEPTION AND CONCEPTS OF MOTIVATION

UNIT 5 DIMENSIONS AND THEORIES OF DEVELOPMENT

Structure

5.0 INTRODUCTION

In the previous unit, you were introduced to the concepts of growth and development. Growth and development have been interchangeably used by most of the developmental psychologists because both the processes are interrelated and interdependent on each other. It is difficult to differentiate the contribution of either of them in the development of the personality of an individual. However, some psychologists define growth as an indicative of increase in bodily dimensions: height and weight and it is generally confined to quantitative changes. Arnold Gessell, an American child psychologist, wrote, '. . . Growth is a function of the organism rather than of the environment as such: The environment furnishes the foil and the milieu for the manifestations of development, but these manifestations come from inner compulsion and are primarily organized by inherent inner mechanics and by an intrinsic physiology of development. The very plasticity of growth requires that there be limiting and regulatory mechanisms. Growth is a process so intricate and so sensitive that there must be powerful stabilizing factors, intrinsic rather than extrinsic, which preserve the balance of the total pattern and direction of the growth trend. Maturation is, in a sense, a name for this regulatory mechanism.'

Development can be defined as the emerging and expanding of capacities of the individual to provide greater facility in functioning such as development of

motor ability from uncertain steps to proficiency in games. Development as a matter of fact, is achieved through growth.

Development refers to interactions of a person and his environmental surroundings whose after-products alter existing response tendencies in such a way as to increase:

(*a*) their strength;

(*b*) the degree of differentiation; and

(*c*) the organisation of personality.

Development refers to those effects upon the person's cognitive-emotional systems which strengthen or enlarge one or more of them; increase their number or interrelate them in some different way. In brief, development is confined to qualitative changes in the organism.

In this unit, we will discuss the various theories of development.

NOTES

5.1 OBJECTIVES

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

- Explain the various theories of development
- Discuss Erikson's theory of psychosocial stages
- Describe Kohlberg's theory of development
- Define the four stages of Piaget's cognitive development

5.2 VARIOUS THEORIES OF DEVELOPMENT

Child psychology has been an area of great importance and interest for the researchers since the fifties who devoted most of their time to explore this neglected field and developed several theories of child development. Here, we will describe some of the major theories which explain child development from different angles.

All theories of development can be classified into three broad categories:

Psychoanalytic theory has been largely derived from the works of Sigmund Freud and Erikson. It emphasizes the importance of early childhood experiences on later development of the child and gives importance to unconscious motivation.

Behaviouristic theory of child development lays importance on learning of stimulus-response associations. The associations may result from either classical or operant conditioning procedure. It attempts to be more scientific than other theories of development by concentrating only on scientifically observable and measurable behaviour.

Cognitive theory of development lays emphasis on perception and its organization. It is a molar approach to human development.

NOTES

1. Psychoanalytic Theory

Here we will briefly describe the theories of Freud and Erikson. According to Freud, a child passes through five major stages of psychosexual development. Each stage is characterised by certain behavioural changes. The stages are given below:

1. *The oral stage*. The focus of pleasure in the oral stage is mouth. The child's love object is his mother's breast which he sucks to satisfy his hunger. The child's development starts with the act of nursing by his mother.
2. *The anal stage*. It refers to the stages when the focus of pleasure shifts from mouth to the anus. The child takes interest in the activities pertaining to anus and pleasure is drawn from activities like urinating and defecating.
3. *Phallic stage.* This stage refers to around the age of three to six. The focus of pleasure shifts from anus to the sexual organs. Children masturbation is very common during this period. Another important development during this phase is of Oedipus Complex. The male child desires his mother and wants to destroy his rival, the father but perceives his father as a powerful rival and is afraid of being harmed by castrating him. This primitive fear of physical harm is called 'castration anxiety'. Gradually this conflict is resolved by repressing his desire for his mother and identifying with his father. The female child likes her father and hates her mother. This is called Elecktra Complex.
4. *Latency stage.* During this stage, infantile sexuality becomes less important. The child engages himself in learning skills and in the development of values.
5. *Genital stage*. The focus of pleasure shifts to the member of the opposite sex.

Erikson's Theory of Psychosocial Stages

Erikson has proposed another theory on the stages of child development. He stressed upon Epigenetic Principle, according to which the development of new properties which were not contained in the original situation develops as a result of environmental influences and the interaction between the former (original situation) and the latter (environmental factors). He divides stages of development into eight phases marked by specific developmental characteristics. The stages are as follows:

S. No.	Stage	Psychosocial crises
1.	Birth to first year	Trust vs Mistrust
2.	1 to 2 years	Autonomy vs Shame, doubt
3.	3 to 5 years	Initiative vs Guilt
4.	6 to 12 years	Industry vs Inferiority
5.	Adolescence	Identity vs Identity diffusion or Role confusion
6.	Early adult	Intimacy vs Isolation
7.	Young and middle adult	Generativity vs Stagnation
8.	Later adult	Integrity vs Despair

NOTES

A brief description of the psychosocial stages is given below:

Stage I: A sense of trust versus mistrust. This stage ranges from birth to eighteen months of age. The first task of an infant is to develop the basic sense of trust in himself and in his environment. During this stage, the infant is completely dependent on others for the fulfilment of his basic needs. If his needs are not satisfied then he gradually loses his sense of faith in the world around him. The sense of faith is laid down during this period.

Stage II: A sense of autonomy versus a sense of shame. This stage covers the period between eighteen months to three years. The child develops a sense of autonomy. He does not want help from others. He likes to do things in his own way. Parents can help their children in developing a healthy sense of autonomy through a balance of firmness and permissiveness. Parents should decide the limit of freedom for children keeping into consideration the conditions of the environment. Children who are not given legitimate freedom to explore their environment develop doubt about their abilities to perform a specific task and become self-conscious. Shame is the other part of this feeling. We know that there are children who are terribly self-conscious and fearful of their weaknesses being exposed.

Stage III: A sense of initiative versus a sense of guilt. This stage starts from three years of age and continues up to six years. Children grow at a rapid rate in almost all dimensions such as social, physical, intellectual and emotional, etc. Social boundaries expand beyond the home environment. Children may express their autonomy in behaviour which is called initiative. They begin to develop a sense of right or wrong. If the feeling of guilt is overtaxed by moralistic parents and teachers, children may develop a feeling of negativity which may inhibit their urge to test themselves in an expanding social world.

Stage IV: A sense of industry versus a sense of inferiority. This stage starts from six years and continues up to twelve years of age. The child devotes his energies to self-improvement and to the conquest of people and things. According to Erikson, a child becomes ready to apply himself lo given skills and tasks which go far beyond the mere playful expression of his organ modes on the pleasure in the function of his limbs. He develops industry, i.e., he adjusts himself to the inorganic laws of the tool world. The child wants to master whatever he does. He is full of energy and makes efforts to produce new things. On the other hand, the child realizes he has not grown up yet. This leads to inferiority complex.

Stage V: Identity versus role confusion. This is the stage of adolescence. In the previous stages the child has continued to mature and assimilate the customs and values of his culture and in the process he has begun to formulate his identity. There is return of heterosexual interests. Adolescents are concerned about their future roles and status. Clarity of future roles leads to the development of identity otherwise confusion persists and leads to frustration.

Stage VI: Intimacy versus isolation. This is the stage of early adulthood. Erikson considers social interaction as fundamental and unavoidable influence on personality

NOTES

development. Proper self-image is necessary and helps to develop intimate relationships. During this stage, the individual moves away from parental control into the ever-expanding variegated community. When identity is developed, one seeks someone to share. The success leads to development of intimacy whereas failure will develop isolation. The individual is ready to commit himself to affiliation or companionship.

Stage VII: Generativity versus stagnation. Generativity incorporates productivity and creativity. During middle adulthood the individual is concerned with his offspring and also with action. Regression from generativity often leads to pseudo intimacy and to the impoverishment of relationships. It is the fear of stagnation that keeps the people productive. During this stage the person wants to have control over others and is ready to help the junior colleagues.

Stage VIII: Integrity versus despair. This is old age. The person reflects upon the life lived and sometimes integrates even death into that pattern. Having successfully established identity and intimacy, the individual experiences a sense of fulfilment. If the person feels that he has successfully resolved the crisis, a sense of integrity will develop otherwise the person will develop a sense of despair.

2. The Behavioural Theory

(*a*) *Robert S. Sears' Development Theory*

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 nurturing behaviour performed by another person.'

NOTES

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 too many persons.

In summation, we can say that 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 reinforces 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.

(*b*) *Albert Bandura's Theory*

NOTES

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 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.

3. Cognitive Theory

(*a*) *Jean Piaget's Theory of Development*

Jean Piaget is a cognitive theorist who has been working on child development for the last more than forty years. He has produced enormous literature on Developmental Psychology. A detailed account of his theory has been given in the next chapter. Here only the names of stages will be given. The first stage is called the sensorimotor period when the infant learns and develops sensorimotor skills by manipulating objects in his environment. In the second stage which runs from two to seven years, the child begins to acquire vocabulary with which he represents objects and experiences he perceives. The child can extract concepts from experience and can manipulate objects in his mind. This stage is called preoperational thought. The third stage is called concrete operation period which begins from seven and continues up to twelve years of age. The child begins to think logically and rationally about problems which he faces.

The fourth stage is known as formal operations period and begins from twelve years of age and continues till the end of adolescence. The adolescent can think, reason and analyse beyond the realm of concrete experiences. He can generalize or form opinion about abstract concepts like love, honour, truth and justice, etc. According to Piaget, the child moves from one stage to the next in an established pattern. The rate of development may vary in different individuals and cultures but the sequence of development is universal.

NOTES

(*b*) *Kohlberg's Theory of Development*

Kohlberg's theory, like Piaget's, emphasizes that moral development proceeds in sequential stages. There are three levels of moral development: (1) pre-conventional level; (2) conventional level; and (3) post-conventional level. At the pre-conventional level, the child follows the rules set down by others. At the conventional level, he adopts rules and sometimes subordinates his own needs to the needs of others. At the post-conventional level, people define their own values in terms of ethical principles they have chosen. According to Kohlberg, a child passes through six distinctive stages of moral development. A brief description of the stages is given here:

Stage I. During early infancy the physical consequences of an action determine its good or evil nature regardless of the human meaning or value of these consequences. The child is egocentric and standards of morality are external. The child has no true moral understanding of right or wrong.

Stage II. The child recognizes his own point of view, his self and is able to take account of others' roles insofar as he can use them to obtain what he wants. This period is of make-believe orientation. Right action consists of that which satisfies one's own needs. The child does such things which bring approval of others and behaviour that pleases others is considered moral.

Stage III. At this stage the child is able to adopt others' viewpoints. He grasps the ideal nature of golden rules. His morality is decided by what others want and think. He does not decide himself what is right or wrong but follows rules given by others. He is a conformist to the standards of society.

Stage IV. The child takes on the viewpoints of his society and uses it to decide what is right or wrong. He sees law and order as the essence of morality and so he can make a moral decision on his own without finding out what other people think. He develops a set of moral principles for his guidance.

Stage V. His standards are more internalized and role taking is even more general. He examines and recognizes different viewpoints taken by different societies. Laws of the individual's own society cannot be taken as the only basis of morality. Laws are not frozen; they can be changed for the good of society.

Stage VI. This is the last and advanced stage of moral development. The individual considers the universal viewpoint. He formulates a few abstract universal ethical principles to which all societies should adhere. The individual develops a true understanding of right or wrong and a true moral consciousness.

(*c*) *Havighurst's Theory of Development*

Havighurst developed a specific task model of development. According to him, at each new stage of development there are certain tasks, skills, attitudes and understanding that must be met before a person can move on to a higher level of development. He says:

NOTES

. . . at or about a certain period in the life of the individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by society and difficulty with later tasks.'

List of Development Tasks

	Birth to 6 years	***6 to 12 years***
1.	Learning to walk.	Learning physical skills, ordinary games.
2.	Learning to take solid food.	Building wholesome attitudes towards oneself as a growing organism.
3.	Learning to talk	Learning to get along with agemates.
4.	Learning to control the elimination of body wastes	Learning an appropriate masculine or feminine role.
5.	Learning sex-differences	Developing fundamental skills in reading, writing and calculating.
6.	Achieving physiological stability.	Developing concepts necessary for everyday living.
7.	Forming simple concepts of social and physical reality.	Developing conscience, morality and values.
8.	Learning to relate oneself emotionally to parents, siblings and other people.	Achieving personal independence.
9.	Learning to distinguish right and wrong and developing a concience.	Developing attitudes towards social groups and institutions.

The theory of developmental task is an important theory because an individual works as a whole person. It also helps parents and teachers to remind them that the major responsibility is the creation of experiences and opportunities to prepare youngsters to accomplish the task appropriate for their age-level so that they may successfully adjust in the society.

Comparison of the Theories

S.No.	Basic emphasis	Psychoanalysis	Behaviouristic	Cognitive
1.	Basic emphasis.	Feelings.	Behaviour of others and stimulus condition.	Thought.
2.	Acquisition of morality.	Internalization of parental values.	Conditioning and modelling.	Proceeds in stages related to cognitive development.
3.	Age of acquisition.	Superego is formed by age of 5.	Learning is a life-long process.	On-going process to adulthood.
4.	Cultural relativity.	Morality is culturally relative.	Culturally relative.	Moral values and stages are universal.
5.	Socialization.	Parents.	Adults and peers who give reinforcement and serve as models.	Persons at next highest stage.
6.	Implications for education.	Education exerts little influence.	Teacher should serve as model and should provide proper reinforcement.	Teacher should try to stimulate child to reach next stage.

Check Your Progress

1. What is psychoanalytic theory?
2. What is the epigenetic principle?

5.3 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Psychoanalytic theory has been largely derived from the works of Sigmund Freud and Erikson. It emphasizes the importance of early childhood experiences on later development of the child and gives importance to unconscious motivation.
2. According to Epigenetic Principle, the development of new properties which were not contained in the original situation develops as a result of environmental influences and the interaction between the former (original situation) and the latter (environmental factors).

5.4 SUMMARY

- Growth and development have been interchangeably used by most of the developmental psychologists because both the processes are interrelated and interdependent on each other.
- Development can be defined as the emerging and expanding of capacities of the individual to provide greater facility in functioning such as development of motor ability from uncertain steps to proficiency in games.
- Child psychology has been an area of great importance and interest for the researchers since the fifties who devoted most of their time to explore this neglected field and developed several theories of child development.
- Erikson has proposed another theory on the stages of child development.
- He stressed upon Epigenetic Principle, according to which the development of new properties which were not contained in the original situation develops as a result of environmental influences and the interaction between the former (original situation) and the latter (environmental factors).
- 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.
- Albert Bandura is a social learning theorist who is most concerned with social development and particularly with moral development.

NOTES

- He emphasizes the importance of reward and punishment in the development of behaviour.
- Jean Piaget is a cognitive theorist who has been working on child development for the last more than forty years.
- Kohlberg's theory, like Piaget's, emphasizes that moral development proceeds in sequential stages.
- Havighurst developed a specific task model of development. According to him, at each new stage of development there are certain tasks, skills, attitudes and understanding that must be met before a person can move on to a higher level of development.

5.5 KEY WORDS

- **Development:** Development can be defined as the emerging and expanding of capacities of the individual to provide greater facility in functioning such as development of motor ability from uncertain steps to proficiency in games.
- **Castration anxiety:** Castration anxiety is the fear of emasculation in both the literal and metaphorical sense.
- **Inferiority complex:** An inferiority complex consists of lack of self-esteem, a doubt and uncertainty about oneself, and feelings of not measuring up to standards.
- **Cognition:** Cognition is the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses.

5.6 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions

1. Write a short note on Robert S. Sears' development theory.
2. What are the four stages of Piaget's cognitive development?
3. Why is the theory of developmental task an important theory?
4. Mention the stages of growth and development.

Long Answer Question

1. Explain the various theories of development.
2. Discuss Erikson's theory of psychosocial stages.
3. Describe Kohlberg's theory of development.
4. Discuss the five major stages of psychosexual development.

5.7 FURTHER READINGS

Colman, Andrew. 2016. *What is Psychology?* United Kingdom: Routledge.

Eysenck, W. Michael. 1994. *Perspectives on Psychology*. United Kingdom: Psychology Press.

Carr, Alan. 2012. *Clinical Psychology: An Introduction*. United Kingdom: Routledge.

Nevid, S. Jeffrey. 2012. *Psychology: Concepts and Applications.* United States: Cengage Learning.

Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. United Kingdom: Psychology Press.

NOTES

UNIT 6 PERCEPTION

NOTES

Structure

6.0 INTRODUCTION

Most psychologists describe perception as the interpretation of sensation. Perception is the process of organizing and interpreting sensory information to give it meaning. The brain automatically perceives the information it receives from the sense organs. For this reason most psychologists refer to sensation and perception as a unified information processing system (Goldstein, 2002). According to the expert A. David (1982), the purpose of perception is to represent information from the outside world internally.

Sensory information travels rapidly through the brain because of parallel processing, the simultaneous distribution of information across different neural path ways (Beauchamp and other, 2002). Sensory system designed to process information about sensory qualities one at a time (such as the shapes of image, their colours, their movements their location and soon) would be too slow to keep us current with a rapidly changing world.

Perceiving visual stimuli means organizing and interpreting the fragments of information that the eye send to the visual cortex. Information about the dimension of what we see are critical to this process. Shape and form are critical to perception. The term shape and form are often used interchangeably. There are many questions before us related to the perception of shape such as how do we perceive shape and form innate, or how do we segregate figure from ground.

The shape or form is defined as one of visual field that is set off from the rest of the field by visible cortex. The figure-ground relationship is the principle by which we organize the stand out (figure) and those that are left over (background).

NOTES

Some figure-ground relationships are highly ambiguous, and it may be hard to tell between the figure and the ground. In our visual field (whatever we lookout in the environment around us) some area is segregated to form figure and the rest is relegated to the background. Figure ground segregation is essential for the perception of shape. It is not only the characteristics of visual perception but comes under sense modalities. Following are the difference between figure and backgrounds.

- The ground seems to extend behind the figure.
- The figure has a shape, while the ground is relatively shapeless.
- The figure is more impressive, meaningful and better remembered.
- The figure usually tends to appear in front, the ground behind.
- The figure has some of the characteristics of a thing, whereas the background appears like unformed material.

In this unit, we will discuss perception and sensation in detail.

6.1 OBJECTIVES

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

- Define concepts like sensation and perception
- Discuss the various types of attention
- Differentiate between illusion and hallucination
- Explain Piaget's theory of concept formation
- Identify the various strategies to enhance memory

6.2 SENSATION AND PERCEPTION

Our senses are described as 'gateways of knowledge or windows of the mind and soul.' We receive all our information of the outside world through the five sense organs. An essential feature of a sense organ is that it has the property to respond to certain outside stimuli on its own. Thus, eyes respond to light and tell us of the brightness and colour. A sensation is a response or reaction aroused within the body by the stimulus. A sensation is awareness of the bare quality of experience and arises directly from stimulation of a sense organ. A sensation is an elementary mental process. It is the simplest form of mental life. We get a sensation only when some sense organ is stimulated but it is not every type of stimulation to which a sense organ responds.

Perception is sensation plus meaning. We sense qualities and we perceive objects. Perception gives meaning to sensation. Sensation is awareness of objects and perception is the awareness of this or that object. For example, we hear a mere sound. It is a sensation and when we know that it is a song, it becomes a

NOTES

case of perception. The sound may be of a buzzing bee or a car, etc. Perception involves two processes; it involves a sensation through the stimulus of a sense organ and an interpretation of the sensation. Perception is sensation plus thought. According to William James, 'Perception is the consciousness of particular things presented to senses.' Sensation is merely a part of perception.

Nature and Characteristics of Perception

- Perception is one's personal interpretation of an external event.
- Perception is the result of a previous experience.
- Perception is always an act of integration.
- Perception varies with attention.
- Perception varies according to one's subjective and objective point of view.
- Perception is greatly influenced by goals.
- Perception is selective.
- Accurate and efficient perception depends on the normal functioning of sense organs.

6.2.1 Law of Perception and Perceptual Illusion

The gestalt psychologists, Kohler, Koffka and Wertheimer (1886–1941) proposed that the brain has the innate capacity for organizing perception. According to them, people naturally organize their perceptions according to certain patterns. The main principles of gestalt psychologist is that the whole is different from the sum of its part, e.g., thousands of tiny dots (parts) make up an image (whole) in print or on computer screen. Similarly, when we watch a film, the frame moves a light source at a high rate, and we perceive the whole that is very different from the separate frames that are the film's part. Following are the factors that influence perception:

- **Proximity:** Tendency to perceive objects that are close to one another as a part of the same grouping (refer Figure 6.1).

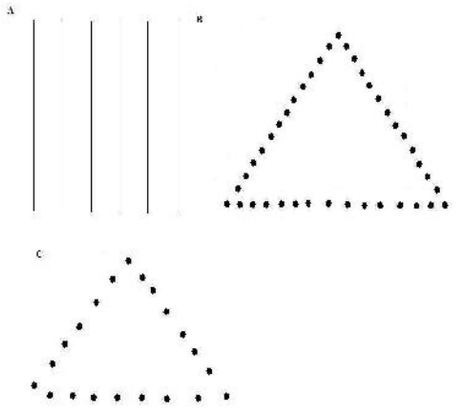


Fig. 6.1 *Proximity of Figures*

In Figure 6.1, A is perceived as three pair of vertical lines not six vertical lines. The set of dots in B may be perceived as a triangle.

- **Similarity:** Similarity stimuli are more likely to be perceived as one whole than dissimilar stimuli (refer Figure 6.2).

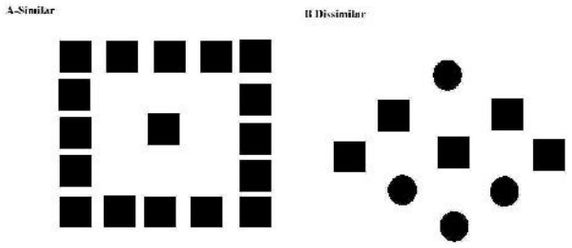


Fig. 6.2 *Similar and Dissimilar Stimuli*

In Figure 6.2, A and B have the same number and arrangements of parts. A is perceived as one whole. B contains dissimilar parts and it is perceived as dots and squares.

- **Good figure (Law of Pragnauz):** This law states that a perceptual organization will always be as good as the prevailing conditions allow. The simplest organization requiring the least cognitive effort will always emerge. Pragnauz means that we perceive the simplest organization that fits the stimulus pattern (refer Figure 6.3).

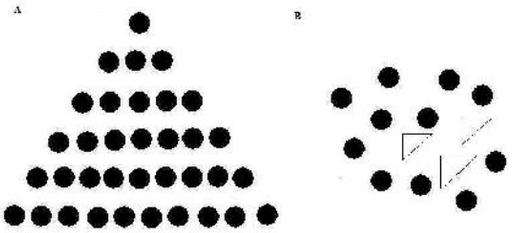


Fig. 6.3 *Understanding the Law of Pragnauzx*

In Figure 6.3, A is perceived as a triangle of dots with another triangle. However, it fails to operate in B as the system parts have no symmetry. They do not form a good figure in B.

- **Closure:** It is the tendency to complete figure that are incomplete as it yields subjective contours (refer Figure 6.4)

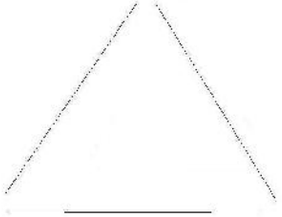


Fig. 6.4 *A Closure*

NOTES

In Figure 6.4, the triangle does not exist, still it is compelling to perceive a triangle.

- **Continuation common direction:** Stimuli that have a common direction are organized in perception as a separate object from those stimuli that have different direction (refer Figure 6.5).

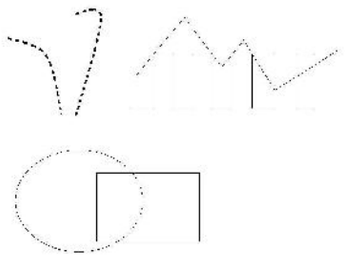


Fig. 6.5 *Continuation Common Direction*

In Figure 6.5, we perceive A as a set of dots forming an arc and another set of dots forming a straight line with a different direction. In B, we perceive two figures; one is superimposed on other. Each figure has different continuation. In C, we perceive a square and a circle.

- **Contiguity:** It involves nearness in space and time. Contiguity is the tendency to perceive two things that happen close together in time as being related. Usually, the first occurring event is seen as causing the second event.
- **Common region:** The coloured background defines a visible common region and tendency is to perceive objects that are in common area or region (refer Figure 6.6).

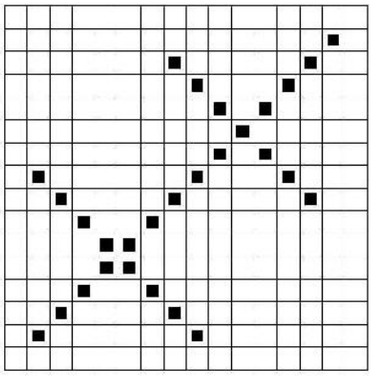


Fig. 6.6 *Perception of Common Region*

The stimuli sharing a common set of characteristics are likely to be organized as one object in perception. Apart from some factors are within the perceiver that account for organization in perception.

- **Past experience:** Past experience plays an important part in a person's perception. When a person already perceived a group of stimuli as one

NOTES

object, he is more likely to perceive it as the same object in future. If a child has been bitten by a dog, he perceives all dogs as dangerous and run away at their sight. His perception of dog becomes organized in the same way. Another child who has no such experience has a different perception of dogs.

- **Need and motives:** Need and motives are very powerful internal factors that influence perception organization. If a man is hungry, he is more likely to perceive the food object whereas a man having full meal is more likely to perceive objects in the shop other than food objects.
- **Depth perception:** The ability to see the world in three dimensions is called depth perception. The problem emerge from the fact that how the image of three dimensional world is projected on the two dimensional retina. The retina directly reflects height and width, but depth information is lost and reconstructed on the brain of depth cues, different kind of visual information that logically provide information about some object's depth. There are various cues for perceiving depth in the world, some are as follows:
  - **Monocular Cues:** It is known as a pictorial depth cue because they include the kind of depth information found in the photographs and painting. These are extensively used by the artists in their painting. Their cues are as follows:
    - **a. Aerial perspective:** Distant mountains often look fuzzy and building far in the distance is blurring than those that are close. However, the further away an object is the hazier the objects will appear. This is called aerial perspective.
    - **b. Linear perceptive:** When parallel lines appear to be converging at a distance, it is called linear perspective. The converging line means a great distance away from where they start.
    - **c. Relative size:** When objects that people expect to be of certain size appear to be small and are, therefore assumed to be much farther away.
    - **d. Light and shadow**: We are often aware of the source and direction of light. It is generally from above, as sunlight. The shadow cast by one object on another can indicate which object is farther away.
    - **e. Interposition:** If one object seems to be blocking another, people assume that the blocked object is behind the first one and therefore farther away. This is also known as overlap.
    - **f. Texture gradient:** The object lying on a surface that look fine and smooth is texture are perceived at a greater distance than those objects on a rough surface. The pebbles or bricks that textured, but as you look farther off into distance, their texture become smaller and finer.

NOTES

g. **Motion parallax:** The discrepancy in motion of near-far objects is called motion parallax.

h. **Accommodation:** Accommodation makes use of something that happens inside the eye. The brain can use this information about accommodation as a cue for distance. Accommodation is also called muscular cue.

The Role of Learning in Perception

The older question about the role of learning in perception had to do with the nativism-empiricism problem. To what extent is perception natively given by way of our inherited structures and capacities, and to what extent is it the result of our experiences with the world of objects? However, a new question is now being asked about the reciprocal relationship between learning and perception. This new and contemporary question is: To what extent is learning, merely reorganized perception?

Learning brings about a qualitative change in regard to adaptation, the most generic and simple form of optimization at an individual scale. It implies the idea of new knowledge, in the sense that the organism links what formerly appeared as an undistinguished whole. In other words, it means the capability to change its own codes of meaning. Finally, we outline some basic ideas for modelling an adaptive sensor embedded in a (partially) autonomous system, which implies the former distinction between adaptation and learning. Cognition transfers progressively the functions of phylogenetic adaptation to the spatial and temporal scale of the lifetime of an organism (plasticity and structural change as learning in the cognitive subsystem). It establishes a new relation in the activity of the organism in its environment. This process appears internally as a functional hierarchisation, where the cognitive system operates as a function for the general regulation of the rest of them. Both aspects—the relation of the organism with its environment and the organization of its functions—are coupled in the development of a rich and versatile universe.

Perceptual Illusion

Perpetual illusions are misconceptions resulting from misinterpretation of sensory information. Sensory illusions are also known as false perception, e.g., in a dark night a rope is perceived as a snake. Illusion is a normal phenomenon perceived by all human beings.

Illusion of motion

Sometimes pupils perceive an object as moving when it is actually still. This is called the auto kinetic effect. A small stationary light in a darkened room will appear to move or drift because there are no surrounding due to indicate that the light is not moving. Another is the stroboscopes motion seen in motion picture. Another illusion related to stroboscope motion is the phi-phenomenon, in which

light turned on and off in a sequence appear to move theatre marquee signs. For example, the best example of movement illusion is a series of blinking lights indicating direction.

Geometrical illusion

NOTES

There are quite a few illusions that can be demonstrated by drawing some lines, Muller layer illusions is the most important example of that. In Figure 6.7, the two lines are exactly the same lengths and they are identical, but one looks longer than the other.

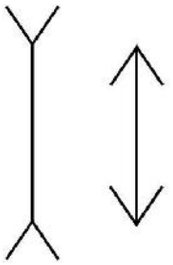


Fig. 6.7 *Geometrical Illusions*

Moon Illusion

The moon on the horizon looks far bigger than moon in the zenith. The retinal image is the same for both the horizon. This happens due to size distance relationship.

6.2.2 Illusion and Hallucination

Illusion is a kind of wrong perception. In illusion, an external stimulus is always present. In other words, illusions are caused by external stimulations. Illusion is almost universal. Normal persons suffer from illusions. The same situation arouses the same type of illusion in most people.

Hallucination, on the other hand is a false perception. In hallucination, no external stimulus is present. Hallucinations are caused by internal stimulations. Hallucination is a personal experience. Hallucinations are mostly confined to mentally ill persons and to those people under the influence of drugs. The character of hallucination is determined by the individual's present and previous experiences. The same situation may not arouse hallucination in all. There are individual differences with regard to hallucination. The same individual may experience different hallucinations are different occasions also.

6.2.3 Attention

Attention is the basic need for all successful teaching. It is the primary precondition for all types of our mental activity—cognitive (knowing), affective (feeling) and conative (acting). Attention is the heart of the conscious process. It is the concentration of consciousness of one object or idea rather than the other. Attention

NOTES

may be compared to the action of a photographic camera. Just as the camera is focused on a particular object or an individual or group leaving out others, in the same way attention is concentrated on a particular object. Other objects are left in the background either unconsciously or subconsciously.

Every single moment of a child is attracted by a large number of stimuli of the environment. His mind is not able to concentrate on all these at the same time. The objects which occupy the centre of consciousness are within the field of attention. Other objects which do not receive his attention are included in the field of inattention. It is on this account that attention has also been described as a selective process of the mind.

While we are conscious of every object we attend to, we do not attend to every object that we are conscious of. Consciousness, therefore, is a wider field and includes attention. We attend to a part in the field of consciousness, the rest is not attended to. While we are looking at a picture in the classroom, we are also conscious of a large number of other objects in the classroom. But the picture is the 'focus' of our consciousness. As the picture is the 'spotlight' of attention, other objects in the room—chairs, desks, etc. remain at the margin of consciousness. Thus, there are two fields: one of 'attention' and the other of 'inattention'.

Attention is an attitude of mind. It denotes 'preparedness' or 'readiness' to do something. This was reflected in Woodworth's citing of military command 'Attention' and the athletic call 'Ready'.

According to F H Bradley, attention is a complex of sensation and ideas.

While Wunct laid stress on the cognitive aspect of attention, Maudsley, Ribot and Munsterberg emphasized the conative aspect of attention. Titchener stressed on the affective aspect of attention.

On account of the complex character of attention, psychologists defined attention in a number of ways.

1. **According to EB Titchener** (1867–1927), 'The problem of attention centres in the fact of sensible clearness.'
2. **McDougall** (1920) observed, 'Attention is merely conation or striving, considered from the point of view of its effect on cognitive process.'
3. **B Dumville** (1938) was of the view, 'Attention is the concentration of consciousness upon one object rather than upon another.'
4. **J B Morgan** and **A R Gilliland** (1942) defined, 'Attention is being keenly alive to some specific factor in our environment. It is a preparatory adjustment for response.'
5. According to **I W Stout** (1953): 'Attention is conation determining cognition. The stronger the conation, the more intense is the attention.'
6. **J S Ross** (1954) said, 'Attention is a process of getting an object of thought clearly before the mind.'

Chief Characteristics of Attention

From the definitions and meaning as given above, chief characteristics of attention may be noted as:

NOTES

1. Attention is a form of activity of the mind.
2. Attention is cognitive, affective and conative.
3. Attention is selective.
4. Attention has a narrow range.
5. Attention is increase of clearness of the stimulus.
6. Attention is a state of consciousness.
7. Attention is mobile and moves from one object or idea to another.
8. Attention is attracted by new things.
9. Attention makes clear and vivid the objects which we attend to.
10. Attention arouses interest in an individual to focus concentration on a particular object to the exclusion of others.
11. Attention can be developed and promoted.
12. Attention affects motor adjustments such as postural adjustment (how to sit, stand, etc.), muscular adjustment and adjustment in the central nervous system.

Types of Attention

Attention has been classified in a number of ways. The ways in which attention is usually classified are as follows:

Involuntary Attention or Non-Volitional: This kind of attention is spontaneous and does not involve any effort on the part of the individual. The object automatically calls for our attention. Some examples of involuntary attention are: loud music in a neighbour's house when one is reading a book; sudden noise such as a pistol shot, an accident, etc.

Voluntary Attention or Volitional: In voluntary attention, there is a conscious effort by an individual. .When a child tries to understand a difficult passage with mental strain, his attention is voluntary. In the examination hall, a student concentrates on the answer to a question and keeps away his mind from the distracting elements like the movements of the supervisors, etc.

Non-Volitional Enforced Attention: This type of attention lasts as long as there is stimulus. It is sustained because it appeals to an individual's instinct or instincts. This type of attention is very common in small children. A child's curiosity is aroused to attract his attention.

Spontaneous Non-Volitional Attention: This type of attention develops on account of real interest in the object itself. The teacher has just to develop desirable

NOTES

sentiments for things in children. Once this is done, children will automatically attend to things around which sentiments have been formed.

Implicit Volitional Attention: This type of attention is obtained by introducing motives such as rewards or punishments.

Explicit Volitional Attention: Repeated efforts are made to obtain this type of attention. For example, while preparing for an examination, a student makes repeated efforts to read his notes or books.

Habitual Attention: During the course of our experience with several things, we are conditioned to attend to certain stimuli. Here external conditions are not involved. A mother always hears the cries of the baby whereas others may ignore it. Usually, we are habituated to see beautiful objects. A naturalist is habituated to look for plants.

Educational Implications of Attention

Attention is a necessary condition for any mental task in the classroom. In fact, it is the 'hub' of the entire teaching-learning process. Attention provides a mental state of preparedness or state of alertness for a task to the learner as well as to the teacher. Attention enables the learner to sense or perceive selected events, conditions or ideas of a task. 'Learning to pay' attention is an important part of observational training. The learner must acquire the habit of placing himself in a state of readiness to perceive the specific aspect of phenomenon that relates to the topic and ignore other factors. He must learn to concentrate. A teacher has to do his best to make students learn to secure attention. At the same time, he has to create such conditions in the classroom which enable him to make students attentive to learning.

Attention increases efficiency and is helpful in remembering. It arouses interest and motivates a child to study.

6.2.4 Information Processing

At the very heart of cognitive psychology is the idea of information processing. Cognitive psychology sees the individual as a processor of information, in much the same way that a computer takes in information and follows a program to produce an output.

Cognitive psychology compares the human mind to a computer, suggesting that we too are information processors and that it is possible and desirable to study the internal mental processes that lie between the stimuli (in our environment) and the response we make.

The information processing approach is based on a number of assumptions, including:

- information made available by the environment is processed by a series of processing systems (e.g., attention, perception, short-term memory);
- these processing systems transform or alter the information in systematic ways;

- the aim of research is to specify the processes and structures that underlie cognitive performance;
- information processing in humans resembles that in computers.

Information processing theory discusses the mechanisms through which learning occurs. Specifically, it focuses on aspects of memory encoding and retrieval.

NOTES

Check Your Progress

1. What do you understand by the term 'perception'?
2. What is the purpose of perception?

6.3 FORMATION OF CONCEPTS

Concept is the basic unit of all types of learning. A concept relates to a class of objects or ideas which have one more common characteristic. A concept is a class of stimuli which have common characteristics. The stimuli may be a class of objects, events or ideas.

We learn concepts from infancy till old age. We use old concepts in new situations and also learn new concepts from experiences. Individuals differ in their level of concept formation on the basis of their age, intelligence and experience.

Children first learn concepts of simple objects around them, such as milk, water, mother, cat, dog, tree, father, etc.

After this, they learn about objects which are not near them and with which they may not have any contact such as well, canal, river, sea, mountain or snow, etc. Thereafter, children learn relational concepts, such as half, bigger, etc.

As children grow older, they have to learn abstract concepts like goodness, honesty and kindness.

Humphrey defined concept as, 'The psychological process by which we perceive or react to similarities in the changing environment. The process by which we discover the feature or features which are 'common' to a large number of objects and associate these with a symbol which thereafter may be applied to other similar objects is called concept formation.'

Process of Concept Formation

The process of development of concepts involves four elements: experience (exploration), abstraction, generalization and analysis.

(i) Experience is the process of direct participation in an action.

(ii) Abstraction is the process of discovering the common elements in a large number of situations after experiencing them. One observes that two or more objects are alike or similar in some respects and different in other aspects. For example, in acquiring the concept 'dog', a child may hear the

NOTES

word 'dog', while playing with a rubber dog. Later, he hears the same word while playing with a wooden dog, and while looking at the picture of a dog. He hears the word 'dog' over and over in different situations and learns to apply the word to any object that has the same general characteristics as a dog. Thus in the *early* stages of development of the concept, the child may apply the word to cats or any four-legged animals, as till then he has observed only one 'common' element in his experience, namely, four-legged. Additional observations and finer discrimination will 'define' the concept to the point where the word will be applied 'only' to dogs.

(iii) Generalization is the process *of extending* the concept to include objects which possess a quality in common with other objects but which have *not* been experienced as any of the objects in the abstraction process. Quite obviously, a concept is learnt through trial and error reaction to objects, situations or events. This refinement and enrichment of a concept depends upon the number and variety of trial and error reactions of experiences involved in the development of the concept.

(iv) Analysis is a systematic procedure applying techniques for analysis of academic content which are similar in intent to those employed by task analysis, in designing training sequences for a job.

6.3.1 Piaget's Theory of Concept Formation

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 Valias. 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.

Concept formation is one of the basic terms in the theory of cognitive development of Jean Piaget. Children loved talking to Jean Piaget, and he learned much by listening to them carefully—especially to their explanations, which no one had paid attention to before. All his life, Piaget was absorbed with studying the way children think, form concepts in their mind, and gain knowledge about the world as they grow. His research revealed that children begin by classifying based on concrete, physical attributes, later forming abstract concepts, developing hierarchical structures, and being able to perform complex transformations.

The development of language also involves concept formation. While some aspects, such as name learning, may be based on the same principles as

discrimination learning, grammatical structures and their transformations involve complex concept formation.

Check Your Progress

3. Mention the four elements of the process of concept formation?
4. Define the term concept.

NOTES

6.4 REMEMBERING AND FORGETTING

One of the aims of school instruction is to expand the knowledge of learners. The teacher's responsibility is to encourage the learners to acquire and to retain the knowledge imparted in school for future use in meeting life problems. But to our great surprise we find that students forget most of the school learning after a short lapse of time. The basic question is, why do we forget? In this section we will examine the causes of forgetting and the various techniques which can be used by classroom teachers to minimize the percentage of forgetting and to make the process of acquisition of knowledge more efficient and lasting for the students. Traditionally, we hold that we learn by practice and forget because we fail to practise. This common view has been recently challenged by experimental psychologists. Forgetting occurs only when some learning takes place. If there is no learning, then there is no forgetting. It is incorrect to say of forgetting anything that was never learned. Forgetting is an inevitable concomitant of learning. Thus, failure to learn is one of the most common reasons why students are unable to recall answers to examination questions. As a matter of fact learning requires active rehearsal of what is to be learned. It means recalling relevant information, grasping fundamental principles that underlie a learning task and memorizing key facts.

On the basis of empirical studies conducted on forgetting by psychologists, six different explanations have been given as the causes of forgetting. In the following pages, we will examine the approaches to the problem of forgetting.

1. Theory of Decay

It is a common view that forgetting is a process of fading with the passage of time. It is believed by many people that forgetting is produced by time factor. According to this view, impressions created by learning in the cortex fade away as the time passes. This widely held view is called the theory of disuse or decay. The theory has been substantiated by experimental evidences. In our daily life we have a wealth of experiences which fade away with the passage of time. We meet a man and forget his name after some time. We can hardly recall what we had for dinner two days back. All of these experiences support the idea that learned material decays time. But there are certain facts which require close examination of this old view.

NOTES

First, if the claim that disuse or decay only operates to produce inability to recall, it means that any length of time that elapses between the learning of facts and recalling them should produce some loss in memory. But this claim has been disproved by the phenomenon of spontaneous recovery in conditioning. Retention actually improves following a brief time-interval of a conditioned response of no practice.

Second, instances of excellent retention, following the passage of long time intervals, are present in numerous activities of our life as skating, swimming and cycling. Some skills appear capable of resisting the so-called dissipating effects of time factor.

The two evidences, cited above, seem inconsistent with the theory of disuse or decay. They direct our attention to another factor that may play an important role in forgetting. Perhaps it is not time itself but rather what happens between learning and recall that is an important factor which influences retention. The quality and quantity of memory will largely depend on what the learner does while he is having the experience and what kind of experiences follow.

Summarizing we can say that the theory of decay is an old and venerable one but it has been neither proven nor disproven, because we cannot find a way to prove that it does.

2. Theory of Interference

Psychologists once were of the opinion that forgetting is caused by disuse and fading of impressions with the passage of time but the phenomenon of spontaneous recovery in conditioning and everlasting memory of some motor skills have proved the belief incorrect. Psychologists have recognized the influence of intervening activities. The interference may be of two types: (*a*) retroactive inhibition, and (*b*) proactive inhibition. Retroactive inhibition means that something works backward to block something else. The interference or interaction between old and new learning is an important variable that influences retention. In proactive inhibition previous learning interferes the recall of present learning. We will describe the mechanisms of these two types of inhibitions in the following paragraphs:

(*a*) *Retroactive inhibition*. The relation between intervening activities and retention has been systematically investigated by psychologists in transfer of training experiments, what is technically known as retroactive inhibition. In the common transfer of training experiment the subject learns one task (*B*) to see how this affects recall of another task (*A*). The experimental design to study retroactive inhibition is given below:

	Group	Original learning	Activity interpolated	Test
1.	Experimental	Learn A	Learn B	Recall A
2.	Control	Learn A	Unrelated activity	Recall A

NOTES

The results of experimental studies conducted by psychologists on retroactive inhibition show that typically the experimental group is poor in recall of *A*. It has been further established that more similar the interpolated activity *B* is to the original learning *A*, the less the amount recalled, the greater is the retroactive inhibition. Interference between the items of the original and the interpolated list at the time of the recall is an important variable influencing the amount of retroactive inhibition. The more similar the two lists are, greater will be the amount of forgetting.

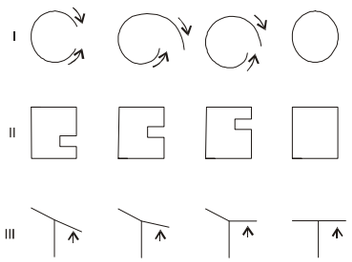
(*b*) *Proactive inhibition.* Proactive inhibition is a phenomenon closely related to retroactive inhibition. Experimental design for studying proactive inhibition is given as under:

Group	Preceding activity	Original learning	Test
1. Experimental	Learn B	Learn A	Recall A
2. Control	Unrelated activity	Learn A	Recall A

The design of proactive inhibition differs from retroactive inhibition in that the experimental group learns *B* before, instead of after *A*. Whereas *B* was a task interpolated between the learning and the recall of *A* in the retroactive inhibition experiment, *B* is a task preceding the learning of *A* in the proactive inhibition study. To evaluate the effects upon the experimental group of learning *B* prior to *A*, the control group relaxes during the time, when experimental group learns *B*. Forgetting is more due to proactive inhibition. Our ability to recall what we learn is reduced by the experiences by have learned previously.

3. Trace-change Theory

Trace-change theory of forgetting grows from research on perception. It has provided evidence that one's memory of what he has seen tends to change in specific ways. For example, if an *S* is shown in any of the original figures given below, his memory of them will shift to the more symmetrical and less imperfect figures shown in the columns on the far right.



If we examine the above figures, we find that each change is brought about by a different principle, closure, good figure and symmetry. These three principles are seen as physiological principles that are built in respect of the functioning of brain

NOTES

tissues. According to these principles, the trace laid down by an original experience becomes a more perfect and better balanced figure, thereby losing some of its qualities. This change in the trace causes us to forget the original figure. Forgetting, according to this theory, is attributed to change in traces in the brain.

The earliest experiments on the trace-change hypothesis which dealt with memory of perceptual form are not in perfect agreement as regards the operations involved in trace-change theory. The recent studies, conducted by Hebb and E.N. Foord to correct the errors of previous experiments, report as follows: They used clearly predictable figures of change in their study. Two different groups were shown a stimulus figure. They tested one group after five minutes and the other group after twenty-four hours. They did not have to draw a reproduction of the figure; rather recognition was tested by showing the subjects a series of forms, all of which differed systematically from the initial stimulus. According to this experiment, it has been proved that memory traces do not change in the direction predicted by perceptual laws of change as developed by earliest psychologists.

F.C. Bartlett has found that changes in memory trace are largely influenced by naming or labelling the items to be memorized.

4. Forgetting as Retrieval Failure

We experience in our daily life that sometimes we want to recall name of a friend or some piece of information. We fail to recall that information at that time but when conditions were different, the name or information comes back more or less spontaneously. This phenomenon is called TOT (tip-of-the-tongue). Tip-of-the-tongue shows how non-availability of appropriate cues hinders retention. According to this approach, forgetting is very often a temporary rather than a permanent phenomenon. Some psychologists have claimed that forgetting is not like losing something but rather is more like being unable to find it. When cues that were present at the time of learning are not available at the time of recall, retention suffers. If stimulus terms are altered, recall will be reduced (Yum). Forgetting occurs because of failure in the mechanism responsible for remembering.

Abernethy (1940) conducted a study on classroom learning. He found that those students who were tested in new classroom had poor test scores than their classmates who remained in the classroom where learning had taken place.

6.4.1 Strategies to Enhance Memory

Every classroom teacher faces the problem as how to improve the retention of his students. Experimental studies suggest that we cannot eliminate forgetting completely but we can take steps to lessen it. Following steps may be taken by classroom teachers to encourage retention of subject-matter taught in the class:

1. *Over-learning*. It is an established fact that retention is greater when the subject-matter is well-learned. The better something is learned, the greater are its chances of survival despite interference due to learning other material.

NOTES

Over-learning is the term used to describe practice that continues after a perfect recall has been scored. To improve retention, over-learning is essential. But the question arises how much over-learning. This question has not been answered by psychologists. It depends on the individual learner's ability, motivation and interest, and the subject-matter.

2. *Meaningfulness and organization of subject-matter*. The most effective method to improve retention which teachers can use is the method of making the subject-matter meaningful. All psychologists would agree with this statement, although their explanation of why meaningfulness is effective, would vary.

   McGoech (1930) conducted an experiment on four groups to test the influence of meaningfulness on retention. Each of the four groups studied a different ten-items lists for two minutes with the aim of reproducing. One group learned three-letter words while the other three groups, all learned non-sense syllables which processed different association values as 0 per cent, 53 per cent and 100 per cent. The real words were retained best. The results of the experiment are reproduced as follows:

Material	Number of items recalled after 2 min.
1. Three-letter words	9.1
2. Non-sense syllables (100 per cent value)	7.4
3. Non-sense syllables (53 per cent value)	6.4
4. Non-sense syllables (0 per cent value)	5.1

In retention, meaningfulness is an important factor. The teacher should make his subject-matter meaningful for students. The effect of meaningfulness on retention becomes still more striking when a comparison is made between learning a list of isolated non-sense syllables and learning a sequence of words organized into meaningful prose or poetry. In an experiment after a period of 30 days the per cent of retention in poetry, prose and non-sense words was given as follows:

Material	Per cent retained
1. Poetry	58%
2. Prose	40%
3. Non-sense words	28%

Obviously, if material is to be retained, there are advantages in making it meaningful. The number 1248163264 could be learned with difficulty as a series of 10 unrelated digits. But it is learned with ease as a sequence of seven numbers in which the first number is 1 and each number thereafter is twice the sum of the preceding one. The teacher must make much of the material meaningful for students. The material should be well-organized in increasing difficulty

NOTES

order. The level of organization in the original learning determines how well the material will be retained. Ausubel (1963) has proposed a pedagogic strategy that is based on the use of appropriately relevant and inclusive organizers which are introduced in advance of the learning material and are selected by the teacher. On the basis of their suitability for explaining, integrating and interrelating the material, organizers are more useful in learning factual material than in learning abstract material. The use of organizers can effect great economy in the process of acquisition and enhance retention. From such evidence it was concluded that some organizing tendency termed clustering was operating at the time of recall (Bousfield, 1953).

Clustering shows that memory is in some way an active process. We do not merely retain information in the form that we acquired it. In the process of remembering, some changes in memory occur. You can demonstrate simply by reading the following words to your friends and then asking them to recall them immediately—bed, rest, tired, wake, awake, might, eat, comfort, sound slumber. About 50 per cent of the people recalling this list will include the word sleep. It was not present in the original list (Deese, 1964).

We can conclude that meaningful material is easy to retain because it is better learned. But there are two characteristics of better learned material. The first is that word or sentence are more practised. The second characteristic is that it becomes part of a large network of association. It is better organized. The network of association in which a word is embedded can vary in its capacity to trigger the recall of that word.

Sometimes we have difficulty in remembering a name that is not too well learned even though we are sure, we know the name. We cannot recall it; it is on the tip-of-the-tongue (TOT). The experiments on TOT were conducted by McNeill (1966). He concluded that in TOT phenomenon retention is not an all or none process. We can remember some feature of a word without recalling the entire word. And once in the TOT, the subject's ability to recall the target word seems to be related to the network of association in which the target word is embedded. Meaningful material as compared with the material that is learned by rote has advantage in being recalled because of the availability of cues.

3. *Use of mnemonic device*. We are sometimes required to learn material that comes close to meaningless material. In such instances, it may be useful to use mnemonic devices to retain the material. Kidd and Segmen (1968) conducted an experiment. A nursery jingle of words rhyming with the numeral 1 to 10 was used effectively to superimpose an order on a set of unrelated words and thus improved its retention.

   Mnemonic systems, when used by persons capable of rich visual memory, can result in incredible feats of memory. Information in the brain is deliberately transformed into a more meaningful organization to improve memory. There are evidences that show that such processes do occur spontaneously.

NOTES

The free-recall phenomenon of clustering is an example of this automatic transformation. In one study, subjects were presented with a list of 60 words made up of four 15-items group from the category of animals, vegetables and professions, etc. In the recall test it was found that subjects tended to recall the items in cluster that contained the words from the same conceptual grouping.

4. *Self-recitation*. Psychologists are of the opinion that recitation is helpful in the process of retention. An experiment conducted by A. Gates shows the greater effectiveness of self-recitation. The materials that his students learned consisted of both non-sense syllables and short biographies. The results of the experiment are given as follows:

Percentage of time devoted to self-recitation	Percentage of 16 syllables recalled	
	Immediately	**after 4 hrs**
1.	0	35 15
2.	20	50 26
3.	40	54 28
4.	60	57 37
5.	80	74 48

If we examine the above table we find that the students performed best when they spent only 20 per cent of their time reading the syllables and 80 per cent of their time in self-recitation. The teacher who is interested in improving the memory of his students, should keep into consideration that practice of subject-matter alone does not help to improve the memory but meaningfulness and organization of subject-matter will help greatly. Mnemonics help us to organize the matter. In addition to all the above techniques, self-recitation is a much more efficient way of retaining learned material.

5. *Formation of clear concepts*. The other technique of training and improving memory which a teacher can use is to develop clear concepts with the help of various types of audio-visual material. The teacher should try to involve more than one senses in learning activity. Active participation also helps in the improvement of retention, and creates will to learn in the learners.

6. *Use of the principle of learning by doing*. The teacher in lower classes should follow the principle of learning by doing. The learners should be encouraged to participate actively in the learning process and learning experiences acquired thus will be remembered for a longer period. Teacher may also use a variety of material aids to make concepts and knowledge more clear. It will be very useful if knowledge of results is provided to the learner for efficient memorizing. We can summarize the above principles for better retention of learned material as over-learning, meaningfulness and structure, use of mnemonics, self-recitation, providing cues to enable the learner to retrieve information from memory, and frequent revision of the subject material.

NOTES

Types of Memory

Memory has been categorised in various kinds but we will discuss here only two important types of memory, short-term and long-term memory, and the mechanisms that operate in them.

1. *Short-term memory*. Often in daily life situations we need to recall material immediately or after a very short time. When we go to a new city we have to remember the names of different streets and persons or telephone numbers of officials whom we want to contact. All these situations are the examples of short-term memory.

   Early experiments on short-term memory mainly concentrated on the memory span. In a typical experiment, a subject was made to read progressively longer sequences of numbers or letters and then asked to recall them. The average length of the longest series he could immediately recall over a series of trials was taken to indicate the size of his memory span. George A. Miller conducted an experiment on the span of memory. He concluded that average human memory span can be expressed as 7 ± 2 meaning that an adult can normally recall 7 items but may often be able to remember as many as 8 or 9 or only as few as 5 or 6. These items can be numbers, letters, non-sense syllables or words regardless of the material, our short-term memory capacity remains the same.

   Lloyd R. and Margaret Jean Peterson (1959) have developed a technique of conducting research on short-term memory that has yielded surprising results.

   Similar experiments have been conducted by other psychologists notably by B.B. Murdock Jr. He tested the ability to recall three types of materials—non-sense syllables, common words and sets of three unrelated words.

2. *Long-term-memory*. Psychologists think of long-term memory (LTM) as a store-house where information is stored fairly permanently when we are not recalling it. An important problem for teachers is to understand the mechanism that operates in the process of transfer of information from STM to long-term memory (LTM) and how to facilitate the process of transfer from short-term memory to long-term memory. Though, virtually, nothing is known about the mechanism involved in the process.

   Memorization of material for LTM may be approached in different ways. One way is to read and re-read the material. Another is to spend part of the time in reading the material and part of the time in rehearsing it internally. In a classic experiment by Gates (1917) referred above, it has been established that rehearsal is the most efficient technique because it gives the person practice in retrieving information. Tulving (1967) has confirmed the result of the experiment conducted by Gates that rehearsal improves retrieval.

Distinction between Short-term and Long-term Memory

NOTES

Psychologists often debate the issue whether same mechanism operates in short-term memory (STM) and long-term memory (LTM). According to some psychologists the process is the same; that same kind of storage and retrieval mechanisms are involved in both kinds of remembering. The same principles of interference are involved in both as concluded by Keppel and B. Underwood.

There are other psychologists who believe in separate mechanisms, one for STM and another for LTM. They use both behavioural and neurological evidences to support their position. Brenda Milner has discovered physiological evidence in the study of brain damaged patients with memory deficits. Most of the patients' memory troubles occurred when they had to learn new material. Long-term memory was not affected nor was the ability to retain a few items in short memory affected. Many psychologists are of the opinion that distinction between STM and LTM is not valid. This view can be challenged on the grounds that type of interference causing forgetting in STM is different from the type of interference causing forgetting in LTM. Items which interfere in STM are those that sound alike. In LTM, however, items which interfere with one another are typically those that are similar in meaning, *i.e.*, semantic interference operates in LTM.

Check Your Progress

5. What is the theory of decay?
6. Mention any two types of memory.

6.5 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Perception is the process of organizing and interpreting sensory information to give it meaning.
2. According to the expert A. David the purpose of perception is to represent information from the outside world internally.
3. The four elements of the process of concept formation are experience (exploration), abstraction, generalization and analysis.
4. Humphrey defined concept as the psychological process by which we perceive or react to similarities in the changing environment.
5. It is a common view that forgetting is a process of fading with the passage of time. It is believed by many people that forgetting is produced by time factor. According to this view, impressions created by learning in the cortex fade away as the time passes. This widely held view is called the theory of disuse or decay.
6. The two types of memory are short-term memory and long-term memory.

NOTES

6.6 SUMMARY

- Our senses are described as 'gateways of knowledge or windows of the mind and soul.'
- Perception is sensation plus meaning. We sense qualities and we perceive objects. Perception gives meaning to sensation.
- Sensation is awareness of objects and perception is the awareness of this or that object.
- The gestalt psychologists, Kohler, Koffka and Wertheimer (1886–1941) proposed that the brain has the innate capacity for organizing perception. According to them, people naturally organize their perceptions according to certain patterns.
- Learning brings about a qualitative change in regard to adaptation, the most generic and simple form of optimization at an individual scale.
- Perpetual illusions are misconceptions resulting from misinterpretation of sensory information.
- Illusion is a kind of wrong perception. In illusion, an external stimulus is always present. In other words, illusions are caused by external stimulations.
- Hallucination, on the other hand is a false perception. In hallucination, no external stimulus is present. Hallucinations are caused by internal stimulations. Hallucination is a personal experience.
- Attention is the basic need for all successful teaching. It is the primary precondition for all types of our mental activity—cognitive (knowing), affective (feeling) and conative (acting).
- Attention is a necessary condition for any mental task in the classroom. In fact, it is the 'hub' of the entire teaching-learning process.
- Cognitive psychology compares the human mind to a computer, suggesting that we too are information processors and that it is possible and desirable to study the internal mental processes that lie between the stimuli (in our environment) and the response we make.
- Trace-change theory of forgetting grows from research on perception. It has provided evidence that one's memory of what he has seen tends to change in specific ways.

6.7 KEY WORDS

- **Sensation:** A sensation is a response or reaction aroused within the body by the stimulus.

- **Monocular cues:** It is known as a pictorial depth cue because they include the kind of depth information found in the photographs and painting. These are extensively used by the artists in their painting.
- **Perpetual illusions:** Perpetual illusions are misconceptions resulting from misinterpretation of sensory information.

NOTES

6.8 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions

1. State some characteristics of perception.
2. What are the factors that influence perception?
3. Differentiate between illusion and hallucination.
4. What are the chief characteristics of attention?
5. Write a short note on information processing.

Long Answer Question

1. Explain the role of learning in perception.
2. Discuss the various types of attention.
3. Describe the process of concept formation.
4. Explain Piaget's theory of concept formation.
5. Discuss the various strategies to enhance memory.

6.9 FURTHER READINGS

Colman, Andrew. 2016. *What is Psychology?* United Kingdom: Routledge.

Eysenck, W. Michael. 1994. *Perspectives on Psychology*. United Kingdom: Psychology Press.

Carr, Alan. 2012. *Clinical Psychology: An Introduction*. United Kingdom: Routledge.

Nevid, S. Jeffrey. 2012. *Psychology: Concepts and Applications*. United States: Cengage Learning.

Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. United Kingdom: Psychology Press.

UNIT 7 MOTIVATION

NOTES

Structure

7.0 INTRODUCTION

The basic question which we will deal with in this unit is of 'why' of behaviour. Why an individual does what he does? What are those factors which motivate an organism for action? This problem of 'why' brings us to the problem of motivation. The problem of motivation is the central problem in psychology which had been the subject of interest and inquiry for all those who dealt with human relations since the man on earth. Businessmen, politicians, social workers, administrators, engineers and industrialists all are very much concerned about the problem of human motivation.

In this unit, we will discuss the important theories of motivation and strategies for enhancing motivation.

7.1 OBJECTIVES

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

- Explain the concept of motivation
- Discuss Maslow's theory of need hierarchy
- Describe the various strategies for enhancing motivation

7.2 MOTIVATION: DEFINITION, FUNCTIONS AND CLASSIFICATION

Tremendous research has been done on psychology of motivation in the last 40 years and a number of new theories have been evolved to explain human behaviour. K.B. Madson in his book *Theory of Motivation* has given twenty-four theories of motivation which propose different explanations of human behaviour. It is not

possible to reproduce all the definitions here. We will follow a sample approach and will mention four definitions.

Historically, the word 'motivation' comes from the Latin root 'moveers' which means to move. Thus we can say that in its literal meaning motivation is the process of arousing movement in the organism. The movement is produced and regulated through the release of energy within the tissues.

NOTES

1. H.W. Bernard held 'Motivation refers to all those phenomena which are involved in the stimulation of action towards particular objectives where previously there was little or no movement towards those goals.'
2. Atkinson defined motivation as, 'The term motivation refers to the arousal of tendency to act to produce one or more effects.'
3. Maslow has advanced the theory of hierarchy of needs ranging from basic physiological needs to self-actualization. According to him, 'Motivation is constant, never ending, fluctuating and complex and that it is an almost universal characteristic of particularly every organismic state of affairs.'
4. D.O. Hebb said, 'The term motivation refers (*i*) to existence of an organised phase sequence, (*ii*) to its direction and content, (*iii*) to its persistence in given direction or stability of content.'

Functions of Motivation

Psychologists have analysed the motivated behaviour of an organism and observed the following functions of such type of behaviour:

1. *Motives energize and sustain behaviour*. Motives energize the behaviour of the organism and arouse him for action. The energy can be physiological as in drives or reiterative resonator activity aroused by similarity between present action and residues of past ones that were emotionally significant for the person. The energy is supplied in proportion to the amount of energy output for a task. Motives not only energize the behaviour but they also sustain our interest and behaviour for a longer period in the activity. According to Hebb, efficiency and adequacy are increased in motivated state of behaviour.
2. *Motives direct and regulate our behaviour*. Motivated state is often described as guided, directed and goal-oriented. The motivated behaviour moves in a specific direction. The behaviour of the organism is purposeful and persistent. The direction of motivational behaviour is, no doubt, very complex because of the structure of the situation and the action sequences which determine the behaviour.
3. *Behaviour is selective*. Under motivated condition, the behaviour of the organism does not move in a haphazard way. It is directed toward a selective goal which the individual sets for himself. For example, the student who is

motivated to secure high grades in the examination, concentrates on his studies by selecting appropriate means to reach his goal. The motive is terminated by the achievement of the goal.

NOTES

Motivation—A Complex Phenomenon

Motivation is a very complex phenomenon which is influenced by multiple variables operating within the organism and in the environment. Lashley, commenting upon the complexity of motivation, wrote, 'The problem of motivation is far more complex than the Freudians would have us believe and its solution is to be sought in the investigation of many related fields. The analysis of instinctive responses, the neural basis of emotions, the mutual influence of habits, and the total integration of all such systems of reactions.' The comments of Lashley emphasize the importance of several variables in the study of motivation. Let us be more specific as regards the various factors which influence motivation. The first factor is physiological system of the organism. A number of physiological factors are involved in motivation. The second important factor is of emotion which is sometimes called motivating condition. There is no dearth of instance when people sacrificed their lives for the sake of their motherland. Emotional states act as drives and they can reinforce motive in progress. Emotions increase our desire to do something. The third factor which works as motivator is habit. All habits do not work as motivator. Only those habits which instigate and regulate actions in a dynamic sense may be termed as motivators. It has been studied in laboratory that a monkey who becomes habituated to morphine is highly motivated to get his injection and may die if he does not get it. Similar is the case of a man who is addicted to opium. The fourth variable which is closely involved in the process of motivation is mental sets, values and attitudes of the individual which influence the motivational process. In addition to the above factors, environmental factors and incentives play an important role in the process of motivation.

Classification of Motives

In recent years psychologists being dissatisfied with the concept of drives as an explanation of human behaviour and the concept of goal-directed behaviour as the separate explanation, introduced the concept of motive which incorporates the meanings of both drive and goal-directed behaviour. Motives have been used in a different sense. The *Oxford Dictionary* defines a motive as: 'That which moves or induces a person to act in a certain way; a desire, fear, or other emotion or a consideration of a reason which influences or tends to influence a person's volition; also often applied to a contemplated result or object, the desire of which tends to influence volition.' In our daily life, we use the term motive as our determination to act in some specific way, to carry out an intention, to arrive at a goal. Suppose 'A' says that he has a motive to get high grade in the examination; this conveys A's determination to reach the goal he has set for himself, for which he will plan and follow specific strategy to accomplish it. According to Newcomb,

NOTES

motive like non-technical terms 'want and desire' is a word which points both inward and outward conditions such as dissatisfaction (tension and disequilibrium) and to something in the environment which serves to remove the dissatisfaction. He says that an organism is motivated when and only when it is characterized both by a state of drive and by a direction of behaviour towards some goal which is selected in preference to all other possible goals. Motive is a concept which joins together drive and goal. Motives can be grouped in the following categories:

1. *Physiological motives*. In this category, we can put those motives which are essential for the survival of the organism. They include food, oxygen water, sex, elimination, warmth in the body and emotions.
2. *Social motives*. Man is a social animal. He lives in groups which shape his behaviour according to a definite pattern. Social motives are learned in the social environment. They are influenced by cultural heritage and philosophy of life of the people. They are rooted in physiological motives and emerge out of them gradually with advancing age of the child. Social motives are the sources which bind human beings and social progress depends on their proper development.

   Some of the important social motives are social approval, affection, respect, prestige and money, etc.
3. *Personal motives*. In addition to the social motives which are necessary for socialization, every person has special categories of motives which are dependent on the unique structure of the personality of the person. There may be a long list of personal motives depending upon individual differences which motivate individuals for action. Some of the common personal motives include interests, attitudes, values, goals, and self-concept.

Another classification of motives may be made as conscious and unconscious. Conscious motives may be inferred from one's behaviour but unconscious motives influence our behaviour unconsciously and we are not aware of them.

Check Your Progress

1. Define motivation.
2. Give some examples of social motives.

7.3 MASLOW'S THEORY OF NEED HIERARCHY

The theory of self-actualization was developed by Abraham Maslow (1908–1970), a professor of psychology. He was a humanist who believed that man can work out a better world for mankind as well as for himself. His approach to understand human personality and motivation is different from behaviourism and psychoanalysis. He critically examined the traditional approach of pain avoidance, pleasure seeking and tension reduction as the major sources of motivating behaviour.

NOTES

He has consistently argued that needs are arranged in a hierarchy. As one general type of need is satisfied, another higher order need will emerge and become operative in life. He developed his own system of needs and categorized them into two divisions: (*a*) deficit needs, and (*b*) growth needs. The needs of the first category include physiological needs, such as hunger and thirst. Once these needs are satisfied, the person seeks to satisfy safety needs—love need, belongingness need and esteem needs. Under the second category, there is only one general need called self-actualization. The second important concept of Maslow is that each individual differs in nature which should be supported and encouraged. He criticized the views of those psychologists who believed that man is selfish, evil and antisocial. Maslow believed that there are degrees of humanness. He went slightly beyond other need theorists by postulating an order of potency or priority with regard to structuring of needs within the person.

Hierarchy of Needs

Maslow has developed a hierarchical order of needs from physiological to self-actualization needs. The order of needs starts from basic survival or lower order needs to higher order needs. The hierarchy is as follows:

1. Physiological needs.
2. Safety needs.
3. Belongingness and love needs.
4. Esteem needs.
5. Self-actualization need.

The hierarchical structure of needs may be diagrammed as follows:

1. *Physiological needs*. The most potent needs of all the needs yet the least significant for self-actualizing person, are the physiological needs. According to Maslow, when these physiological needs are deprived for a long period, all other needs fail to appear or recede in the background. But in India we find instances which contradict the point of view of Maslow. There are several examples in Indian history, when women sacrificed themselves to save their honour. There are examples of political leaders who starved themselves to death in recent years for the freedom of the country. Maslow explained the cause of self-sacrifice as a result of psychological disturbance.

   He proposed an interesting notion of the motivational powers of need-deprivation and need-gratification. When an individual is deprived of basic needs, he certainly is motivated to do something. A boy who is deprived of food, will be motivated to do something to get food. We in order to motivate our children to complete their school assignments, sometimes deprive them of their privileges like pocket money and freedom to play, etc. Deprivation of needs applies to lower order needs. Need-gratification operates in different ways. It is also applicable to higher-order needs. Need-gratification is a better means to motivate children for further work.

NOTES

2. *Safety needs*. When the physiological needs are successfully fulfilled then safety needs become the dominant force in the personality of the individual. Safety needs are many and are mainly concerned with maintaining order and security. People feel the need of structure, law and order and to be under someone's direction.

   Some persons, by their nature, are unable to get beyond the safety needs. They are very much concerned about their safety. They hoard money, purchase buildings, land and invest in life insurance policies. By doing such things, they make their future safe.

   The question of need for safety is particularly of great importance for small children who are physically incapable of controlling their environment. Children should be brought up in a safe environment. They should be protected from harmful experiences. Small children should be reared in a structured environment free from any physical harm and parents should develop courage in their children to meet the environmental events.

3. *Belongingness and love needs*. The needs of this category emphasize the basic psychological nature of human beings to identify with the group life. These are needs of making intimate relationship with other members of the society, being an accepted member of an organized group, and needing a familiar environment as family. These needs are dependent on the fulfilment and satisfaction of previous categories of needs. The modern developing society with all its material advantages is doing a great harm of disintegrating family and social life of the people. In big cities, people living in the same building do not know the next-door neighbour. If you ever happen to visit big cities like Kolkata and Delhi, you will find that people operate mechanically. They have no social life. They experience a sense of isolation and loneliness in spite of being in a crowd of thousands.

4. *The esteem needs*. Esteem needs are divided into two categories: (1) Self-esteem, self-respect, self-regard and self-evaluation, and (2) Relating to respect from others: reputation, status, social success and fame. The need of self-evaluation occurs in those persons who are comfortably situated. They are secure in the satisfaction of basic needs. A professor who has established a high reputation and does not worry about getting work, may become quite discriminating about the type of works he accepts. Such a professor may accept only those assignments which may challenge his skills. The quality of work is a matter of some concern to him: it fulfils a need for self-respect, a need to feel good about himself.

   According to Gelford (1962), feelings of achievement, of competence, of meeting of high standard of excellence in performance are not the concerns of the struggling beginner but the 'extra touches' of comfortable artisan. Esteem is externally based before it is internally based. Prior to attaining a level of prideful involvement in one's activities, one seeks the respect and

NOTES

assurance of others that one is a worthwhile person. There are many status symbols in the society which give a feeling of self-esteem as possessing a house, land or bank-balance, *dharmashalas*, titles of honour and automobile, etc.

Another type of esteem needs is the need to feel superior to others. This need is gratified by purchasing of items as good and costly clothes. A man may not keep a new car more than a year, even if it is in a good condition because to keep a car for more than a year creates an unfavourable image for him. There are several ways in which people prove their superiority in the society. Everyone has a need for superiority and it must be brought under control. Coopersmith (1967) has noted that failure to gratify need for self-respect, or reputation from others can produce personality disturbance in the individual. The individual may develop feelings of inferiority, of being different from others, of being a misfit in the society. Needs related to respect from others' approval, acceptance and admiration vary in expression and intensity in life of an individual from childhood to old age. Maslow believed that sufficient gratification of the esteem needs lessens their dominating force in a person's life, thus enabling him to move in the direction of self-actualization.

5. *Self-actualization*. The highest need, in the hierarchical system proposed by Maslow, is self-actualization. It means to fulfil one's individual nature in all its aspects, being what one can be. A person highly talented in the field of music experiences tension if he does not attain perfection. The man who is interested in nature and its surroundings wants to spend much of his time in nature. People can be motivated towards self-actualization only when their lower order needs have been satisfied.

   One of the important aspects of self-actualization is freedom—freedom from cultural and self-imposed restraints. The self-actualization person wants to be and must be free from restraints from society. Self-actualizing persons are not radicals or against their culture; they do not adopt any extreme movement nor do they unquestionably identify themselves with the culture. Self-actualization is only possible if the basic needs of the person are met to the degree that they neither distract nor consume all available energy. When the person succeeds in satisfying his lower order needs, he can act upon his higher needs.

   We can see from the hierarchy of needs that for self-actualization, it is necessary that a person should not worry about his survival needs. He should enjoy his job. He should feel satisfied in his social relation in family, society and in his job.

   Maslow's theory emphasizes that motivation to work is rooted in the fulfilment of various categories of needs which range from physiological to self-actualization.

Characteristics of Self-Actualizers

1. Demonstration of an efficient perception of reality and acceptance.
2. Acceptance themselves and others.
3. High degree of spontaneity and simplicity.
4. Problem-centred orientation.
5. Privacy and detachment.
6. Autonomous and independent of the environment.
7. Appreciation of 'basic goods of life' with continued freshness and pleasure.
8. They at times show mysticism.
9. Identify with mankind.
10. Development of deep interpersonal relations with others.
11. Democratic in outlook.
12. They keep means and ends distinguishable.
13. Sense of humour.
14. Creative.
15. Non-conformists.

NOTES

7.3.1 Strategy for Enhancing Motivation

Theory of achievement motivation has drawn the attention of psychologists, sociologists and educators in recent years. Everyone is aware of the fact that wide disparities exist in the economic conditions of the various countries of the world. Psychologists thought about these problems in terms of social beliefs, political set-up, and distribution of power and even their characteristic life philosophy and psychology. How can understanding of individual psychology contribute to the worldwide problems of economic growth? This crucial problem of economic disparity among the nations of the world and psychological causes underlying this problem were attacked by David C. McClelland of Harvard University. He holds the view that psychological study of the individual and the nation can contribute a great deal to understand this problem. He rejected the conventional explanation that economic growth can be explained in terms of economic variables. According to his view psychological and sociological factors are major variables affecting economic growth. He wrote a book, *The Achieving Society* in which he advanced his new concept of economic growth of nation. He argued in his book that the rise of capitalism cannot be explained and understood on the basis of economic factor alone. He believes that changes in the fundamental beliefs and attitudes of men gave impetus to economic growth in certain countries.

According to him, human beings differ from one another in the strength of achievement motive. It is this difference in the strength of motivation to achieve that is important in understanding the differences in the economic growth of nations.

NOTES

The theory of achievement motivation was developed by McClelland and his associates in 1951 at the University of Harvard. He defined motive as, 'A reintegration of a change in a fact by a cue and anticipation of a future change in affect contingent upon certain actions.' The definition given by him has two important terms which need further explanation. The first term is reintegration which means reinstatement of psychological process in the conscious as a result of the stimulation by an environmental event. Second is cue which is the cause of affect in arousal in the individual. For example, if a boy sees his old teacher after a long time, the perception of the teacher works as cue which arouses affective feelings and the whole psychological process is reinstated. Thus, for motivation two factors are important: environmental cue and affective arousal in the individual. According to him, all human motives are learned in the environment irrespective of their nature.

Jackson, Ahmad and Heapy (1976) postulated six distinct dimensions for achievement motivation: 1. status with experts; 2. acquisitiveness; 3. achievement via independence; 4. status with peers; 5. competitiveness; and 6. concern for excellence.

How to Develop Achievement Motive

Development of achievement motive is affected by a number of variables in home, school and society. Home plays an important role in the early training of children for the development of attitudes and motives. Parental expectation and guidance to the child develop need for high achievement in life.

The society and its social philosophy is an important variable in developing achievement motive. There are communities which are achievement-oriented. There are other societies which believe in fate and leave everything to God.

The child normally enters school at the age of 5 years. Before joining school, the child gathers many experiences which become an integral part of his personality and form his attitude towards life but even then the school can help a lot to sharpen already acquired experiences and develop positive attitudes in children. The teacher can play a very crucial role in the development of achievement motive by the following methods:

1. The teacher should make clear the importance of achievement motive in life by means of telling the stories of great men and their achievements from all walks of life. When the students are convinced in advance to believe that they would or should develop achievement motive, the efforts of the teacher will succeed.
2. The teacher should provide a proper environment both inside and outside the class. The teacher's attitude and enthusiasm will create better environment for achievement motive in children.
3. The teacher will succeed in his attempt if he convinces the students that developing a new motive is realistic and reasonable.

NOTES

4. The teacher should relate the motive with future life of the students and assign independent responsibility to them.
5. The teacher should make clear to the students that the new motive will improve their self-image.
6. The teacher should emphasize upon the fact that new motive is an improvement on prevailing cultural values.
7. The teacher should make students committed to achieving concrete goals in life related to the newly developed motive.
8. The teacher should ask the students to keep the record of their progress towards their goal.
9. Self-study should be emphasized.
10. The teacher should make an effort to develop conducive social climate in the class so that every individual should feel that he belongs to a group.

Measuring Achievement Motive

McClelland and co-workers believed that our fantasies often reveal motivational basis of our actions. He attempted to make use of the fantasies to explore and measure achievement motivation. He tried to collect information from his subject by means of projective technique's creative production. He used TAT (Thematic Apperception Test) pictures to collect information on the fantasies of the subjects. The assumption underlying TAT pictures is that when we present a picture of another person in a social setting under ambiguous and unstructured circumstances and ask him to tell a story about what is happening in the picture, in doing so he (subject) may often reveal about himself.

McClelland and his associates made qualitative and quantitative studies of TAT stories written by their subjects. The results as reported by them were positive. The technique is reliable and promises development in the field of measuring motivation. The most significant contribution of McClelland and associates is that they advocated that motives develop out of affective arousal. Their theory of motivation is called affective arousal theory.

The researches conducted by them on achievement motivation throw new light on human behaviour and continual strivings for perfection, for good work and for high achievement. Changes in religious beliefs, personal and social values and orientation towards achievement may result in high achievement motivation. Parental expectations are indeed directly related to level of achievement motivation in their sons and daughters.

Check Your Progress

3. Who developed the theory of self-actualization?
4. What are the two factors important for motivation?

7.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

NOTES

1. According to Maslow, 'Motivation is constant, never ending, fluctuating and complex and that it is an almost universal characteristic of particularly every organismic state of affairs.'
2. Some of the important social motives are social approval, affection, respect, prestige and money, etc.
3. The theory of self-actualization was developed by Abraham Maslow (1908–1970), a professor of psychology.
4. The two factors important for motivation are environmental cue and affective arousal in the individual.

7.5 SUMMARY

- Historically, the word 'motivation' comes from the Latin root 'moveers' which means to move. Thus we can say that in its literal meaning motivation is the process of arousing movement in the organism.
- Motives energize the behaviour of the organism and arouse him for action.
- Motivation is a very complex phenomenon which is influenced by multiple variables operating within the organism and in the environment.
- The theory of self-actualization was developed by Abraham Maslow (1908–1970), a professor of psychology.
- Maslow has developed a hierarchical order of needs from physiological to self-actualization needs.
- The most potent needs of all the needs yet the least significant for self-actualizing person, are the physiological needs. According to Maslow, when these physiological needs are deprived for a long period, all other needs fail to appear or recede in the background.
- When the physiological needs are successfully fulfilled then safety needs become the dominant force in the personality of the individual. Safety needs are many and are mainly concerned with maintaining order and security.
- The highest need, in the hierarchical system proposed by Maslow, is self-actualization. It means to fulfil one's individual nature in all its aspects, being what one can be.
- The theory of achievement motivation was developed by McClelland and his associates in 1951 at the University of Harvard.

7.6 KEY WORDS

- **Motive:** Motive is a concept which joins together drive and goal.
- **Physiological motives:** In this category, we can put those motives which are essential for the survival of the organism. They include food, oxygen water, sex, elimination, warmth in the body and emotions.
- **Consciousness:** Consciousness is the state or quality of awareness, or, of being aware of an external object or something within oneself.
- **Unconscious:** The unconscious mind consists of the processes in the mind which occurs automatically and is not available to introspection, and includes thought processes, memories, interests, and motivations.

NOTES

7.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions

1. What are the various functions of motivation?
2. Mention some of the categories of motives.
3. What are the characteristics of Self-actualizers?
4. Write a short note on Thematic Apperception Test (TAT).

Long Answer Question

1. Explain the concept of motivation.
2. Discuss Maslow's theory of need hierarchy.
3. Describe the various strategies for enhancing motivation.
4. Explain the theory of achievement motivation.
5. Discuss Maslow's and McClelland's contributions to psychology.

7.8 FURTHER READINGS

Colman, Andrew. 2016. *What is Psychology?* United Kingdom: Routledge.

Eysenck, W. Michael. 1994. *Perspectives on Psychology*. United Kingdom: Psychology Press.

Carr, Alan. 2012. *Clinical Psychology: An Introduction*. United Kingdom: Routledge.

Nevid, S. Jeffrey. 2012. *Psychology: Concepts and Applications*. United States: Cengage Learning.

Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. United Kingdom: Psychology Press.

NOTES

BLOCK - III
THEORIES OF INTELLIGENCIES, PERSONALITY, META-COGNITION AND LEARNING

UNIT 8 INTELLIGENCE

Structure

8.0 INTRODUCTION

There is no unanimity among writers and psychologists regarding definition on intelligence. In fact, there are as many definitions of intelligence as there are writers on the subject. P B Ballard (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 Prof. R R Kumria, 'Call it practical wisdom, call it common-sense, and call it genius— it is just the same in different names and grades.' In this unit, you will learn about the concept of intelligence, it's types and nature.

8.1 OBJECTIVES

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

- Discuss the evolution of definition of intelligence
- Describe the types of intelligence
- Explain the various theories of intelligence
- Describe the nature of intelligence test

NOTES

8.2 MEANING AND DEFINITION OF INTELLIGENCE

A variety of definitions of intelligence have been suggested by the psychologists, which can be classified into at least four distinct groups.

The first group of definitions places the emphasis upon the adjustment and adaptation of an individual to his total environment or to its limited aspects. According to this group, intelligence is general mental adaptability to new problems and to new situations of life.

The second group of definitions stresses on the ability to learn. The more intelligent a person, the more readily and extensively he is able to learn and enlarge his field of activity and experience.

The third group of definitions maintains that intelligence is the ability to carry on abstract thinking. This implies the effective use of ideas and efficiency in dealing with symbols, specially numerical and verbal symbols.

The fourth category refers to the operational definitions.

These categories of definitions, are not, and perhaps cannot be, mutually exclusive. They intersect and overlap at many points.

I. Ability to Adjust

1. *A Binet* (1905) defined intelligence as, 'The ability of an individual to direct his behaviour towards a goal.'
2. According to *Boyniton,* '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.'
3. *Burt* (1949) observed, 'It is the power of readjustment to relatively novel situations by organizing new psycho-physical coordination.'
4. *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.'

NOTES

5. According to *Johnson*, 'It stands for an ability to solve the general run of human problems to adjust to new situations.'
6. *J Piaget* (1926) defined intelligence as 'Adaptation of self to physical and social environment.'
7. *Peterson* was of the view, 'It is a mechanical means for adjustment and control.'
8. For *Pinter* (1921) intelligence meant, 'The ability of the individual to adapt adequately to relatively new situations to life.'
9. According to *Stern* (1941), 'Intelligence is a general capacity of an individual, consciously to adjust his thinking to new environment.'
10. *Van Wagemen* was of the view, 'It is the capacity to learn and to adjust to relatively new and changing conditions.'
11. *William James* (1907) observed, 'It is the ability to adjust oneself successfully to a relatively new situation.'
12. *William McDougall* (1923) defined, 'It is the capacity to improve upon native tendency in the light of past experience.'

II. Ability to Learn

13. According to *Buckingham* (1921), 'Intelligence is the learning ability.'
14. *Calvin believed* 'It is the ability to learn.'
15. *Spearman* (1927) said, 'Intelligence may be thought of in terms of two abilities, i.e., 'g' or general and 's' or specific.'
16. *L L Thurstone* (1946) defined intelligence in terms of five primary abilities.
17. *Woodrow* observed, 'It is the capacity to acquire.'

III. Ability to Do Abstract Reasoning

18. For *C Spearman* (1927) intelligence was the 'General intelligence which involves mainly the education of relations and correlates.'
19. *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.'
20. *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.'
21. *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.'
22. *J M Hunt* (1966) defined, 'The technique that a child acquires for processing information supplied by his senses.'

23. *L M Terman* (1921) pointed out, 'An individual is intelligent in proportion as he is able to carry on abstract thinking.'
24. According to *Munn*, 'Intelligence is the flexibility or versatility to the use of symbolic processes.'
25. *P E Vernon* (1927) defined intelligence as, 'All round thinking capacity or mental efficiency.'

IV. Operational Definitions

26. In the words of *Boring* (1948) 'Intelligence is what intelligence tests.'
27. *Dockell* (1970) observed, 'Intelligence might be taken to mean 'ability', i.e., what a person can do at a moment.'
28. *D O Hebb* (1949) described three situations in which the term intelligence could be used.
29. 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.'
30. *G D Stoddard* (1943) said, 'Intelligence is the ability to undertake activities.'
31. According to *Hein*, 'Intelligence is the activity consisting in grasping the essentials in a situation and responding approximately to them.'
32. *P E Vernon* (1927) defined, 'Intelligence is what intelligence test measures.'
33. *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 Thompson, '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: The 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.

NOTES

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.

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:

(a) Difficulty, (b) Complexity,

(c) Abstractness, (d) Economy,

(e) Adaptiveness to a goal, (f) Social value, and

(g) 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.'

8.2.1 Types of Intelligence

E.L. Thorndike has classified intelligence into three categories which are as follows:

(*a*) Concrete intelligence

(*b*) Abstract intelligence

(*c*) Social intelligence

(*a*) *Concrete intelligence*: Concrete intelligence means intelligence in relation to concrete materials. It is the ability of an individual to comprehend actual situations and react to them adequately. The concrete intelligence is evident from various activities of daily life. This kind of intelligence is measured by performance tests and picture tests in which the individual has to manipulate concrete materials.

(*b*) *Abstract intelligence*: It is the ability to respond to words, numbers and letters, etc. All tests of intelligence which require manipulation of symbols are tests of abstract intelligence. Abstract intelligence is required in the ordinary academic subjects in schools, such as reading, writing and history and so on. The highest level of abstract intelligence is manifested in the thought of philosophers and in the use of mathematical formula.

(*c*) *Social intelligence*: Social intelligence means ability of an individual to react to social situations of daily life. Social intelligence would not include the feelings or emotions aroused in us by other people, but merely our ability to understand others and to react in such a way towards them that the ends desired should be attained. High social intelligence is possessed by those who are able to handle people well. Adequate adjustment in social situations is the index of social intelligence.

NOTES

8.2.2 Theories of Intelligence

Psychologists have attempted to understand the structure of intelligence for which they have formulated several theories. Among the important theories, the following deserve special mention.

1. Spearman's Two-Factor Theory or Eclectic Theory.
2. Thurstone's Group Factor Theory or Anarchic Theory.
3. Unitary Theory or Monarchical Theory.
4. Oligarchic Theory or Sampling Theory.
5. Guilford's Theory.
6. Thorndike's Multifactor Theory.

1. Spearman's Two-Factor Theory or Eclectic Theory

In 1904, Spearman, an English psychologist produced strong evidence based on his own researches that there was one fundamental ability underlying all cognitive functions. According to him, every task involving intellectual activity depended upon a general ability or 'g' factor and a separate ability or 'specific' factor. This view is popularly known as two-factor theory of intelligence, i.e., 'g' factor and 's' factor. This 'g' factor represents native intelligence. Thus, when we respond to any situation or perform an intellectual task, our general mental ability or 'g' factor is responsible for part of our reactions and our specific ability in that particular task is responsible for the rest.

There are a large number of specific abilities, such as ability to draw inferences, ability to complete sentences, ability to continue series of numbers, ability to code messages, etc.

NOTES

2. Thurstone's Group Factor Theory or Anarchic Theory

L L Thurstone, an American psychologist, propounded the group factor theory of intelligence. According to him, intellectual activity is neither an expression of numerous highly specific factors as claimed by Thorndike, nor the expression primarily of a general factor which prevails in all mental tasks as Spearman believed. Instead, as revealed by factor analysis, certain mental operations have in common, a primary factor which gives them psychological and functional unity, and which distinctly separates them from other mental operations. These mental operations are said to constitute a group 'A', similarly, another group of mental operations have their own unifying primary factor and may be said to constitute a group 'B' and so on. Thus, there are a number of groups of mental abilities, each of which has its own primary factor.

Thurstone proposed seven factors and called them primary mental abilities. These are as follows:

1. M—*Memory*: To be able to learn and retain information. Also, to be able to recall the learned material.
2. N—*Number*: To be able to understand quickly and with accuracy simple arithmetic computations.
3. P—*Perceptual*: To be able to identify objects quickly and accurately.
4. R—*Reasoning*: To be able to perceive and utilize abstract relationships. To be able to put together past experiences in the solution of new problems.
5. S—*Spatial*: To be able to deal with objects in space.
6. V—*Verbal*: To be able to understand and utilize verbal ideas.
7. W—*Word fluency*: To be able to think of words rapidly.

Spearman's theory is also known as '*electic theory*' because it harmonizes elements from all the main types of abilities. Thurstone's theory is also known as the '*anarchic theory*' because he conceived that the mind consists of a number of independent facilities.

3. Unitary Theory or Monarchic Theory

According to monarchic attitude, intelligence is regarded as an adaptability which enables a creature to adjust itself to the changing environment. This is a popular view which regards intelligence as a unitary (monarchic) faculty that determines the level of man's achievement in any intellectual enterprise he may take. Accordingly, inborn all round mental efficiency is a sign of intelligence. Accordingly, had Newton turned his mind to poetry, he could have as well been a poet.

NOTES

4. Oligarchic Theory or Sampling Theory

This theory is criticized by the advocates of Oligarchic Theory. A person cannot be expert in all fields; moreover, a single factor alone cannot be mentioned which means intelligence.

This theory is sometimes known as sampling theory of intelligence. It was put forward by Prof. Thompson. According to it, intellectual abilities belong to certain groups. It maintains that cognitive abilities are manifestations not of a single commanding faculty, but of a few main intellectual powers or a group of abilities. For example, a child who is intelligent in one group of knowledge may not be intelligent in the other group. But he may be equally intelligent in the various subjects of that particular group.

5. J P Guilford's Theory of Structure of Intellect (SOI)

This three-dimensional theory was developed by Guilford and his associates in psychology laboratory at the University of Southern California in 1966. Work on it began in 1956. Guilford conceived the idea of intellectual functioning as having three dimensions: (i) operations, (ii) content and (iii) products.

Operations are the processes involved in intellectual behaviour-cognition, memory, divergent thinking, convergent thinking and evaluation.

The content of these operations may be figural, symbolic (letters, numbers), verbal (information about other persons), behaviour, attitudes, needs, etc.

The products may be—units, classes, relations, systems, transformations and implications. Thus, the model contains 120 cells (5 operations 4 contents 6 products); each of which represents a distinct factor which is measured by a separate test.

Guilford suggested that the five processes act on the four units to produce one of six cognitive products. The six products are units of a single word or idea, classes, a relationship between or among units or classes, systems, an organized sequence of ideas, transformations, a change or redefinition or a unit or class, and implications, predictions of the future.

Guilford believed that each person is a unique composite of a great many different intellectual abilities. Each intellectual functioning involves three components: a cognitive operation, specific content and a specific product.

Check Your Progress

1. What do you understand by the term intelligence?
2. Mention the three types of intelligence.

8.3 INTELLIGENCE QUOTIENT

NOTES

The constancy of IQ has received a great deal of attention from educational psychologists because of its usefulness in modern education. There are two opinions: one group of psychologists holds the opinion that IQ remains relatively constant over the years changing only very slowly. Another assumption which is generally sustained by majority of the psychologists is that if a determined effort is made change in IQ can be effected. There is considerable empirical as well as theoretical evidence to indicate that such constancy is far from absolute. They put forth empirical evidences to prove their point of views.

Honzike (1948) conducted studies to see the change of IQ over a period of years. He reported that between 6 to 18 years of age considerable change occurs in IQ; 60 per cent of the group changed 15 or more IQ points and 9 per cent changed 30 or more points. Dearborn (1938) also reports lack of constancy of IQ over the years in the study conducted at Harvard University.

The IQ does not remain constant over years. Fluctuation can be expected to occur for a number of reasons, ranging from the unreliability of the tests, the effects of practice or other factors operating from one test to another, differences in the content of the tests in relation to the various abilities of the testee. The latter is of particular importance when the results of the childhood tests with their emphasis on sensori-motor tasks are compared with those of later tests where the emphasis is on abstract reasoning.

Jones (1954) pointed out that correlation of IQ of infants and their IQ a few years later is typically negative. It is not until the age of 12 months that this correlation reaches 0 and then begins to become positive. It is not until the fourth year that any degree of stability in the IQ is attained.

Bayley (1955) points out, eventually, investigators ran across the hard reality that infants exhibit a very limited range of behaviour beyond sensori-motor functioning upon which to base an estimate of intellectual ability. She suggests that instead of continuing to think of intelligence as an integrated or simple capacity which grows through childhood by steady accumulation, intelligence is better seen as a dynamic succession of developing functions with the more advanced and complex functions in the hierarchy on the prior maturing of the earlier and simpler ones.

A good part of the fluctuation occurring in the IQ stems from the fact that no test is completely reliable. Thus we would expect one-third of the testees on average test to gain upon retest up to 5 IQ points and another third to lose up to 5 IQ points, another 14 per cent would lose from 5 per cent to 10 per cent points and other 2 per cent at each end would gain or lose more than 10 IQ points. These fluctuations can be expected on the basis of chance alone and have nothing whatsoever to do with any change, occurring as a result of an increased or decreased rate of intellectual growth. They simply reflect fluctuations to be expected as a

result of the limitations of the measuring instruments, the carelessness of the psychometrist, and fluctuations within the testee arising from fatigue, loss of motivation distractibility and other personal factors. It is also possible that mental growth, like physical growth, goes by spurts and stops.

NOTES

In addition, directional shifts in IQ may result from exposure to special environmental influences. Thus, since most IQ tests include vocabulary questions, one might raise his IQ if he were to be subjected to intensive vocabulary drill. Whether such directional shifts in IQ actually represent a shift in intelligence or just an invalidation of the norms of the test is a crucial question around which the whole controversy of the constancy of IQ revolves. To use an extreme example, coaching on the items of the test would certainly result in increased IQ but would not imply a corresponding increase in intelligence since we could hardly assume its applicability to a wide variety of situations calling for intelligent behaviour.

A significant study by Sontag (1958), on concomitant factors in IQ from infancy to 10 years, reports that twice as many boys as girls were among the top gainers in IQ while twice as many girls were in the group of greatest decline in mental growth rate. Emotional dependence upon the parents during the age from 3 to 6 was found to be detrimental to intellectual growth, many of the girls revealed what Sontag called 'slide into femineity', an adoption of the adult female role in which achievement is important only in the area of being more feminine and charming. In contrast, the child who learns to meet some of his needs through aggressive competitive problem-solving is apparently laying the ground-work for a high need for achievement which in turn, relates to an accelerated mental growth rate. The traits associated with gains in IQ included aggressiveness, self-initiation, competitiveness and interest in problem-solving, all of which are masculine traits. Of special significance is the growing belief that intellectual development can be promoted through early stimulation. The curve showed a sharp straight line increase in score from 10 to 16 years than an abrupt inflection and a slow, steady decline involving a recession by the age of 55.

These findings have been confirmed in later cross-sectional studies by Raven in 1948 and Wechsler in 1958. Psychologists are still busy in conducting studies to know the definite nature of the curve of the growth of intelligence.

The intelligence quotient (IQ) is one of the most common expressions used in mental testing which has been picked up and passed by all. The constancy of IQ is an important concept which must be used with caution. Some conclusions have been drawn by psychologists which are listed as follows:

1. A given IQ indicates the same relative ability at different ages.
2. A subject's IQ score, ignoring errors of measurements, remains the same from one age to all other unless there is a change in ability level.
3. A given change in IQ indicates the same amount of change in relative standing regardless of the ability level of the subject.

NOTES

8.3.1 Nature and Types of Intelligence Test

Intelligence tests are used to measure intelligence of an individual. It is important to note that intelligence is inferred from a variety of elements, i.e., behaviour and speed of doing things correctly, etc. An intelligence test is an objective and a standardized measure.

Intelligence is measured through a complicated process. It involves a comparison and establishment of a relationship between CA (Chronological Age) and MA (Mental Age). This relationship is expressed by the term IQ (Intelligence Quotient). When the mental age is divided by the chronological age and the quotient is multiplied by 100, the result is IQ.

$$IQ = \frac{MA}{CA} \times 100$$

When we want to calculate the mental age of a student, all questions assigned to that age are put to him. (In the individual scale of Binet a certain number of questions are assigned to that age). If he answers all the questions assigned to that age correctly, his mental age is equal to his chronological age and that child is considered to be an average one. Suppose you have to test a child of CA 8 on Binet scale. You will start with questions assigned to the sixth year and then go up. The child may be successful in answering correctly all the questions assigned to years 6, 7, 8 and may stop at 9. His mental age will be 8.

Intelligence is measured on the following factors:

1. **Vocabulary**—Choosing a synonym or antonym or near-synonym or near antonym.
2. **Verbal analogies**, e.g., Branch is to a tree as brook is to river.
3. **Sentence completion**, e.g., India has ……. states.
4. **Arithmetic reasoning**. Simple arithmetic sums.
5. **Number series**, e.g., What next? 11, 13, 15 (17, 19, 21).
6. **Picture arrangement**. Arranging pictures of a story in proper sequence.
7. **Comprehension**. For testing common sense, certain cards or paragraphs are given in which some absurdity is shown.
8. **Similarities**, e.g., In what way are cotton and silk alike?
9. **General information**. From everyday life.
10. **Digit span**. For testing memory, digits are orally mentioned and the subject is asked to repeat them in the same order.
11. **Digit-Symbol substitution**. A code is given and substitution is to be carried out.
12. **Figure analogies**

13. **Classification**, e.g., Which word on the right belongs to the group on the left?

    Pen, table, book, stone, pencil, radio

14. **Multimental**, e.g., Of some given figures which one does not belong to the other four.

NOTES

Classification of Intelligence Tests

These may be classified under three categories:

1. *Individual Tests*—These are administered to one individual at a time. The age group for this test ranges from two years to 18 years. The tests are: (a) Binet-Simon tests, (b) Revised tests by Terman, (c) Mental scholastic tests of Burt, and (d) Wechsler test.
2. *Group Tests*—Group tests are administered to a group of people. Group tests originated in America—when the intelligence of the recruits who joined the army in the First World War, was to be calculated. These are: (a) Army alpha and beta test, (b) Terman's group tests, (c) Otis self-administrative tests.

   Group tests are of two types (i) Verbal, and (ii) Non-verbal. Verbal tests require use of language to answer the test items. Non-verbal do not use language to respond to items.
3. *Performance Tests*—These tests are administered to illiterate persons. These tests generally involve the construction of certain patterns or solving problems in terms of concrete material. Some of the famous tests are: (a) Koh's block design test (b) Cube construction tests, and (c) Pass along tests.

8.3.2 Uses of Intelligence Tests

To quote Prof. Percy Nunn, 'You are forever you, and I forever I.' It has been amply demonstrated by many psychologists that all persons do not have the same intelligence and all cannot do same work with the same speed and efficiency. The assumption that given the same opportunities, all men will be equally successful, is based upon faulty foundations.

Intelligence tests are of great use in schools. To be a successful teacher, one must know one's pupils thoroughly and must possess an instrument with which one can measure the intelligence of pupils and should know the proper use of that instrument.

Binet's rod of mental measurement is an instrument for the teacher to find the exact calibre of the minds of his pupils. Intelligence tests help to discover whether a child is backward or dull or intelligent. It is not possible to gauge the intelligence of children without the use of mental tests. The children's intelligence cannot be estimated from the marks obtained by them in their school subjects.

NOTES

A child of 12 years and another of 14 years may be put on the same level if they obtain the same number of marks. But this is a defective method. Obviously, the child of 12 years is more intelligent than the child of 14 years in this illustration. Similarly, a child may be more industrious but comparatively dull and may score more marks than another child, who may in fact be more intelligent but less industrious.

Some important areas in which intelligence tests may be employed are given here.

I. **Selection of students to a school**: In good schools, there is always a rush for admission. All applicants, though eligible for admission, cannot be admitted. Intelligence tests help to meet out this difficulty.

II. **Classification of pupils**: Intelligence tests help us to make a sifting at the time of first admission to school at the age of four or five. Secondary education is the next stage where another check can be provided.

III. **Detection of superior and inferior intelligence**: Some pupils have superior intelligence than others. They move at different rates of performances and cannot be given instruction together. Many methods have been suggested to give instruction to the superior. While some favour complete segregation of the superior or more intelligent ones, others suggest that they should be taught along with the average and an enriched course of study should be prescribed for them. To quote Prof. R R Kumria, 'If on the other hand gems of purest ray serene are allowed to be unfathomable caves, the blame of this criminal neglect lies at the door of the parents and teachers who are making the future generation—they should pick and choose the vanguard and the rearguard of the nation. Tarring all with the same brush is not only a psychological absurdity but a political blunder.'

IV. **Selection of Courses:** Different subjects require different degrees of intelligence. Some call for a higher level of intelligence and the others of a low. A nation-wide study conducted in the United States gave Median IQ of the High School boys in different courses (Table 8.1).

Table 8.1 *Median IQ of the High School Boys*

Courses	***Median IQ***
Technical	114
Scientific	108
Academic	106
Commerce	104
Trade	92

Burt found the following correlation between:

Intelligence and composition	0.63
Intelligence and reading	0.56
Intelligence and arithmetic (Problems)	0.55
Intelligence and spelling	0.52
Intelligence and writing	0.21
Intelligence and hand work	0.18
Intelligence and drawing	0.15

NOTES

This means that children of high IQ are superior in the linguistic and abstract subjects—composition, reading, arithmetic and spelling.

V. **Selection of suitable occupations:** Burt drew up the following provisional scheme for occupational classification according to the degree of intelligence they require:

Higher professional and administrative work — (IQ 150). Lawyer, physician, architect, teacher (university and secondary).

Lower professional, technical and executive work — (IQ 130 to 150).

Clerical and highly skilled work — (IQ 115 to 130). Shorthand typist, bank clerk, salesman, electrician, nurse.

Skilled work — (IQ 100 to 115). Tailor, dressmaker, carpenter, cashier, printer.

Semi-skilled repetition work — (IQ 85 to 100). Barber, welder, minor, painter, baker.

Unskilled repetition work — (IQ 70 to 85). Manual labour, packer.

Casual labour — (IQ 50 to 70). Simplest routine work.

Institutional — (IQ under 50). Unemployable.

VI. **Award of scholarships:** Various public scholarships are awarded on the basis of the results secured through intelligence tests.

VII. **Determination of the optimum level of work:** The intelligence tests help to measure the student's capacity to succeed in his school work and enable the teachers to make an estimate of the mental level at which the student can be expected to work most efficiently in academic subjects. IQ is a rough index of the probable learning capacity of the various members of the class. With the aid of this test, the teacher finds it easy to adjust his methods in order to meet the needs of the individual.

VIII. **Assessment of teacher's work:** When the achievement of pupils in a subject does not correspond to the scores of their intelligence tests, it gives indication that the subject has not been taught properly by the teacher and understood by the student.

IX. **The discovery of unusual cases:** The lack of intelligence may be the main cause of abnormal behaviour. The intelligence tests, thus, help to find other cases of abnormal behaviour.

X. **Intelligence and success in college:** Gates and others were of the view that IQ of at least 120 is needed to do acceptable college work in a first college with an average expenditure of time and energy.

XI. **Help in Diagnosis of backwardness:** Ordinary scholastic examinations fail to discover 'educable abilities'. The failure of a child in the examination is no indication that he lacks intelligence. This failure may be due to defective

NOTES

methods of teaching or it may be due to some temperamental or physical obstacles which might have stood in the way of the child. There may not be any fault with the intelligence of the child, only it has not been allowed to work itself out.

XII. **Evaluation of methods and materials of instruction:** Intelligence tests are helpful in evaluating the results of the experiments conducted by a school in the relative importance of the different methods of instruction, i.e., achievement obtained with different textbooks or with a certain textbook as in comparison to extensive reading material obtained from not any one book but many.

Limitations of the Intelligence Tests

It would be a great mistake to think that these tests are without any limitations. Intelligence is not the only factor which determines the success of a man for the journey of his life.

The first limitation of such tests is that they seek to measure intelligence which in itself is not a clear conception to the psychologists and on which they differ among themselves

Secondly, intelligence is not the only factor which plays a significant role in the success or failure of a man in a particular vocation. The intelligence tests fail to measure the depth, strength and qualities of a man pertaining to his emotional stability. They also fail to measure his ethical, social and aesthetic qualities which play a significant part in the life of an individual.

Thirdly, intelligence tests fail to take into account the environmental factors and the educational factors many a time and thus give misleading results. These tests may include material with which children of certain socio-economic groups have had more experience than those of other groups.

Precautions to be Taken

While interpreting test results, the teacher, should take certain precautions, namely:

1. General intelligence test, especially the group test, measures ability to work with abstract ideas and their relationships. This is just one type of ability. Thus, a child who scores low on this test can do well or very well on other practical activities. Children with low intelligence level should, therefore, be encouraged to develop and strengthen their special practical skills.
2. Verbal group test of intelligence is sufficiently dependent upon reading. So, a low test score should be interpreted very carefully for a poor reader. Such a child should be tested on an individual test, as well as on a non-verbal test.
3. Test results for socially disadvantaged children should be interpreted with caution.

4. The test interpreter should always keep in mind the standard error of measurement and take this into account while interpreting the test result.
5. Intelligence tests do not take in to consideration interests, attitudes and motives.

NOTES

Check Your Progress

3. What is the use of intelligence tests?
4. What are the two types of group tests?

8.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. In general terms, intelligence means the manner with which an individual deals with facts and situations.
2. E.L. Thorndike has classified intelligence into three categories which are as follows:
   - Concrete intelligence
   - Abstract intelligence
   - Social intelligence
3. Intelligence tests are used to measure intelligence of an individual.
4. Group tests are of two types (i) Verbal, and (ii) Non-verbal. Verbal tests require use of language to answer the test items. Non-verbal do not use language to respond to items.

8.5 SUMMARY

- 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.'
- Concrete intelligence means intelligence in relation to concrete materials.
- Abstract intelligence is required in the ordinary academic subjects in schools, such as reading, writing and history and so on.
- Social intelligence means ability of an individual to react to social situations of daily life.
- In 1904, Spearman, an English psychologist produced strong evidence based on his own researches that there was one fundamental ability underlying all cognitive functions.

NOTES

- According to him, every task involving intellectual activity depended upon a general ability or 'g' factor and a separate ability or 'specific' factor.
- L L Thurstone, an American psychologist, propounded the group factor theory of intelligence.
- According to him, intellectual activity is neither an expression of numerous highly specific factors as claimed by Thorndike, nor the expression primarily of a general factor which prevails in all mental tasks as Spearman believed.
- According to monarchic attitude, intelligence is regarded as an adaptability which enables a creature to adjust itself to the changing environment.
- The constancy of IQ has received a great deal of attention from educational psychologists because of its usefulness in modern education.
- Intelligence tests are used to measure intelligence of an individual. It is important to note that intelligence is inferred from a variety of elements, i.e., behaviour and speed of doing things correctly, etc.

8.6 KEY WORDS

- **Concrete intelligence:** Concrete intelligence means intelligence in relation to concrete materials. It is the ability of an individual to comprehend actual situations and react to them adequately.
- **Abstract intelligence:** It is the ability to respond to words, numbers and letters, etc. All tests of intelligence which require manipulation of symbols are tests of abstract intelligence.
- **Social intelligence:** Social intelligence means ability of an individual to react to social situations of daily life.

8.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions

1. Give a brief historical review of intelligence.
2. Differentiate between concrete intelligence and social intelligence.
3. Mention the seven factors that were proposed by Thurstone.
4. Write a short note on unitary theory.
5. Identify the various types of intelligence tests?
6. What are the uses of intelligence tests?

Long Answer Question

1. Discuss the evolution of definition of intelligence.
2. Describe the three types of intelligence.
3. Explain Spearman's two-factor theory.
4. 'The intelligence quotient (IQ) is one of the most common expressions used in mental testing which has been picked up and passed by all.' Discuss.
5. Describe the nature of intelligence test.

NOTES

8.8 FURTHER READINGS

Colman, Andrew. 2016. *What is Psychology?* United Kingdom: Routledge.

Eysenck, W. Michael. 1994. *Perspectives on Psychology*. United Kingdom: Psychology Press.

Carr, Alan. 2012. *Clinical Psychology: An Introduction*. United Kingdom: Routledge.

Nevid, S. Jeffrey. 2012. *Psychology: Concepts and Applications.* United States: Cengage Learning.

Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. United Kingdom: Psychology Press.

UNIT 9 PERSONALITY

NOTES

Structure

9.0 INTRODUCTION

The term 'personality' is used by a large number of people to identify the most visible trait of an individual, or attract attention to an individual's social skills. Personalities generally interest psychologists for (i) explaining the reason for people with matching heredities, experiences and motivation to exhibit dissimilar reactions, when in the same circumstances (ii) explaining the reason for people with different heredities, past experiences and/or motivation to exhibit similar reactions in the same situation.

This unit provides a discussion on personality and its theories, mental health and hygiene.

9.1 OBJECTIVES

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

- Explain the determinants of personality
- Discuss the various theories of personality
- Critically analyse the trait theory of personality
- Describe some common characteristics of projective and non-projective techniques

9.2 MEANING OF PERSONALITY

NOTES

There appears to be little unanimity among psychologists on the exact meaning of personality. It is interesting to note that in 1937, G W Allport in his book, *Personality: A Psychological Interpretation,* mentioned fifty-three definitions of personality. Many more definitions were incorporated later. This divergence of views clearly demonstrates the importance of the subject.

At the outset, it must be pointed out that personality should not be equated with character. While, character denotes something ethical and moral and refers to the standards of right and wrong, personality is not just the outward appearance and behaviour of a person. It is the totality of everything about a person—his emotional, mental, social and spiritual make-up. In fact, it also includes ethical and physical make-up of an individual. Thus, character is just one aspect of personality.

The term 'personality' is derived from the Latin word *Persona,* which means the mask worn by the Roman actors. In this sense, personality means the individual as seen by others. The term personality is used in so many different ways, that a detailed discussion is neither possible nor desirable in the present context. However, some of the important definitions given below may throw light on the meaning of the term 'personality'.

1. According to G W Allport (1937), 'Personality is the dynamic organization within the individual of those psycho-physical systems that determine his unique adjustment to the environment.'
2. Holly E Brisbane and Andrey Palm Riker (1965) observed, 'Personality is the sum total of *specific traits* (such as shyness or cheerfulness) that are noticeably *consistent* in an individual's behaviour.'
3. W Brown (1946) was of the view, 'Personality is the total differentiation which the individual makes by incorporating the inherited and acquired powers to stimulate and to activate the imagination of others in art, science and public affairs and also to live in and partake of a super-individual and *super temporal* world of values.'
4. In the words of R B Cattel (1967), 'Personality is that which permits a prediction of what a person will do in a given situation.'
5. According to L J Cronbach (1963), 'Character is not really accumulation of separate habits and ideas. Character is embedded in the total structure of personality.'
6. J F Dashiell (1929) described an individual's personality, 'As his system of reactions and reaction-possibilities in total as viewed by fellow members of society. It is the sum total of behaviour trends manifested in his social adjustments.'

NOTES

7. H J Eysenck viewed personality 'As a stable and enduring combination of a person's various physical and mental aspects.'
8. Fredenburgh stated, 'Personality is a stable system of complex characteristics by which the life pattern of the individual may be identified.'
9. R G Gordon considered 'Personality as a comprehensive term which includes character also.'
10. According to J P Guilford (1967), 'An individual's personality then, is his unique pattern of traits—a trait is any distinguishable, relatively enduring way in which one individual differs from another.'

Evaluation of the Definitions of Personality

As observed by Murphy (1947), 'We do not believe that anyone today can seriously say that he knows what personality is.' The present situation also seems be very unclear, although no topic in the field of psychology is more fascinating than personality. Though a lot has been written and discussed on the topic, we are unable to say clearly what personality is.

Some psychologists define personality in terms of the impressions one makes on others. In selecting candidates for admissions, courses and jobs, the selecting panels or recruiters often take into account the above-mentioned approach. This approach, however, does not take into account the inner aspects of personality.

Some definitions like that of Morton Prince emphasized only the biological characteristics and ignored the interaction between biological, cultural and social environment.

Allport's definition was generally considered comprehensive and clear as it stressed on the characteristics of personality, such as (i) Dynamic nature, (ii) Heredity and environment, (iii) Wholeness.

The explanation of personality by H A Murray and C Kluchohn in their book, *Outline of a Conception of Personality* (1948), also seemed clear and more comprehensive. They stated, 'Personality is the continuity of functional forces and forms manifested through sequences of organized regnant processes in the brain from birth to death.'

According to them the functions of personality are as follows:

1. To allow for the periodic regeneration of energies by sleep;
2. To exercise its processes;
3. To express its feelings and valuation;
4. To reduce successive need of tensions;
5. To design social programmes for the attainment of distant goals;
6. To reduce conflicts between needs by following schedules which result in a harmonious way of life;

7. To rid itself of tensions by restricting the number and lowering the number of goals to be attained; and
8. Finally, to reduce conflicts between personal dispositions and social sanctions, between the vagaries of antisocial impulses and the dictates of the super ego by successive compromise formations, the trend of which is towards a whole-hearted emotional identification with both the conservative and creative forces of society.

They further observed that 'understanding a personality requires following its development through time, study of the processes of differentiation and integration, knowledge of the personality's endowments.'

Just as a building is more than bricks, cement and wood, similarly, personality is more than basic elements or parts. Personality is formed because of the special relationship among its parts. Personality has an integrated structure. Any change in one part of the structure, influences other parts.

9.2.1 Determinants of Personality

The factors which determine a personality can be personal, family or environmental.

1. **Personal Factors:** These include: (i) Physical structure of the individual, (ii) Emotional reactions, (iii) Aspirations, (iv) Aptitudes, (v) Attitudes, (vi) Interests, (viii) Motivation and intellectual level—thinking, contemplation, reasoning, etc.
2. **Family Factors:** These are: (i) Discipline of self and others, (ii) Number of children, (iii) Value placed on the gender of the child, (iv) Nuclear or joint family, (v) Accommodation in the house, (vii) Parents' ambitions and interests, (viii) Economic, political, religious and social status of the family.
3. **Environmental Factors:** Environment of an individual include his neighbourhood, community, peer groups, etc., among others. These can be cultural environment, political environment, religious environment, social environment, environment created by the media and school environment. The school environment further includes: (i) Curriculum, (ii) Technology of teaching, (iii) Co-curricular activities, (iv) Discipline — constructive, creative, social discipline, (v) Teachers' personality, (vi) General approach of the school, and (vii) Physical environment.

9.2.2 Theories of Personality

Let us now go through the important theories of personality

Type theory and Trait theory

It has been the nature of people, from ancient times, to name and classify objects of the environment and human beings into different categories called types. The old system of typology still continues and in modern times. Greek physicians were the first in 5 BC, who classified people four broad categories on the basis of

NOTES

emotional and temperamental characteristics. One of Aristotle's pupils theorized that human body consists of four fluids. The personality of an individual is typed by the dominance of one of them in the body. The four types of fluids are as follows:

S.No.	Humour	Temperament	Characteristics
1.	Blood	Sanguine	Active, hopeful
2.	Yellow bile	Choleric	Irritability, quick to anger
3.	Phlegm (Mucus)	Phlegmatic	Calm, temperamentally sluggish
4.	Black bile	Melancholic	Depressed, slow and pessimistic

If we study our own scriptures we find in that ancient India there existed an advanced system of Ayurveda, in which our ancient physicians broadly categorized all human beings on the basis of three elements in the body. The predominance of one of the three decided the category of the person. It appears that this system of Hippocrates and Indian physicians were, more or less, similar. The three elements, which the Indian physicians theorized are *pitt* (bile), *bat* (wind) and *kuf* (mucus).

A number of typologies have been attempted for constitutional, temperamental and behavioural types of persons by philosophers and psychologists in the ancient and current literature.

Constitutional type

Ernest Kretschmer, a German psychiatrist, classified human beings on the basis of physical constitution. He attempted to establish relationship between personality characteristics and body built.

Somato type

William H. Sheldon, an American surgeon, divided all human beings into three broad categories of physical dimensions and their corresponding temperamental characteristics. He believed that physical structure of the body is the determinant of personality characteristics.

Spranger's type

E. Spranger, German philosopher, divided human beings, on the basis of interest, in the following categories:

(a) *Theoretical:* Persons who are theoretical in nature neglect social and political participation

(b) *Economic:* Persons who are interested in money-hoarding

(c) *Aesthetic:* Persons who are lovers of beauty and are busy in sensuous gratification

(d) *Social:* Persons who are interested in social activities

(e) *Political:* Dominating and desirous of power

(f) *Religious:* Persons who devote themselves to religious activities and mysticism

Jung's Typology

Jung, a Swiss psychiatrist, attempted to classify human beings on two behavioural dimensions: extrovert and introvert. His typology is widely known and is most influential among professional workers. The major characteristics of two types are as follows:

NOTES

1. **Introvert:** Defined as a person who tends to withdraw into himself, especially, when facing emotional conflicts and stress in the environment. An introvert individual is shy, avoids people and enjoys being alone. Scientists and philosophers may be termed as introverts.
2. **Extrovert:** In contrast to the introvert type, an extrovert person's orientation is towards the external world. He deals with people intelligently in social situations. He is conventional, outgoing, social, friendly and free from worries. Social workers, politicians, business executives may be typed as extroverts. These two broad categories have been further classified on the basis of rational and irrational processes.

Jung's system of classification of human beings is eight-fold and not two-fold as is popularly known. A person, according to Jung, may be extrovert for one function, for example, feeling and the same person may be introvert in intuition. All persons can be divided into eight types, based on the dominance of one of the above factors. Modern writers have introduced ambivert, another type in between two extreme poles of extroversion and introversion. Ambivert refers to those persons who can be classified as neither extroverts nor introverts.

Freud's typology

Freud, on the basis of his theory of psycho-sexual development, identified three types of personality. The type depends on the fixation of sexual energy at a particular stage of sex development. The three types are as follows:

1. *Oral-erotic type:* According to Freud, sex in infancy is located within a month of birth. There is a membrane in the mouth which, when irritated gives pleasure to the infant. Sexual gratification at this stage involves activities related to mouth. Oral-erotic type of personality shows excessive degree of pleasures associated with oral activity. Sucking, biting or putting anything in the mouth gratifies sex in infancy. Fixation at the oral stage results in two types of personality in later life.
   (i) Oral passive type: This type of person is dependent, optimistic and immature in his/her thinking and other activities like a child. He/she expects help from other people.
   (ii) Oral sadistic type: This type of person is pessimistic. He/she is suspicious and aggressive. He/she is often bitter in his/her dealings with others.

NOTES

2. *The anal type:* The second stage of sex development is anal, when the child obtains gratifications through anal activities. These activities generally relate to the expulsion of fecal material through the anus or the retention of these materials in response to the social demands of toilet training. Some traits of personality develop due to fixation of sex energy at this stages include obstinacy, miserliness, orderliness, etc., in later life.
3. *The phallic type:* The third stage of psycho-sexual development is phallic. This type of person shows self-love and exhibitionism. He tries to draw the attention of others. These characteristics are found in early adolescence.

Evaluation of the type approach

Classification of human beings into types has been generally criticized by psychologists on the basis that typologies tend to place emphasis upon one or another phase of development. They deal with extreme rather than mediocrity of human nature. It is very difficult to categorize individuals under one of the types as proposed by some typologists. Two or three types are wholly inadequate to describe human varieties of behaviour into a few limited categories. The second criticism of typology is that types are discontinuous and non-scalable. There is multiplicity of type theories, which are very difficult to apply in practice.

Criticism does not mean that typology is useless. Typology has its historical value in the sense that it was the first attempt to typify people, which generated a great deal of research. The second important contribution of typology is that it attempts to assess the personality of an individual as a whole. It does not study personality in fragments of traits. The type approach is very useful for psychologists who attempt to comprehend the personality of an individual as a whole.

The third advantage of typology is that types are useful and valuable from the point of view of experiments in physical science, where attention to certain process in a relatively pure form is uncontaminated by accidental and confusing factors. Lastly, we can say that they serve one very important function as reference points or guides for the examination of dimensions of personality by different psychologists.

Trait theory

Typology and trait approaches are interrelated to each other in the sense that typology includes a wide variety of traits in classifying human beings in broad types while in trait approach we label or call a person by a specific mode of behaviour, which he shows in a variety of circumstances.

In modern psychology, the type approach is not so widely used as the trait approach to understand the development of personality. In our daily life, we label traits as honest aggressive, fearful, dependent, lazy, dull, etc. In the simplest sense, by trait we mean a mode of behaviour manifested in number of life situations consistently. It is any distinguishable, relatively enduring way in which one individual

varies from other. Trait may be defined, 'as a property within the individual that accounts for his unique but relatively stable reactions to the environment.'

Walter Mischel, in his book, *Introduction to Personality*, states, 'trait is a continuous dimension on which individual differences may be arranged quantitatively in terms of the amount of the characteristics, the individual has.'

NOTES

Let us now explain the process of development of trait. Trait in daily life, first, is used simply as an adjective, for instance, 'Ram behaves in a lazy way in several situations'. The description is generalized from individual behaviour to the individual (Ram), we say that he (Ram) is lazy. Laziness becomes a trait of Ram's personality, a characteristic mode of his behaviour.

Development of friendliness

Stimuli	Trait	Responses
1. Meeting friends	Friendliness	1. Helpful
2. Meeting with strangers		2. Pleasant
3. Dealing with poor, disabled children		3. Warm and interested

Some properties of traits

- **Scalability**: Traits are scalable. They can be measured and scaled quantitatively.
- **Inference from behaviour:** Personality traits are not directly observable but are manifested in a number of activities and verbal expression. We infer a trait from the behaviour of the individual.
- **Flexibility:** Traits are not static in nature. Traits are flexible in childhood. They become stable with the maturity of the person with age but some variability is always present.
- **Universality:** There are certain traits, which are universal in nature like height and weight.
- **Functional unity:** The trait must have functional utility. It means that there must be different indications, which may vary or are manifested consistently in the behaviour of the individual.
- **Traits are higher order habits:** Guthrie conceived that a trait is a higher order habit, which recurs in behaviour frequently.
- **Traits are mental sets:** Some psychologists define traits as a mental set. It is a readiness to respond to any variety of situations in a consistent way. Cason stated that there is a generalized tendency in some people to be annoyed easily.
- **Traits are frame of reference:** The personality of an individual is an organized whole of beliefs, emotions, etc., about the environment. In this reference, traits are organized frames of references.

NOTES

- **Traits are learned:** Traits are learned during interaction with the environmental stimuli. They are biologically determined as neuroticism and other traits, which depend on the disposition and intellectual potentialities of the individual.

G.W. Allport's Classification

G.W. Allport is one of the most outstanding trait psychologists. His conception and research on trait approach to personality has had an immense influence on psychologists. He has conceived that traits have a real and vital existence. He defined a trait, 'as a generalized and focalized neuropsychic system with the capacity to render many stimuli functionally equivalent and to imitate and guide consistent forms of adaptive and expressive behaviour.'

The definition given by Allport is a comprehensive one. It emphasizes that traits are not linked with a small number of stimuli but are general and enduring in nature. He classified all human traits into three broad categories as follows:

(i) **Cardinal traits:** Traits that appear the most in the behaviour of an organism are called cardinal. It may be illustrated with the example of achievement in life. Some people are so devoted to achievement that this trait pervades their entire life.

(ii). **Central traits:** Central traits are less pervasive than cardinal traits but are generalized dispositions.

(iii) **Secondary dispositions:** Secondary dispositions are specific and narrow traits. They are also known as attitudes.

According to Allport, traits differ in intensity and magnitude in general population from individual to individual. No two individuals are alike in their behaviour. People operate in their unique way in the environment. Each individual in unique in his adjustment.

R.B. Cattell's Classification

Raymond B. Cattell is another ardent propounder of trait theory of personality. The basic structural element for him is the trait. He stated that a trait is the structure of personality inferred from behaviour in different situations. He classified traits into four categories:

(i) Common traits: There are certain traits, which are widely distributed in general population or among all groups. They are known as common traits. Generally, aggression and cooperation can considered common traits.

(ii) Unique traits: These traits are possessed by particular persons like temperamental traits, emotional reactions, etc.

(iii) Surface traits: Traits that can be easily recognized by overt manifestation of behaviour are called surface traits, such as, curiosity, integrity, honesty, tactfulness and dependability.

NOTES

(iv) Source traits: Source traits are the underlying structure of sources that determine behaviour. Dominance and emotionality are source traits. Cattell, through the factor analytic approach, determined the contribution of hereditary and learning factors in the development of traits in the individual. He emphasized on the importance of interaction between hereditary and environmental influences in personality development.

H.J. Eysench's Classification

H.J. Eysenck, a British psychologist, devoted much of his research studies to explore the trait dimensions. He conducted extensive research on trait dimensions by applying quantitative techniques of factor analysis.

He conducted research on ten thousand soldiers and by statistical analysis isolated two dimensions in personality:

(i) Introversion and extroversion

(ii) Neuroticism

Later on, he isolated another personality dimension as psychoticism. According to Eysenck, psychoticism is an independent dimension of personality. It is quite different from the introversion-extroversion, dimension.

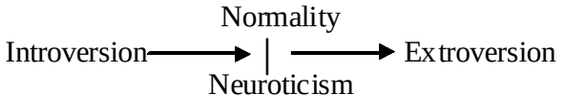
Eysenck has found three fundamental dimensions of personality.

(i) Introversion vs extroversion

(ii) Normality vs neuroticism

(iii) Psychoticism

The first two dimensions given above may be taken as the part of normal personality. Their relationship is presented as follows:



Eysenck developed personality inventory to test the traits of personality. His findings have generated research activities by several psychologists. His most important contribution is that he tried to prove that personality is genetically caused. He traced neuroticism to the autonomic nervous system and introversion-extroversion to central nervous system. He emphasized the importance of heredity in the development of traits of personality as against the concept of American psychologists who are biased in favour of environment.

Common features of trait theories

Though trait theories disagree with the specific content and structure of the traits needed to describe personality, there is still agreement on the general concept of traits:

NOTES

- **Consistency of traits:** All theories agree that traits are consistent in an individual's behaviour. They are not temporary dispositions but enduring characteristics of the individual.
- **Trait dimensions:** There is agreement as regards the various dimensions of traits as source traits and surface traits, common and unique, broad and narrow. Traits vary in breadth and generality.
- **Traits are dispositions:** Traits fluctuate or change in a person's position with respect to a disposition. All psychologists are committed in their search of broad and stable traits.

Criticism of trait theory

The trait theory of personality has often been criticized by many psychologists in recent years. The main points of criticism are as follows:

- There is no agreement among psychologists concerning the use of the terms.
- There is a view that a trait is a behavioural disposition, which is consistent and does not vary from situation to situation. In daily observation, we find that if a man possesses friendliness as a trait, he does not behave in a friendly manner in all the situations of life. Trait is not a permanent or a static characteristic of the individual because personality does undergo change.
- Another difficulty is the quantification of human traits as there is no zero reference and equality of units in trait measurement. There is no suitable measuring tool of trait dimensions. Generally, traits are measured with the help of paper-pencil tests, which can be manipulated by the subject by giving fake information.
- 'Halo effect' operates when a person rates an individual very high on a specific trait. He may rate the same person on other traits equally high.
- The behaviour of an individual cannot be predicted on the basis of scores on trait inventory. Traits are the only point of references. An examination of the personality traits of an individual enables us to make only probability statements about what the individual may do.
- The last criticism against trait theory is that it is still unclear whether a trait is viewed as an inner process that causes difference among individuals or is it the situation that brings into play certain organizational tendencies, which create the behaviour.

9.2.3 Development Theory

According to Allport, personality development is related to the concept of self or propium. It includes all the aspects of personality that make for internal unity. The propium develops through conditioning, reinforcement, habits and other aspects of learning. Allport outlines the following stages of the development of propium or self or personality:

NOTES

1. *Bodily self* (*Birth to first year*): During infancy sensations provide the anchor. It is the feelings or awareness of body. It is confined to one's own body.
2. *Self-identity:* After about 18 months the child is capable of recognising himself/herself as a distinct 'person' and not merely a 'body'. He is aware of his likes and dislikes and his relationship with others in the immediate surroundings. The continuity of experience is made possible through the development of language.
3. *Self-esteem* (*2–3 years*): From second through third year of life emerges a sense of autonomy. The child is no more dependent on parents and experiences pleasure (pride) over his accomplishments and humiliation over his failure. He also develops negativism, *i.e.*, refusal to obey or receive orders from others. This results in the development of self-esteem.
4. *Self-extension* (*4–6 years*): The child meets people and develops new interests and habits and develops self-image. He develops conscience. He learns to confirm to the expectations of others. The child develops good and naughty selves. He is sensitive to praise and blame.
5. *Self as rational coper* (*6–12 years*): The individual develops reasoning power and uses problem-solving approach. Allport calls this rational coper.
6. *Propriate strivings* (*12 years–Adolescence*)*:* As the child reaches adolescence, he is able to distinguish between peripheral and propriate motives. Peripheral motives include impulses, drives and striving for immediate gratification of needs. Fulfilment of peripheral motives reduces tension. Propriate motives are our efforts to increase tension rather than to reduce it. The individual strives for important goals in life. The conversion of peripheral motives to propriate motives is called 'Functional Autonomy'.
7. *Self as knower*: It includes all the previous aspects of the propium.

According to Allport, traits differ in intensity and magnitude in general population from individual to individual. No two individuals are alike in their behaviour. They operate in their unique way in the environment. Each individual is unique in his adjustment.

9.2.4 Integrated Personality

Personality is the synthetic unity of all personal traits. All the mental traits—intelligence, emotions and sentiments, impulses, volitions, native and acquired reactions, must be organized and integrated into a unity. The uniting of all mental traits into per-sonality is called integration.

Complete integration is the ideal of personality. A sound personality comprises reaction tendencies that are not loosely organized but closely related to integrated.

They are gradually reorganized and reconstructed according to more dominant interests and ideals. Although gradually changing during long periods of time, the

personality usually possesses a continuity of pattern which the person himself and others recognize. In every person there is the primary or dominant self, which is his innermost characteristic self.

NOTES

Check Your Progress

1. What do you understand by the term personality?
2. Define the term ambivert.

9.3 ASSESSMENT OF PERSONALITY

Let us now go through the various personality assessment techniques:

9.3.1 Projective Techniques and Dream Analysis

Projective methods are those in which we provide the subject with relatively indefinite and unstructured material and then allow him to structure the material in the way he likes. The subject is able to project his feelings, attitudes, etc. In doing so, he unconsciously expresses himself and reveals traits of his personality. Examples of such materials through which the subject reveals himself are: making a story, ink blots, drawing a picture, etc.

The method is designed to penetrate somewhat below the peripheral personality and to disclose latent needs, images, and sentiments, which the subject would be otherwise unwilling or unable to disclose in direct communication.

Typically, projective instruments also represent *disguised* testing procedures in so far as the subject is rarely aware of the type of psychological interpretation which will be made of his response. Projective techniques are likewise characterized by a global approach to the appraisal of personality. Attention is focused upon a composite picture of the whole personality rather than upon the measurement of separate traits.

According to Anne Anastasi, 'It is expected that the test material of the projective techniques will serve as a sort of screen upon which the subject projects his characteristic ideas, attitudes, aspirations, fears, worries, aggressions and the like.'

'The label projective techniques has been applied to settings or materials designed to give a person a chance to reveal his thoughts and feelings while seemingly responding to something in the external environment,' wrote Gates and others.

Ruth Strang observed, 'Projective techniques are a method of understanding the inner world of the individual.'

Rapport described the aim of projective techniques as, 'to elicit, to render observable, to record, and to communicate the psychological structure of the subject, as inherent to him at any given moment and without study of historical

antecedents.' An individual, it is recognized, reveals or 'projects' his personality in a free and unrestricted activity.

Murray wrote, 'The purpose of this procedure is to stimulate literary creativity and thereby evoke fantasies that reveal covert and unconscious complexes. The test is based on the well-recognized fact that when a person interprets an ambiguous social situation, he is apt to expose his own personality as much as the phenomenon to which he is attending.'

NOTES

L K Frank was the first person to use the term 'Projective Technique' in an article that appeared in 1939 though such methods had been in use for many years prior to that date.

Projective techniques are very useful with young children, illiterates and persons with language handicaps or speech defects. Non-verbal media is readily applicable to all these groups.

Common Characteristics of Projective Techniques

The projective techniques have the following common characteristics:

The stimulus material is ambiguous and weakly structured and the subject is expected to provide meaning, significance, organization or in some other way leave the impression of his personality on the situation. An attempt is made to explore the psychological reality or the underlying basic personality features of the individual such as his hopes, aspirations, needs, motives, moods, attitudes, conflicts, complexes, fears, etc.

Projective techniques tap the implicit or unconscious aspects of the personality. They require sophistication in administration and interpretation.

Kinds of Projective Techniques

Some of the projective tests are standardized and are widely used. They include Rorschach's Ink Blot Test, Thematic Apperception Test and various other picture tests like Children's Apperception Test, and Blocky Pictures, the Michigan Picture Test, Rosenzweig Picture-Frustration Study, etc. Out of these Rorschach's Ink Blot and Thematic Apperception Test (TAT) are very popular and widely used.

1. Free Association and Dream Analysis

Freud used this method to find out about the repressed unconscious desires, emotions and feelings of individual men and women. It has been recognized by many psychologists that daydreams, especially dreams, are rather difficult to interpret but they do not just happen. They have their roots in the person's private world.

According to this method, the psychologist develops a rapport with the subject and then the subject is asked to take a comfortable position reclining on a sofa, and is encouraged to talk about his troubles freely with a black cloth tied over his eyes. The psychologist or the psychoanalyst records his responses and

interprets them. After many such sittings, it becomes possible for him to have a clue of the individual's personality.

2. Incomplete Sentence Technique

NOTES

This method is very simple. Some incomplete sentences are presented to the child who completes them in any way he likes. Based on the responses given by the child, the counsellor records observations, and thereby indicates healthy, conflicting, positive or negative attitudes. Stimulus in the form of the following words may be presented to the child.

A baby The world My home My father Money My best friend

The child may complete the following sentences in this manner:

- A baby is very lovely.
- The world is full of cruel people.
- My home is the sweetest place to live in.
- My father sometimes becomes cruel to me.
- Money is everything in life.
- My best friend is very poor.

By going through these sentences the psychologist may get some clue of the repressed wishes of the child.

3. Original Drawing and Paintings

Original drawings and paintings of children give an idea of the personality of a child. The theme or subject he chooses, the colours he uses, the masses and the open spaces that the paintings contain, the length, direction, curvature of the lines — all give an indication of the various traits of personality of the child.

4. Play Situation

The child is given many dolls to play with and observation is made based on his reactions. These dolls represent a father, a mother, a boy and a girl. These dolls provide the medium through which the child might act out or reveal his thoughts, impulses and feelings about himself and others. Situation should be such so that the child is able to give a free play to his ideas at the unconscious level. Controlled play techniques are also used, at times.

In a free play, a boy who happens to be jealous of his sister, might assign the role of the sister to the baby doll and get it punished by the father doll or mother doll, or shut the baby doll in a far corner of the room. This would indicate that the girl is preferred to him in his family.

A large variety of material may be used in play situations.

5. Rorschach's Ink Blot Tests

NOTES

Rorschach was a Swiss psychologist who experimented with the use of ink blots as a means of diagnosing mental disorders in1921. Perceptual approach was the basis of this test. The perception of an individual was influenced by the emotional and social make-up when he was asked to perceive a figure which was not well defined.

Rorschach experienced for years together with thousands of ink blots and ultimately selected ten ink blots which proved to have the greatest diagnostic value. There are ten ink blots, five in black and white, two with splashes of red and three in other colours. These are printed on 7 × 9½ inch cards.

Each card is given to the subject, who in turn is asked what he sees in the ink blots, what that means to him and what that might be. The counsellor notes whatever the subject says. The counsellor then shows the card a second time and through well-worded questions he elicits answers. The success of the counsellor depends to a great extent upon his skill in asking questions that will clarify the free responses. Special techniques have been developed for recording the responses of the subject.

This technique has the following uses:

(a) It helps to distinguish between normal persons and those in need of psychiatric treatment.

(b) It helps to show the potential intelligence of an individual.

(c) It helps to predict and plan for academic success and adjustment in college.

This may prove to be helpful in indicating personality traits, significant for vocational success.

6. Story-telling and Story Completion

An incomplete story may be told to the child and he may be asked to complete it. While completing the story, the child may reveal some of his feelings and desires. This can also give an indication to show how imaginative the child is. The situation selected should be such that it touches the emotional life of the child whose personality is to be assessed. For instance, the child is asked to relate a story about an innocent child who was beaten by his father. The child is likely to depict his innermost feelings, wishes and thoughts while he narrates the story.

Take another case when a child is told about the beginning of a story in which the Father is ready to take the children to an exhibition. All of a sudden, some guests come in. The child may be then asked to complete the story. As the child finishes the story, the psychologist comes to know the personality traits of the child.

This method is usually employed in the case of delinquent children.

NOTES

9.3.2 Non-Projective Techniques

The oldest method to assess personality was astrology. It was developed 2500 years ago in Mesopotamia, but the author holds the view that astrology was developed in India by ancient saints. According to astrology, it is believed that human fate and actions are controlled by stars. The personality of an individual and the cause of every event in his life are determined by the configuration of the stars at the time of his birth. The personality assessment of an individual is accomplished by noting the movements of planets at the time of birth and then by calculating the appropriate predictive information about his future life.

In modern scientific age, the extensive knowledge of the physical world gathered by man through scientific revolution has done much to reduce serious interest in astrology. The reliability of its prediction is being questioned by a number of people but it still remains popular with many in India and other countries.

It is believed that there had been a full-fledged system of astrology in ancient India developed by old *rishis* but the system received death blow from foreign invaders who destroyed the ancient literature on astrology.

In western countries some observations have been made which support for the proposition that the season of birth has some influence on later behaviour of the child. Orme (1965) studied season of birth and intelligence and concluded on the basis of his data that persons born in summer have slightly higher intelligence than those born in winter. The most reasonable explanation of this seems to be that extreme heat of summer may adversely affect the developing foetus, resulting in a lower level of cerebral functioning later in life for those infants carried through the summer months and born in winter.

In the opinion of the author, astrology is a full-fledged science which needs research to establish its claim. There are numerous instances in which astrologers have predicted accurately about the events of future. A research centre should be established to conduct research on astrology to prove or reject it as a science.

Then there are other pseudo-scientific methods such as palmistry, physiognomy and phrenology which have been used to assess personalities of people by reading the lines of the palm, facial contours and structure of the skull of the individual, but the reliability coefficient of these methods has been very low. Now these methods have been discarded and more scientific techniques have been evolved by psychologists for personality assessment.

(1) The Interview

Interview represents a mixed bag as an assessment technique, since there are many types of interview which are used for varied purposes. Maccoby (1954) defined interview as: 'The interview is a face to face verbal interchange, in which one person, the interviewer attempts to elicit information on expression of opinion or beliefs from another person or persons.' Generally most of the selections for different posts and admissions in various courses are made on the basis of interview.

NOTES

It is one of the most simple and widely used techniques of personality assessment. Our opinion regarding one's personality is formed on the impression of the performance he makes in an interview. An addition to academic record in the selection of candidates for jobs admission, we assign weightage to the performance in interview. It is the cheapest means of evaluating one's personality.

(2) Situational Tests or Behavioural Tests

Situational tests are very recent development in personality testing. In situational tests, the behaviour of the individual is evaluated in action. Sometimes confront him with situations of his life. The individual's behaviour is assessed by judges or rated by his peers. Situational tests can use the following techniques:

(*a*) *Sociometric methods:* This method of assessing personality was developed by J.L. Moreno in 1946. He defined this method as a technique for revealing and evaluating the social structure of a group through the measurement of the frequency of acceptance-rejection among the individuals who constitute the group. This method permits the analysis of each person's position and status within a group in respect to a particular trait of personality. It also reveals the structure of a group. This is a simple method. It requires that each individual in a group chooses one or more other persons in that group for a specified purpose. It will be made clear by an illustration from the classroom situation. The following questions may be asked to assess the structure of the class as a group:

(*i*) With whom do you want to sit in the class?

(*ii*) Name two students, with whom you would like to go on picnic.

(*iii*) Name two persons, with whom you would like to live in the hostel.

Sociometric tests can be devised for a number of purposes and social situations.

(*b*) *Psychodrama*: Psychodrama is a very useful technique used in assessing personality. As the word psychodrama means, the individual has to play a role spontaneously in a specified situation. His behaviour is observed by trained observers. The psychodrama is generally played between two or more persons depending upon the nature of their problems. It is assumed that individuals project their inner feelings and conflicts in the role they play. The central principle of psychodrama is spontaneity of role of the individual. This technique is used to assess the personality of maladjusted person. The director or the therapist plays an important role in organizing situations in which the participants may express the maximum of their emotional pent-up feelings. He selects the appropriate situation, assigns roles to individual participants, and observes and interprets the action of the individuals.

(*c*) *Situational tests in military:* Generally in selection for military services, situational tests are used to assess the potential personality characteristics of officers in army, navy and airforce.

NOTES

Various types of tasks are given to a small group of candidates. The instructor observes the personality characteristics of individual participants as cooperation, leadership, initiative, and far-sightedness. Let us illustrate the situational test with the help of an example.

Task. Crossing a brook and taking an instrument on the other bank of the brook.

The material. Few boards, a log, ropes, a pulley and a barrel with both ends knocked out. All the members of a small group are on equal footing; no one is designated as leader. It is the test of leadership, emotional stability and frustration tolerance. The behaviour of each participant is minutely observed and assessed by the instructor. A number of other situations can be created to assess the personality characteristics of individuals.

(3) Rating Scales

Rating scale as a method of personality assessment is very old. This method is useful for learning what impression an individual has made on persons with whom he comes into contact in respect to some specified trait as honesty, punctuality and emotional stability, etc. Teachers can use rating scales to categorise their students on a specified trait. Employers, parents and counsellors can use rating scales. Rating scales are developed to evaluate a single trait. To eliminate vagueness and to make rating scales more reliable it is necessary that traits to be measured should be clearly defined in advance and the degree of trait should be mentioned in definite terms. Traits which can be observed in the manifestation of overt behaviour can be reliably scaled such as cooperation, leadership, etc.

(4) Personality Inventory

The first objective tests of personality developed were adjustment inventories in the early attempts to measure personality in the USA as part of the effort to save time in processing recruits for the First World War. R.S. Woodworth was the first psychologist who invented the first inventory which he called the personal data sheet. The inventory consists of 116 questions about common physical and mental systems to be answered with check-marks by the appropriate answers (yes or no). The total number of yes was taken as a measure of general maladjustment. The approach is perfectly straightforward, obvious and direct.

After the First World War, there was a surge of testing. The authors of many other adjustment inventories followed in Woodworth's footsteps usually revising and extending his items. The number of self-reporting tests of various traits mushroomed in the 1920 and 1930.

Bernreuter developed a personality inventory which included a measure of adjustment, among other traits, which were scored on a logical or a theoretical basis. The author thought about a trait like introversion, drawing on what the concepts' originator wrote about it and made up a set of items describing various aspects of introverted behaviour.

NOTES

Minnesota Multiphasic Personality Inventory (MMPI)

MMPI is an indirect type of objective inventory published in 1943 by Hathaway and Mckinley. The MMPI was originally constructed as part of an effort to develop a practical screening device for psychiatric setting. The inventory relies less than early inventories on the face validity of the items and on the subject's ability to report his own feelings and behaviour accurately. It uses, instead, the method of empirical keying. It comes in a group form with printed answer-sheets and in an individual form in which the 550 items are printed on separate cards, which the subject sorts into three slots in a box, marked *True*, *False* and *Cannot say*.

A typical item is a statement that might have been taken from a psychiatric interview; indeed, many of them were; some are frank statements of rater extreme, psychotic symptoms as 'My soul sometimes leaves my body.' Some items represent milder psychological and physical symptoms as 'I have a great deal of stomach trouble.' The items of MMPI cover the total personality. The original aim of the authors of the inventory was to create an aid to psychiatric diagnosis. The inventory was developed to detect pathological cases. The examiner scores the answers on the empirical scale and then draws inference from the resulting profile.

Hathaway and his collaborators made a determined effort to enhance the usefulness of the MMPI by providing several correction keys to alert the user that a "S's" answers may not be taken at face value. Anyone who does not want to commit himself on an item, does not understand it or feels that neither 'T' nor 'F' is the right answer for him, can omit the item in the group form or sort it as 'cannot say' in the individual form, because some subjects will overuse this scape hatch; the simplest control score is just a count of these, if as many as one-fifth of the items are answered this way the test is considered invalid.

The A-S Reaction Study

The A-S (Ascendance-Submission) reaction study by G.W. Allport and F.H. Allport (1928) was one of the first trait measures. It has only moderate retest reliability .74 and the evidence for its validity is even weaker. The criteria were ratings by self and others. It can hardly be regarded as a precise or trustworthy measuring stick for A-S, yet most of its content seems meaningfully relevant to that trait. The subject merely checks the answers he considers most self descriptive.

The sixteen personality factors questionnaire (16 P.F.) was developed by R.B. Cattell on the basis of factor analytic studies of personality. The questionnaire gives complete information in shortest time about the personality traits of the individual. It is a comprehensive questionnaire that covers all the main dimensions along which individuals can differ. The 16 P.F. test has two forms containing 187 items in each form. Each item represents a statement as given below:

item	*response*
I like to watch team games.	Yes, Occasionally, No.

NOTES

The subject is asked to respond to all the items of the test and instructed to express his choice most honestly. The 16 P.F. test is called by some psychologists as standardized and systematic impersonal interview. The test gives reliable information on 16 personality factors. It was developed on the basis of wide research for the most significant characteristics of personality.

The Eysenck Personality Inventory (EPI)

The inventory was recently developed by H.J. Eysenck and Sybil B.G. Eysenck for assessing neurotic tendencies. The inventory has been developed on the assumption that there are only two dimensions of personality, the stable-unstable and introverted-extroverted. The inventory is brief consisting of 57 questions, reasonably reliable and statistically independent measures of extroversion and of neuroticism. The test itself is a recent, only slightly modified version of the Maudsley personality inventory which has had high reliability ranging from .70 to .90 and internal consistency coefficients ranging in between .75 to .90. The test incorporates a brief 'L' scale adapted from the MMPI which is intended to detect invalid records.

Evaluation of Personality Inventory

The reliability of personality inventories ranges from very low to satisfactory coefficient .8, depending on the traits being measured. The following table shows the reliability of two personality inventories:

S. No.	Inventory	Reliability	Method
1.	MMPI	.90	odd even
		.52 to .89	retest
2.	Security-insecurity	.84	retest
	inventory	.86	odd even

The validity index of personality inventories is open to criticism because determination of validity is difficult. Validity coefficients vary from low to satisfactory. The MMPI when validated on an individual gives the coefficient .4 to .7. Personality testing is still in the process of development and traits of personality have not yet been defined precisely. The use of personality inventories encourages analysis of traits into their constituent elements and provides a better understanding of each trait.

Personality inventories are particularly useful in group trends *i.e.*, in differentiating between groups of adjusted and maladjusted rather than among individuals.

Development is a continuous process and personality traits and attitudes may also undergo change so it is said that inventories will be less reliable in terms of test-retest yet the use of personality inventories is justifiable. The use of inventories should be made by professional and experts who are well-versed in constructing the inventories and who can make insightful analysis of human behaviour. Traits to be measured should be specifically defined and the relevant items should be included in the inventory. The criteria for validating personality inventory should be made

more reliable. The meanings of items should be made as nearly uniform as possible for all persons. The serious limitations of inventories are that the subjects may distort their answers for specific purposes. The information collected sometimes fails to give any relevant diagnostic information regarding the problems of the individual. In the last, the problems with inventory is that despite the best efforts on the part of the constructor of inventory to have subjects attend only to the content of the item, the psychological environment within which the test is administered can greatly affect the results.

Check Your Progress

3. What are projective methods?
4. What are situational tests?

9.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. According to G W Allport (1937), 'Personality is the dynamic organization within the individual of those psycho-physical systems that determine his unique adjustment to the environment.'
2. Ambivert refers to those persons who can be classified as neither extroverts nor introverts.
3. Projective methods are those in which we provide the subject with relatively indefinite and unstructured material and then allow him to structure the material in the way he likes.
4. Situational tests are very recent development in personality testing. In situational tests, the behaviour of the individual is evaluated in action.

9.5 SUMMARY

- The term 'personality' is derived from the Latin word Persona, which means the mask worn by the Roman actors.
- According to G W Allport (1937), 'Personality is the dynamic organization within the individual of those psycho-physical systems that determine his unique adjustment to the environment.'
- Some psychologists define personality in terms of the impressions one makes on others.
- Jung, a Swiss psychiatrist, attempted to classify human beings on two behavioural dimensions: extrovert and introvert.
- His typology is widely known and is most influential among professional workers.

NOTES

- An introvert individual is shy, avoids people and enjoys being alone.
- In contrast to the introvert type, an extrovert person's orientation is towards the external world.
- In modern psychology, the type approach is not so widely used as the trait approach to understand the development of personality.
- G.W. Allport is one of the most outstanding trait psychologists. His conception and research on trait approach to personality has had an immense influence on psychologists
- Raymond B. Cattell is another ardent propounder of trait theory of personality. The basic structural element for him is the trait.
- According to Allport, personality development is related to the concept of self or propium. It includes all the aspects of personality that make for internal unity.
- Projective methods are those in which we provide the subject with relatively indefinite and unstructured material and then allow him to structure the material in the way he likes.

9.6 KEY WORDS

- **Aptitude:** Aptitude is inborn potential to do certain kinds of work whether developed or undeveloped.
- **Introvert:** It refers to a person who tends to withdraw into himself, especially, when facing emotional conflicts and stress in the environment. An introvert individual is shy, avoids people and enjoys being alone. Scientists and philosophers may be termed as introverts.
- **Extrovert:** In contrast to the introvert type, an extrovert person's orientation is towards the external world. He deals with people intelligently in social situations. He is conventional, outgoing, social, friendly and free from worries. Social workers, politicians, business executives may be typed as extroverts.
- **Psychodrama:** Psychodrama is a very useful technique used in assessing personality. As the word psychodrama means, the individual has to play a role spontaneously in a specified situation.

9.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions

1. What are the functions of personality?
2. Differentiate between personality and character.

3. Mention some properties of traits.
4. What are the common features of trait theories?
5. What are the various kinds of projective techniques?

Long Answer Questions

1. Explain the determinants of personality.
2. Discuss the various theories of personality.
3. Identify the three types of personality on the basis of Freud theory of psycho-sexual development.
4. Critically analyse the trait theory of personality.
5. Describe some common characteristics of projective and non-projective techniques.

NOTES

9.8 FURTHER READINGS

Colman, Andrew. 2016. *What is Psychology?* United Kingdom: Routledge.

Eysenck, W. Michael. 1994. *Perspectives on Psychology*. United Kingdom: Psychology Press.

Carr, Alan. 2012. *Clinical Psychology: An Introduction*. United Kingdom: Routledge.

Nevid, S. Jeffrey. 2012. *Psychology: Concepts and Applications*. United States: Cengage Learning.

Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. United Kingdom: Psychology Press.

UNIT 10 METACOGNITION

NOTES

Structure

10.0 INTRODUCTION

Metacognition defined simply is 'thinking about thinking'. Metacognition is the awareness of one's own knowledge and enables one to understand and be aware of what one knows and what one does not know. Metacognition is the ability of a person to understand, manipulate and control the cognitive processes. The term metacognition was first used by Flavell. According to Flavell:

> Metacognition consists of both metacognitive knowledge and metacognitive experiences or regulation. Metacognitive knowledge refers to acquired knowledge about cognitive processes, knowledge that can be used to control cognitive processes.

This unit will discuss various concepts relation in detail.

10.1 OBJECTIVES

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

- Explain the concept of metacognition
- Differentiate between cognitive abilities and metacognition
- Define the three categories of metacognitive knowledge
- Describe the strategies that can be used to improve metacognition abilities

10.2 METACOGNITION: MEANING, DETERMINANTS AND PRINCIPLES

Cognitive abilities are the basic mental abilities used to think, study and learn. Cognitive abilities enable a person to achieve a specific target that can be measured. Metacognitive abilities, on the other hand, are the ones that ensure that the learning goal has been achieved. Metacognition is the ability to make use of prior knowledge

to plan strategy to approach a learning task, frame an action plan to solve the problem and take the necessary steps to solve the problem. Metacognition also involves evaluating the results and modifying the action plan as and when required.

Flavell offers the following example of metacognition:

> I am engaging in metacognition if I notice that I am having more trouble learning A than B; if it strikes me that I should double check C before accepting it as fact.

NOTES

Metacognitive knowledge by Flavell is further divided into three categories—knowledge of personal variables, task variables and strategy variables. The knowledge of personal variables refers to knowledge about how human beings process information and learn and also the knowledge of one's own learning process.

Knowledge of task variables is the knowledge about the nature of the task as well as the processing demands that a task will put on a person. Knowledge of strategy variables involves knowledge of cognitive as well as metacognitive processes and abilities and the knowledge as to when and where these strategies can be applied.

Metacognitive skills need to be developed in children so that their learning can be improved. Understanding requires a learner to possess cognitive skills as well as metacognitive skills. Learners create knowledge with the help of cognitive processes. Learner's guides regulate and evaluate learning through the metacognitive skills that they possess. It is through metacognitive skills and strategies that creative and real learning is said to take place.

The development of metacognitive skills is essential for the learners to become independent. It is through metacognitive skills that a learner is able to think through a problem or approach a learning task, select appropriate strategies, and make decisions about a course of action to resolve the problem or successfully perform the task. Metacognition enables a learner to reflect critically upon his work and also point out the inaccuracies which eventually helps the learner to improve upon the work done or the solution achieved.

Metacognition is often linked to intelligence. The relationship between metacognition and intelligence is stated in the triarchic theory of intelligence propounded by Sternberg. Sternberg calls metacognitive abilities as meta-components. According to Sternberg, meta-components are processes that control cognitive elements and also receive feedback from the cognitive elements. Sternberg states:

> Meta-components are responsible for figuring out how to do a particular task or set of tasks, and then making sure that the task or set of tasks are done correctly.

Metacognitive abilities therefore involve the processes of planning, evaluating and monitoring problem solving activities. Sternberg maintains that the ability to appropriately allocate cognitive resources, such as deciding how and when a given task should be accomplished, is central to intelligence.

NOTES

Research suggests that most individuals indulge in metacognitive abilities when they are provided with an intense cognitive task but the level of metacognition between individuals may vary. Those people who are more metacognitive do better at their cognitive tasks. Individuals can better regulate both cognitive as well as metacognitive abilities through a cognitive strategy instruction program.

The cognitive strategy instruction program is an instructional approach which emphasizes on the development of thinking and creative skills to enhance learning. According to Scheid: The objective of CSI is to enable all students to become more strategic, self-reliant, flexible, and productive in their learning endeavours.

The cognitive strategy instruction program is based on the assumption that cognitive strategies possessed and known to those known to be bright students can be taught to most students.

The Automation of Cognitive and Metacognitive Processes

According to Fogarty, metacognition is a process that has three phases that enable an individual to become better thinkers. These phases are as follows:

- **Plan:** It is essential to develop a plan before approaching a specific problem. During this phase, the learners find answers to questions related to what has to be learned, what knowledge can be used to find solutions to the problem at hand and the time required to find the solution.
- **Monitor:** This phase enables the learners to better understand the problem and also break it down into smaller portions to know how they will reach at the final solution. Monitoring enables the learners to find out whether they are moving on the right track in finding the solution to the problem or a change of plan is required.
- **Evaluate:** In this phase, the learners evaluate their thinking after the task has been completed. Evaluation involves the learners assessing on how well they did at the problem, whether the expected and desired results were achieved and whether they need to bring about a change in their thinking to find a better solution to the stated problem.

Wilson gave another process based definition of metacognition according to which metacognition consists of the following three phases:

> Metacognitive Awareness is the awareness of the individual regarding where they are in the learning process, their knowledge about content knowledge, personal learning strategies, and what has been done and needs to be done. Metacognitive Evaluation refers to judgements made regarding one's thinking capacities and limitations as these are employed in a particular situation or as self-attributes. For example, individuals could be making a judgement on the effectiveness of their thinking and/or strategy choice. Metacognitive Regulation occurs when individuals modify their thinking.

10.2.1 Metacognition in Learning

NOTES

Most teachers know for a fact that if students reflect upon how they learn, they learn in a better manner and become better learners. As the metacognitive abilities of students increase, so do their learning and thinking abilities. Metacognition plays an important role in all learning and life experiences of students. Beyond academic learning, when students gain awareness of their own mental states, they begin to answer important questions:

- How do I live a happy life?
- How do I become a respected human being?
- How do I feel good about myself?

The following strategies can be used to improve metacognition abilities of students in the classroom:

- The students must be taught how their brains are wired for growth. When students learn about how they learn and grow, they tend to learn in a better manner. Teaching students the science of metacognition can therefore enable students to learn how to develop their brains and improve their learning abilities.
- Students must be given time and allowed to practice what they do not know well. The act of being confused and identifying one's lack of understanding is an important part of developing self-awareness. This not only triggers the metacognitive abilities but also creates an environment where not knowing and then learning about a particular concept becomes an integral part of the classroom culture.
- Students must be provided opportunities to reflect upon their coursework. This enables them to reflect upon their own cognitive growth which further enables the students to think about their thinking and the learning process in which they indulge.
- Students must be encouraged to keep their learning journals wherein they can monitor their own thinking skills. Teachers can assign students weekly questions that can help the students to reflect upon how they learned rather than what they learned. Questions might include: 'What was easiest for me to learn this week and why', 'what was most challenging for me to learn and why', 'what study strategies worked well as I prepared for my exam', 'what strategies for exam preparation didn't work well', and, 'what will I do differently next time'.
- Teachers must use a wrapper to increase the monitoring skills of the students. A wrapper is a short intervention associated with an activity and involves the use of metacognitive skills. For example, before a lecture, a teacher can give few tips to students about active listening and, at the end of the lecture, can ask the students to write down three key ideas from the lecture.

NOTES

Afterwards, the teacher can share his or her three key ideas of the lecture and the students can reflect upon whether their ideas are close to that of the teacher or not. This type of an activity enhances metacognitive as well as learning skills.

- When assessing, teachers must make use of essay type questions rather than multiple choice questions. This is because research states that children use low level of thinking skills when answering multiple choice questions while higher level thinking skills are used for answering essay type questions and therefore assessment should be based more on essay type questions which can trigger the metacognitive activity to a great extent.
- Reflexive thinking must be encouraged by teachers. Reflexive thinking is the metacognitive process of becoming aware of the biases which hamper creative learning. Teachers can create a classroom culture wherein reflexivity is an integral part. For instance, the teacher can indulge the students in dialogues related to human and societal biases.

When students indulge in such conversations or write about such things, they think about their own thinking and therefore are also able to challenge their own thinking. This way, the students learn better and are able to develop better cognitive abilities.

Metacognition and attention

During middle childhood, as children become more efficient at processing "inputs," their attention span lengthens in duration and their ability to focus and concentrate their attention becomes more pronounced and reliable. Children gain the ability to sustain their attention towards a topic for longer periods of time. Further, their ability to inhibit or ignore the automatic tendency of their attention to become captured by distractions also improves. The net effect is that children become more efficient learners and more able to tolerate and benefit from classroom instruction. However, this progressive improvement in paying attention is not experienced by all children. Some children struggle to concentrate in the increasingly demanding school, family and social environments they find themselves in. If not addressed adequately, such children's attentional difficulties can go on to result in substantial academic and social problems. A child's persistent inability to sustain focus on activities may be a sign of Attention Deficit Hyperactivity Disorder (ADHD).

Check Your Progress

1. What is metacongnition?
2. What are cognitive abilities?
3. What is reflexive thinking?

10.3 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

NOTES

1. Metacognition is the ability of a person to understand, manipulate and control the cognitive processes.
2. Cognitive abilities are the basic mental abilities used to think, study and learn. Cognitive abilities enable a person to achieve a specific target that can be measured.
3. Reflexive thinking is the metacognitive process of becoming aware of the biases which hamper creative learning.

10.4 SUMMARY

- Metacognition is the awareness of one's own knowledge and enables one to understand and be aware of what one knows and what one does not know.
- Cognitive abilities are the basic mental abilities used to think, study and learn. Cognitive abilities enable a person to achieve a specific target that can be measured.
- Metacognitive skills need to be developed in children so that their learning can be improved.
- The development of metacognitive skills is essential for the learners to become independent.
- Metacognition is often linked to intelligence. The relationship between metacognition and intelligence is stated in the triarchic theory of intelligence propounded by Sternberg.
- Research suggests that most individuals indulge in metacognitive abilities when they are provided with an intense cognitive task but the level of metacognition between individuals may vary.
- The cognitive strategy instruction program is an instructional approach which emphasizes on the development of thinking and creative skills to enhance learning.
- Metacognition plays an important role in all learning and life experiences of students.
- The students must be taught how their brains are wired for growth. When students learn about how they learn and grow, they tend to learn in a better manner. Teaching
- Students must be encouraged to keep their learning journals wherein they can monitor their own thinking skills.

NOTES

10.5 KEY WORDS

- **Cognitive strategies:** Cognitive strategies are the specific methods that people use to solve problems, including all sorts of reasoning, planning, arithmetic, etc.
- **Reflexive thinking:** Reflexive thinking is the metacognitive process of becoming aware of the biases which hamper creative learning.
- **Self-awareness:** Self-awareness is the capacity for introspection and the ability to recognize oneself as an individual separate from the environment and other individuals.

10.6 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions

1. Differentiate between cognitive abilities and metacognition.
2. What are the three categories of metacognitive knowledge?
3. What is the relationship between metacognition and intelligence?

Long Answer Questions

1. Explain the concept of metacognition.
2. Discuss the triarchic theory of intelligence propounded by Sternberg.
3. 'According to Fogarty, metacognition is a process that has three phases that enable an individual to become better thinkers.' Discuss these three phases.
4. Describe the strategies that can be used to improve metacognition abilities.

10.7 FURTHER READINGS

Colman, Andrew. 2016. *What is Psychology?* United Kingdom: Routledge.

Eysenck, W. Michael. 1994. *Perspectives on Psychology*. United Kingdom: Psychology Press.

Carr, Alan. 2012. *Clinical Psychology: An Introduction*. United Kingdom: Routledge.

Nevid, S. Jeffrey. 2012. *Psychology: Concepts and Applications*. United States: Cengage Learning.

Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. United Kingdom: Psychology Press.

UNIT 11 LEARNING

NOTES

Structure

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. This unit focuses on various aspects of learning such as laws and theories that have been put forward to explain this process. The unit also covers the factors that affect learning and how the learning curve progresses.

11.1 OBJECTIVES

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

- Explain the concept of learning
- Define the basic laws of learning
- Identify Thorndike's and Pavlov's contributions to psychology
- Describe Gestalt theory of learning
- Discuss the importance of transfer of learning

11.2 CONCEPT, PRINCIPLES AND FACTORS AFFECTING 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

NOTES

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.

NOTES

- **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

NOTES

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.

11.2.1 Theories of Learning

Let us now go through the various theories of learning.

Thorndike (S-R Reinforcement) Theory

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 behaviour 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 behaviour 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.'

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 mast 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

NOTES

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 longer period, review of the learned material is necessary.
3. Drill strengthens the bondage 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 bondage 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.

NOTES

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.

NOTES

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.

Thorndike's Contribution

Thorndike was the first psychologist who systematically conducted a series of experiments on animals to evolve basic laws of learning. His foremost contribution was to break down the mentalistic—mechanistic and man— animal dualism in psychology. He emphasized that behaviour is something different from the mechanism of the nervous system. The basic unit, used for describing behaviour, was not an idea but Stimulus-Response (S-R) connections. He proposed that all learning involves the formation of new stimulus-response connections. This basic assumption was to play a tremendously important role in the subsequent development of learning theory. He also gave the concept of reinforcement, the idea that learning occurs when a response produces a particular kind of event like satisfying state of affairs. His main findings on learning may be summarized as that learning is the result of S-R connections formed in the brain and reinforced by some reward which acts as a motivator for repeating the same action. The transfer of learning is explained in terms of identical elements in two situations and forgetting is caused by lack of practice.

11.2.2 Ivan P. Pavlov (1849–1936): Classical Conditioning

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 the 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

NOTES

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)
2. CS ..... UCR
   (Sound of bell) (Saliva)
   UCS
   (Food powder)
3. CS ..... CR
   (Sound of bell) (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

NOTES

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.'

Some Phenomena of Classical Conditioning

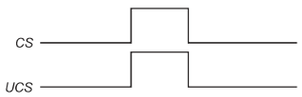
Pavlov and his associates discovered several phenomena during their experimental studies on the gastric secretion in dogs. We will discuss important findings as reported by him in his classic book on conditioning:

1. *Intensity.* One simple fact is that gastric secretion is the function of kind of food (UCS). There is positive correlation between intensity of the stimulus and magnitude of the response but there is negative correlation between intensity of the stimulus and latency of the response. The more intense the CS, the more rapidly conditioning will proceed and larger the CR will be. It has also been reported that if the CS is too weak, there may be no conditioning.

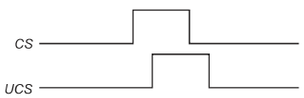
NOTES

2. *Temporal relationship between CS and UCS*. Classical Conditioning experiments have been conducted in control conditions in psychological laboratory. Psychologists have manipulated systematically the time interval between the CS and UCS. It has been reported that an interval of half a second (.5 sec) between CS and UCS produces the greatest amount of conditioning. If the time interval is shorter than half a second and particularly if the interval is negative so that the CS follows UCS, a dramatic failure of conditioning is typically found. Studies suggest that there may be very different optimum interval for different responses. The following types of temporal relationships have been studied by psychologists for Classical Conditioning:

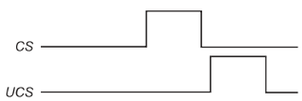
   (*a*) *Simultaneous conditioning*. When CS and UCS occur either at the same time or just following the onset of the conditioned stimulus:



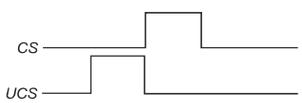
   (*b*) *Delayed conditioning*. Delayed conditioning has been reported as the most widely used temporal relationship. It has been found most effective in establishing conditioning. This is called delayed because the onset of the UCS is delayed following the onset of the CS:



   (*c*) *Trace conditioning*. Trace conditioning is not as effective as delayed conditioning. It is very difficult to establish, particularly when there is a long interval between the CS and UCS:



   (*d*) *Backward* conditioning. Backward conditioning is mostly unsuccessful. Here the UCS is presented prior to CS:



3. *Extinction*. If CS (sound of the bell) it not followed by UCS (food), it means there is no reinforcement. A stage comes when the dog stops to secrete saliva. This process is known as extinction. Extinction has been used in two different ways—extinction as procedure is something the experimenter does and another something which happens to behaviour of the organism. Pavlov reported in his experiments that when the spacing of test trails was increased, the response extinguished rapidly.

NOTES

4. *Spontaneous recovery*. It has been reported by psychologists that when the dog is brought out of the experimental set-up and again put in the set-up after a lapse of time, the dog responds to conditioned stimulus (CS) by gastric secretion. This process is called spontaneous recovery. The phenomenon of spontaneous recovery explains that there is no complete extinction due to time interval but there is inhibition of CR.
5. *Inhibition*. Inhibition may be defined as a process in which a stimulus inhibits a response that would otherwise occur. Pavlov described two types of inhibitions as given below:
   (*i*) *External inhibition*. It is a process of inhibiting CR by external factors in the environment as noise or any other distraction which may draw the attention of the dog. Let us illustrate it by an example: suppose a dog has been conditioned to a tone to salivate. When we present the tone and a new distracting stimulus (noise) is also presented, we find that occurrence of a novel stimulus inhibits or blocks the CR—the dog does not salivate. It has been further reported that if the novel stimulus is presented on a series of experimental trials, the CR will return to its full strength.
   (*ii*) *Internal inhibition*. It was observed by Pavlov that if complete extinction of CR is obtained by not providing food to the dog and it is then given a period of 24 hours rest, CR will show spontaneous recovery when the dog is tested again. The extinction does not permanently weaken the CR. Pavlov argued that spontaneous recovery proves that CR in extinction does not represent dying of the reflex or any real weakening of the learned S-R connections. It is blocked by some internal inhibitory process. For example, physical health of the organism or pre-occupation with some other activity, etc.
6. *Generalization*. Generalization is a process in which a conditioned response to a stimulus is generalized to a similar category of stimuli. We can understand it with the help of an example. Suppose the dog salivates at the sound of the buzzer of 1000 intensity but if the dog also salivates at the sound of 999 or 1001 intensity, it means the dog has his response to the stimuli generalized. Classical experiment by Watson on Albert is an example of stimulus generalization of fear response.

Pavlov's Contribution

Pavlov was the man who brought a revolution in the field of psychology. His findings generated a lot of enthusiasm among the psychologists in USA to test his findings. His distinct contribution to psychology is that he for the first time showed how it was possible to talk about that how a part of the environment came to be associated with and control an animal's response. He experimentally proved it in non-mental and perfectly in an objective way. Before Pavlov, several philosophers,

NOTES

most notably Locke and Hobbes, had talked about the mind in terms of the association of ideas. Locke compared human mind to 'tabula rasa' on which the environment writes its message in the form of ideas. According to associationism, one idea leads to another because in the past these two ideas occurred together in terms of either time or space. This principle of mental operation is the law of contiguity which states that two ideas come to mind at the same time because they have occurred together in the past. But ideas are invisible and psychology as a science deals with the observable and measurable. It was Pavlov for the first time who turned the philosopher's straw (ideas) into the psychologist's gold (response) with the law of contiguity and Classical Conditioning procedures in the laboratory. He explained learning in terms of physiological changes by adopting an objective method of study. Pavlov developed his own theory of brain. Conditioning was accepted as theoretical framework and practical technique of solving a variety of applied problems. The most important contribution made by him is the language of learning and conditioning. Much of the terminology used today was developed by him. Pavlov contributed a lot by developing an objective approach to the process of learning. We can summarize his major finding as: Capacity to learn depends on the type of the nervous system and the repetitions of the activity under reinforcement. For learning to occur, one must have some drive that motivates for action. Transfer of learning is explained as generalization of stimulus.

Application of Classical Conditioning

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.

NOTES

11.2.3 Skinners Operant Conditioning

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).

Two Types of Learning

Skinner found that the procedure he was using to conditioning lever pressuring 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 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 Minnessota 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.

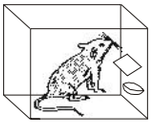
NOTES

In this section we will discuss the basic principles of operant conditioning and other phenomena related to it. In the last part of this chapter we will mention some of the areas of education where we can use the principles of Operant Conditioning.

The Operant Experiment

Skinner developed his own method and apparatus to study Operant Conditioning. He developed a simple apparatus, commonly known as Skinner box. This apparatus was devised to study a lot of behaviour in short time in an objective way. A simple response of pressing a lever/bar was chosen as a unit of behaviour. The movements of the rat were electrically recorded and cumulative records of the behaviour of the rat were obtained. The figure of Skinner box explains the mechanism of operant conditioning.

Skinner box



Operations in Operant Conditioning

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

NOTES

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 as clay is moulded by a potter in a definite form of a pot. The most striving and significant contribution of Skinner is the development of a technique to shape the complex behaviour by systematically reinforcing closer approximations to the desired behaviour. Let us explain it with the help of an example. Suppose we wish to shape behaviour of an untrained pigeon in the Skinner box to learn a particular instrumental response, say pecking a particular disk. We may accomplish this shaping of the behaviour of the pigeon through a process of series of successive approximations. Instead of waiting until the pigeon makes a full and correct pecking response, we would reinforce some bit of the pigeon's behaviour that forms part of the chain, the terminal link is the disk pecking act. At first we would give the pigeon reinforcement when he merely turns slightly in the direction of the disk. Once a definite tendency to turn toward the disk has been established, we would hold further reinforcement until the pigeon made a definite approach movement toward the disk. By reinforcing those responses that make the pigeon come closer and closer to the disk and then those that bring his beak near it. We would be sure finally to induce the pigeon to peck the disk and we would reinforce this behaviour. It has been reported by Skinner that by using this shaping technique, a hungry pigeon can usually be made to peck at the disk within a period of about three minutes.

Let us understand shaping with the help of an example from human behaviour. Suppose we want to toilet-train a child. Simply putting the child on the toilet is not successful because as soon as the child is placed on the stool, he begins to cry. To shape his behaviour, the child is given a chocolate whenever he is placed on the toilet. It has been observed that successful elimination follows. Other techniques may also be used as mother may read or entertain the child when he is placed on toilet. Chocolate as reinforcer may be withheld following failure. Such type of training may be started from the age of years. It has been reported by psychologists that toilet-training behaviour may be shaped within a period of a fortnight.

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.

These have been described in brief below:

(*a*) *Generalization*. Human beings and to some extent animals are capable of generalizing experiences and knowledge acquired in one teaming situation to other situations. Had we not been endowed with this unique ability, we would repeat the learning process each time whenever there was slightest alteration in the stimulus. Generalization may be of two types which are mentioned below:

(*i*) *Response generalization*. The first psychological principle involved in shaping is response generalization. It refers to the fact that when responses are repeated, they are likely to vary over a range of more or less similar acts. It is important that response generalization does occur, otherwise shaping would be impossible. If the pigeon could only rigidly repeat his previously reinforced response in exactly the same form he would never get closer to the disk (example cited above). Among the responses possible under the principle of response generalization is the one that allows him to get nearer. This closer approach is then reinforced and the ground-work laid for response generalization to get the pigeon even closer later on.

(*ii*) *Stimulus generalization*. The famous study of Albert is an example of stimulus generalization. Stimulus generalization occurs when a particular response elicited by a particular stimulus becomes also elicited by other similar stimuli. There are a number of examples of stimulus generalization as a boy who fears the presence of a tyrant teacher may generalize fear to other teachers.

(*b*) *Habit competition*. The second principle in shaping is successful habit competition. At each point of the chain, the correct habit must attain dominance over competing habits. This is accomplished by reinforcing the correct habit alone.

(*c*) *Chaining*. The last and the third principle involved is that each segment in the chain must be linked with the succeeding segment. Cues produced by one response must be linked with the next response. Let us illustrate this point with the help of a concrete example. Suppose, we want to train a pigeon to turn around in a circle. This training is started by reinforcing the pigeon for making even a slight movement in the right direction. After this habit is, thus, strengthened, other responses that are part of the chain of

NOTES

NOTES

responses required in turning around are successively reinforced. By this shaping technique, the response chain of turning around, one that a pigeon normally rarely makes, can be made to occur over and over again at a high rate of frequency.

It has been experimentally proved that secondary reinforcers are more effective in shaping behaviour than primary reinforcers because primary reinforcers interfere with the smooth flowing sequence of responses. As food, the eating movements will confuse the association between the cues produced by one response and the succeeding response. Whenever we want to take the advantage of psychological technique of shaping in training animals and children, we should first develop a strong secondary reinforcing agent.

Needless to mention that by using technique of shaping we can change the behaviour of the organism. We can bring those changes in the behaviour which we want to install in the repertoire of the organism. Effective shaping requires thorough understanding and control of the reinforcing mechanism and effective arrangement of several or many behaviour segments that comprise the learning task.

2. Extinction

It consists simply of withholding the reinforcer when the appropriate response occurs. Withholding of reinforcer means extinction of previously established relationship. Suppose in the Skinner box the rat presses the bar but does not get pellet of food. If this is repeatedly done, the bar pressing behaviour of the rat will be extinguished.

3. Spontaneous Recovery

The phenomenon of spontaneous recovery has almost similar characteristics in Pavlovian and Operant Conditioning (Skinnerian). It refers to the fact that if an organism is removed from the situation for a while after extinction and then returned and again presented with S1, his performance will be better than would be predicted from his performance at the end of preceding extinction. Spontaneous recovery occurs in operant conditioning situation and is affected by all those variables which operate in Pavlovian conditioning. Grahm and Gagne in their study showed that the amount of spontaneous recovery of an operant habit is directly related to the length of period since the termination of extinction. Other factors that influence the amount of spontaneous recovery are the spacing of reinforced occurrences of trial training, the spacing of non-reinforced occurrences (extinction trial) and the combination of these two factors. The number of reinforced occurrence of training trials prior to extinction also affects the degree of spontaneous recovery; more reinforcements are associated with greater recovery.

4. The Concept of Reinforcement

The concept of reinforcement is central in Operant Conditioning Theory of Skinner. It is a fundamental problem for every learner of theory of Operant Conditioning to

study it thoroughly. A reinforcer (a reinforcing stimulus) is any event which changes subsequent behaviour when it follows behaviour in time. Empirically we can define a reinforcer as: 'Any environmental event that is programmed as a consequence of a response that can increase the rate of responding is called a reinforcer.' B.F. Skinner used reinforcement as a procedure for controlling behaviour, not a hypothetical device that produces Stimulus-Response (S-R) connection. Reinforcers are events that raise the rate of responding.

Check Your Progress

1. Define the term learning.
2. What is the aim of learning?
3. Who introduced the concept of reward in learning?

11.3 LEARNING BY INSIGHT THEORY

Gestalt psychologists developed a new theory of learning popularly known as theory of insight. This theory is associated with the name of Kohler who conducted a series of experiments on chimpanzees. The four classical experiments are described as follows:

Experiment 1. A chimpanzee named Sultan was confined in a cage. There was a stick in the cage and outside the cage some bananas were put. In the first instance, on seeing the bananas the chimpanzee showed restlessness and tried his best to reach the bananas but he could not reach without the help of the stick. All of a sudden, the chimpanzee perceived the stick and established relationship between the stick and the bananas. He fished inside the bananas with the help of the stick.

Experiment 2. In the second experiment, two sticks were used which could be fitted with each other with some mechanism. The chimpanzee could only get the bananas with the help of both the sticks fitted in each other. He first tried to get the bananas with the help of one stick but failed. All of a sudden he succeeded in fitting both the sticks and could reach the bananas.

Experiment 3. The experimental setting was slightly changed in this experiment. The bananas were hung from the ceiling of the cage and a box was put in the corner of the cage. The chimpanzee attempted to get the bananas but could not reach to them. He suddenly established relationship between the box and the bananas, put the box under the bananas and climbed on it and got the bananas.

Experiment 4. Slight change was introduced in this experiment: two boxes were kept instead of one. The chimpanzee had to use both the boxes in order to get the bananas.

These experiments by Kohler show that the animal must perceive the total situation and relationship among all relevant parts of the problem before insight can occur in solving the problem. The second point, these experiments point out,

NOTES

is that insight follows a trial and error behaviour on the part of the animal. Once the animal learns to solve a problem by insight, there is every possibility of high degree of transfer to similar problems.

The main factor in Gestalt theory of learning is the development of insight. The individual and his environment form a psychological field. According to Gestalt psychology, the perception of the field and gradual restructuring of it is insight.

According to Yerkes, insightful learning has the following characteristics:

- Survey of problematic situation.
- Hesitation, pause, attitude of concentrated attention to the problematic situation.
- Trail of mode of responses.
- In case initial mode of response proves inadequate, trial of some other response, the transition from one method to the other being sharp and often sudden.
- Frequently recurrent attention to the objective or goal and motivation.
- Appearance of critical point at which the organism suddenly, directly and definitely performs the required act.
- Steady repetition of adaptive response.
- Notable ability to discover and attend to the essential aspect or relation in the problematic situation and to neglect relatively, variations in non-essentials.

The most general principle of learning is pragnanz or the goal directed tendency to restore the equilibrium. Learning takes place when there is a tension or disequilibrium of forces in the psychological field; the learning process removes the tension.

Several experiments have been conducted on insightful learning in children. Certain general conclusions have been drawn on the basis of these experiments which are as follows:

1. Small children are usually better able to perceive essential relations when they are given concrete material. They have limited capacity to manipulate, examine and draw conclusions about objects or events not directly present before them.
2. At a higher intellectual level, students are partially freed from their dependence on concrete materials actually before them. They can think in an abstract way.
3. Still further development and experience enable the students to directly deal with symbols without immediate or recalled physical properties. Adjusting instruction to students' ways to thinking and working is the way to hasten and ease their further development.

4. The structure and organization of subject matter plays an important role in learning. According to Bruner, the teacher should study the learner's reactions in order to determine the methods and order of presentation that will prove most helpful.
5. The teacher should encourage the students to search the material to develop insight. He must help the learners to perceive the goal and the intervening variables.

11.3.1 Transfer of Learning

Transfer of learning is very important for future development. When we learn to perform a task, we sometimes feel that it is influenced by our previous learning. The skills acquired in one activity are possibly transferred to the next situation. This is called 'transfer of learning'.

According to Sorenson (1948): 'Transfer refers to the transfer of knowledge, training and habits acquired in one situation to another situation.'

Sometimes, we feel that our previous knowledge was actually a barrier in the present learning. Thus, transfer of learning is not always positive but can have negative effects also. So transfer of learning can be positive, negative or there can be no transfer at all.

If the previous knowledge or learning helps or benefits the current learning, then it is termed as positive transfer, if the former learning interferes or is an obstacle in the present learning, then it is termed as negative transfer and if there is no effect of past learning either positive or negative in performing the present activity, then it is called 'zero transfer'.

In some situations there can be both positive as well as negative transfer.

Now let us discuss more concrete situations from the classroom learning-teaching process. How can a teacher help students for maximizing the percentage of transfer from school subjects to life situations. We will discuss the procedures of teaching mathematics and social studies.

Mathematics

It is the general complaint of students and parents that there is minimum carry-over of the knowledge of mathematics to later life situations. One of the main reasons is that the curriculum in mathematics is outmoded and is of little use in life. Mathematical formula and symbols are expressed in unfamiliar terms to the students. The teacher can help students in the following manners for maximum carry-over of school learning to life situations:

- The basic concepts and fundamental principles must be taught thoroughly to the students. The help of concrete material, maps and charts may be taken to clarify the abstract ideas. The teacher can use mathematical games in elementary classes. Gaming and simulation may also be used for maximum transfer.

NOTES

- Students should be helped to generalize the fundamental principles with the help of a variety of problems in different contexts. In other words, the teacher must help the students to find out abstract ideas working in the concrete material.
- The students should be encouraged to generalize fundamental principles and their application in a variety of life situations.

Social studies

Social studies are taught in schools so that students may prove to be better citizens. The teacher can help the students to transfer the knowledge from classroom to real life situations by the following techniques:

- Concepts should be made clear with the use of audio-visual aids and concrete materials.
- Discussions should be held in the class to find out the life situations where information can be used.
- Excursion and educational tours should be arranged to give first-hand knowledge to the students.
- Activity lessons should be organized.
- Teachers must help students to find similarities between school learning and life experiences.

Transfer and role of the teacher

The teacher can help in transfer of learning by adopting the following strategies:

- **Maximize the similarity between teaching and the ultimate testing situation:** The teacher can help students for transfer by teaching under conditions which are at least somewhat similar to the ultimate testing situation. The teacher may provide identity of method and matter. He must be definite and clear as to which learning experiences are to be transferred to life situations.
- **Provide adequate experience with the original task:** The teacher must provide thorough practice in the early stage of developing new skills and concepts. The teacher must select few topics which have sequential dependency of subsequent learning and provide thorough practice as for example, in arithmetic four fundamental principles should be thoroughly practised.
- **Provide for a variety of examples:** The teacher should give several examples, specifically, when teaching concepts and skills. Examples strengthen the student's understanding of new concepts and he is able to see its applicability to life situations.
- **Identify important features of a task:** The teacher should help the students to identify important features and aspects of a task. He should label important

features and pay increased attention to different features, as for example, teaching young children to distinguish between the letters *b* and *d* is a fairly common source of difficulty: one way to help them is to show them similar words such as big, dig, bear and dear and help them to find out the crucial difference between the two words.

NOTES

- **Make sure that general principles are understood:** If the teacher wants to maximize the amount of transfer from classroom learning experiences to life situations, then he must make himself sure that general principles have been thoroughly understood by the students.
- **Mastery of sequential tasks:** When the learning can be conceived of as a hierarchy of sub-skills of differing difficulty and in which the more difficult portions of the task contain the easier portions, make sure that the student has mastery of the prerequisite skills before he attempts the more difficult or higher order tasks.
- **Use of discussion:** The teacher should invite questions from the students on the different aspects of the problem to clarify the difficult portions. Opportunity should be provided for free discussion in the classroom for better understanding of the problem.

Check Your Progress

4. What is the main factor in Gestalt theory of learning?
5. Mention any two characteristics of insightful learning.

11.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. 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.'
2. 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.
3. E.L. Thorndike introduced the concept of reward in learning.
4. The main factor in Gestalt theory of learning is the development of insight.
5. The two characteristics of insightful learning are as follows:
   - Survey of problematic situation.
   - Hesitation, pause, attitude of concentrated attention to the problematic situation.

11.5 SUMMARY

NOTES

- Learning occupies an important place in the school programme. In fact, schools are set up for making 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.
- 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.
- Learning depends upon the methods and approaches used, like there should be linking of the new learning with the past learning.
- The learning process also depends upon the available resources like good learning material, proper illumination and appropriate learning environment like calm and peaceful settings.
- 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.
- Thorndike's classical experiments on cat in the puzzle box are widely known and often quoted in psychology of learning.
- 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.
- Classical conditioning was discovered by a Russian physiologist Ivan P. Pavlov around the turn of the present century.
- Pavlov was the man who brought a revolution in the field of psychology. His findings generated a lot of enthusiasm among the psychologists in USA to test his findings.
- B.F. Skinner is a practical psychologist who conducted several experiments on different reflexes in rats and pigeons.
- Skinner developed his own method and apparatus to study Operant Conditioning. He developed a simple apparatus, commonly known as Skinner box.
- Gestalt psychologists developed a new theory of learning popularly known as theory of insight.
- Transfer of learning is very important for future development. When we learn to perform a task, we sometimes feel that it is influenced by our previous learning.

- According to Sorenson (1948): 'Transfer refers to the transfer of knowledge, training and habits acquired in one situation to another situation.'

11.6 KEY WORDS

NOTES

- **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.
- **Classical conditioning:** 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'.
- **Tabula rasa:** In Locke's philosophy, tabula rasa was the theory that at birth the (human) mind is a "blank slate" without rules for processing data, and that data is added and rules for processing are formed solely by one's sensory experiences.
- **Pragnanz:** Pragnanz is the German word for 'pithiness', which means 'concise and meaningful'. It is an overall principle in Gestalt that underpins other laws such as continuation and closure, whereby we tend to complete shapes.

11.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions

1. What are the two types of factors that influence the process of learning?
2. What are the basic laws of learning?
3. Mention Thorndike's contribution to psychology.
4. Write a short note on classical conditioning.
5. What is the importance of operant experiment?
6. What do you understand by the transfer of learning?

Long Answer Questions

1. Explain the concept of learning.
2. Discuss Thorndike's puzzle box experiment.
3. Describe the principles of learning.
4. Discuss Pavlov's contribution to psychology.
5. Write a detailed note on Gestalt theory of learning.

11.8 FURTHER READINGS

NOTES

Colman, Andrew. 2016. *What is Psychology?* United Kingdom: Routledge.

Eysenck, W. Michael. 1994. *Perspectives on Psychology*. United Kingdom: Psychology Press.

Carr, Alan. 2012. *Clinical Psychology: An Introduction*. United Kingdom: Routledge.

Nevid, S. Jeffrey. 2012. *Psychology: Concepts and Applications*. United States: Cengage Learning.

Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. United Kingdom: Psychology Press.

NOTES

BLOCK - IV
CONCEPTS OF CREATIVITY, GIFTED, MENTALLY REATARDED CHILDREN AND INDIVIDUAL DIFFERENCES

UNIT 12 CREATIVITY

Structure

12.0 INTRODUCTION

In 1980, the psychologist 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 an American psychologist 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. In this unit, you will study the concept of creativity, factors and process of creativity strategies for fostering creativity. This unit will also deal with the meaning of creative people and measuring creativity.

12.1 OBJECTIVES

NOTES

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

- Define the concept of creativity
- Identify factors and process of creativity strategies for fostering creativity
- Discuss the features of creative people
- Explain the three dimensions of creative performance measurement

12.2 CONCEPT OF CREATIVITY, FACTORS AND PROCESS OF CREATIVITY AND STRATEGIES FOR FOSTERING CREATIVITY

Some of the important definitions by famous psychologists are given below which illustrate the meaning of creativity:

- 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.'
- 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.'
- 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.'
- R Stagner and T F Karwoski stated, 'Creativity implies the production of a 'totally or partially' novel identity.'
- 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.'
- Weisberg and Springer defined the creative mind as, 'One in which a problem stimulus easily evolves material from various experimental areas.'
- 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.'

- 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

NOTES

Definitions of creativity fall under four categories:

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

A workable definition of creativity could be as: 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.

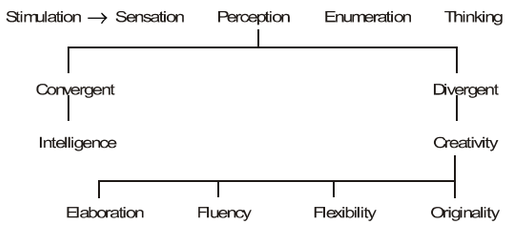


Fig. 12.1 *Analysis of Thought Process*

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.

NOTES

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 Family 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

Psychologist 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:

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

Theories of Creativity

- **Creativity as divine inspiration:** According to Plato, a creative writer is an agent of a super-power.
- **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.'

NOTES

- **Creativity and intuitive genius:** According to this viewpoint, a creative person intuits directly and immediately.
- **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.
- **Gestalt theory and creativity:** Restructuring patterns or gestalts that are structurally deficient is called creativity.
- **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

- Creativity is the resultant of some interaction
- Creativity is the ability to synthesize ideas or objects
- Creativity is the ability to create new ideas, theories or objects
- Creativity is the ability to develop something original
- Creativity has several dimensions
- Creativity is a process as well as a product
- Creativity is a complex, dynamic and serious process
- Creativity knows no special medium, place, person or time
- Creativity is the capacity to accept challenges
- Creativity is the freedom to exercise choice
- 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.

NOTES

- 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 as follows:

- Adventurous
- Curious by nature
- Desirous to excel
- Flexible in his thinking, feeling and doing
- Intuitive
- Keen to explore and invent
- Non-conformist
- Self-disciplined
- Visionary
- 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 to problem-solving, to play with ideas and material and use divergent ways of dealing with traditional topics.

Role of School and Teachers in Promoting Creativity in Children

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 as follows:

- **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.

  - **Word-association tests:** Students are required to give as many definitions and number of different categories into which they could be placed.

NOTES

- **Uses of things tests:** A student is asked to give as many uses as he can for a common object.
- **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.
- **Three different endings:** A student is required to suggest three different endings to incomplete short fables.
- **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.

- **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.
- **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.
- **Types of programmes for the education of creative children:** Following are the programmes for educating and guiding creative children.
  - Identification of the creative children in the school.
  - Formulation of general and specific goals for guiding creative talent.
  - Providing appropriate learning environment.
  - Stimulating creativity among those children who do not apparently show it.
- **Providing creative learning environment and experiences in the classroom:** The teachers should follow the given guidelines to promote creativity in children.
    - Inspire the students to learn to disagree constructively
    - Inspire the students to emulate creative persons
  - Provide for exciting experiences to the students
  - Provide a safe, permissive and warm environment
  - Develop student's ideas through constructive criticism and through referral to competent authorities

NOTES

- o Provide necessary guidance and counselling for developing motivation and overcoming emotional fears
- o Allow the students ask unusual questions
- o Appreciate imaginative and unusual ideas of the students
- o Assure students that their ideas have values
- o Evoke originality in thinking
- o Provide opportunities to students for self-initiated learning
- o Provide materials which develop imagination of the students
- o Encourage them to do intensive and extensive reading
- o Arrange lectures of creative personalities
- o Encourage students for self-evaluation
- o Follow gaming technique
- o Follow brain storming 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 '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:

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

Role of Home/Family 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.

12.2.1 Importance of Creativity in Education

NOTES

Education across the world faces several challenges. The education system needs to be flexible and adaptable enough so that the various challenges can be faced in an effective manner. Researchers however stress on the need of more creativity in education so that the challenges can be met. Besides, it is also important that the creative abilities as well as motivation and self-esteem of learners be developed in a manner so that effective learning can be facilitated. Creativity is in fact the buzz world of the 21st century but its underlying importance in education is not emphasized in the right manner. It is required that at all levels of education, creativity is fostered.

An education system wherein creativity is considered integral must give learners the freedom to recognize their potentials and capabilities. Education must give freedom to learn for which it is essential to create an atmosphere where thinking, questioning and imagining is encouraged. As creative learners, students must work in a collaborative manner and ask questions and even act creatively about ideas and issues across various disciplines. Creative learners try to imagine and explore alternatives and think in a different manner. Creative learners need unlimited time to play, explore, become bored, overcome boredom, discover their own interests, and pursue those interests. Creative learning enables the learners to develop analytical and critical reasoning skills. As has been stated in creative learning, a learner has the freedom to learn. This also implies the fact that the teacher also has the freedom to teach. This however does not mean that the teacher or the facilitator is a passive participant in creative learning. Research suggests that creative teachers are willing to change and welcome and adapt to new ideas and experiences and are not afraid to go off the main track and the conventional methods of teaching.

In the traditional method of teaching, the teacher is the source, the educational material is the information or message and the student is the receiver. The traditional method of teaching is the 'chalk and talk' method of teaching and has been used since decades in all institutions of teaching. In the traditional method of teaching, the teacher controls the entire instruction process and emphasizes on factual knowledge. The teacher delivers the lecture and the learner listens to the same but the learners are passive and play little part in the learning process.

Traditional method of teaching is a one-way flow of information where the teacher talks continuously for hours without getting to know about the response or the feedback of the learners. Teaching and learning do not focus on practical aspects of learning. In traditional form of teaching, learning takes place not by understanding but by memorizing the concept. Thus, traditional education has several shortcomings which need to be addressed and have been addressed by the introduction of several innovative methods of teaching and learning.

Education today places a lot of emphasis on creative learning and thinking. Creative learning in education emphasizes on the fact that each student must know

NOTES

and take an active part in deciding on the skills that need to be developed. Creative learning gives the learners the freedom to express their opinions even if these are wrong. Creative learning in education is essential to develop flexibility in learning for students to recognize their potential and abilities.

In education today, creative learning is also essential to obtain freedom in teaching and to improve the learning environment for the students. With creative learning, education can be more oriented towards the individual needs of the learners. Creative learning is also essential to increase creative abilities and original thinking of the learners.

Creative practices in education should help the learners build their knowledge of things which are especially important to them and therefore strengthen their sense of individuality. The creative learning education model must be based on fostering individuality, flexibility and personality of a learner. Thus, creative learning in education must focus on:

- Creating learning and teaching environment that is sensitive to the individual needs of the learners
- Facilitating original and creative thinking
- Enabling intelligent decision making
- Fostering learning experiences
- Acquisition of knowledge for resolving problems

Check Your Progress

1. Define the term creativity.
2. What is the creative process?
3. State any three characteristics of a creative personality.

12.3 MEANING OF CREATIVE PEOPLE AND MEASURING CREATIVITY

Creativity is a general ability possessed by all essentially healthy individuals, to some degree. All people think in terms of different levels of creativity. A great deal of confusion surrounds the word creativity. Since a person can behave creatively in many ways, it is not strange that there are many definitions of creativity, but there is no universally accepted definition of creativity.

To give a bird's eye view of the overall function of creativity, its definitions may broadly be divided into five groups. They are as follows:

(i) **Creativity as a talent:** Carl Roger (1975) defined creative process as an action of the rational and novel product. Rhodes (1961) defined creativity as a process and as a talent found in some individuals.

NOTES

(ii) **Creativity as a process:** Maslow (1966) stated that creativity is a process, which is preconscious rather than conscious and included elements of the checking and corrective process. Tayler Chamber (1973) described creative thinking as a process which has been considered as bipolar in which the interaction between the person and the environment will be studied.

(iii) **Creativity as novel idea:** Thurston (1952), Stein (1953) and Raina (1989) described creativity as a novel idea. Creativity involved responses to that of novelty, statistically frequent to some extent of adoption. It is concerned with something, which is new rather than unexpected or nontraceable.

(iv) **Creativity as a new thinking:** Getzel (1972) held the view that creativity consisted of two important components, i.e., convergent thinking and divergent thinking. Convergent thinking refers to intellectual ability whereas divergent thinking refers to the method adopted by individuals to attain their goals and objectives. Torrance (1969) described creative thinking as the capacity of sensing the gaps in missing elements, identifying the difficulty, searching for solution, formulating hypotheses, testing and retesting them and finally communicating the results.

(v) **Creativity, as the capacity to solve problems:** Kilpatrick (1906) defined creativity as a problem-solving method. According to him, it is the best method to solve the problems or our daily life. According to Guilford (1952), creativity is essentially a problem-solving method.

Creative Performance

A.T. Kearney identified that firms engaged in comprehensive and creative performance measurement realized improvements in overall productivity in the range of 14 to 22 per cent. Taking into consideration the present global competitive scenario, improvement of productivity and profitability on a continuous basis are the order of the day for survival. This is the reason proactive and progressive corporate enterprises are always concerned about performance measurement. It helps them not only to improve productivity and profitability but also ensures efficiency and effectiveness in utilization of resources for maximization of customer value by shared value. As there is enough scope for improvement in productivity and profitability, creative managers and researchers are always striving for collection, analysis, and interpretation of qualitative information to measure and compare in order to give the right direction. They develop and redefine a comprehensive performance measurement system to monitor, control, and direct total operations on a continuous basis by incorporating the entire system. Hence, the scope of performance measurement systems ranges from all activity-based measures to entirely process-based measures. There are three dimensions of creative performance measurement, namely:

1. **Internal performance measurement**: It refers to a comparison of the present level of processes and activities or goals with the previous operations

NOTES

or goals. These measures enable the management to locate the existing gaps and identify deviations in the actual performance in order to meet current and future requirement. There are five broad categories of measuring performance:

(i) Cost

(ii) Customer value and service

(iii) Asset management

(iv) Quality

(v) Productivity

(vi) Control of finance

2. **External performance measurement**: It refers to visualizing it from the point of view of competition and customers. It is necessary to monitor, understand, and maintain the performance to keep the customer happy and loyal as well as remain on competitive terms in the market. Thus, external performance measures involve two major aspects:

   (i) Customer performance measurement

   (ii) Competitive performance measurement

3. **Comprehensive performance measurement**: In recent times, there has been significant increase in focus on performance measurement that offers an integrated perspective. Without an integrated performance measurement system, it is not possible to achieve the corporate objective of maximization of value to all stakeholders and there is every possibility of gaps in it. For instance, the manufacture may measure its quality as the ability to ship when ordered, while the wholesaler may measure it as the ability to ship when promised. To bridge the gap, a growing number of enterprises are realizing the need for strategic sourcing. That is why, the contribution of the sourcing function has increased dramatically in recent years for managing it effectively, because it improves service levels and simultaneously, reduces costs. The need to control and manage costs has become more crucial as suppliers account for higher percentage of a finished product's value.

   While developing an integrated performance measurement system, a consortium of firms, universities, and consultants proposed a common framework. The integrated framework incorporates four types of matrices, namely, customer satisfaction/quality, time, costs and assets, which monitors both outcomes and diagnostics for effective performance management. The focus of outcome measure is on the overall process results in terms of customer satisfaction and time management process, whereas diagnostic measures deal with specific objectives within the process.

   Despite these bottlenecks in the development and implementation of an effective creative performance measurement, it has become a compulsion for almost every leading firm all over the world. It provides a strategic

framework for assessment of a firm's status about competitive position, distinctive capabilities, resource utility, and supply chain collaboration. Most of the progressive and proactive firms view enhancement measurement as a prerequisite to outstanding performance. Consequently, they make investment in comprehensive creative performance measurement programs that:

NOTES

(i) Create competitive power because they lead to better decisions and more appropriate behaviour

(ii) Create accurate, detailed, relevant and timely information accessible to the manager for strategic planning and everyday decision-making

(iii) Track a broad range of measures from all supply chain areas, namely, costs, asset management, productivity, service, and the quality

(iv) Create employee metrics that are easily understood by everyone

(v) Create visible trade-off and transparent processes

(vi) Incorporate customer centric and process-oriented measures

(vii) Create alignment with both corporate strategy and customer expectations

(viii) Document the progress that is being made and that drives learning

(ix) Facilitate the benchmarking and adoption of best practices, wherever they are found A creative performance measurement system refers to create, innovate, research, monitor and control the total operations on a continuous basis as well as incorporating the entire process as an integrated system.

Nature of Creativity

Creativity may be said to possess the following characteristics:

- Creativity is universal and not confined to any individual groups, caste, age, location or culture. Every person is capable of demonstrating creativity to some degree.
- Creativity is innate as well as acquired. It is a natural endowment and also influenced by the cultural background, experiences, nurturing etc.
- Creativity implies the ability of a person to produce something new. It should not be repetition or reproduction or what the individual has been experienced.
- Creativity encourages complete freedom to express a multiple response and action. It is a kind of adventurous thinking.

Creative Teacher

A creative teacher will have adequate mastery over his subject and a strong desire to acquire more and more of it. In fact, he/she is an explorer of truth. He/she strives continuously to grow professionally. Occasionally, he/she practices self-

NOTES

education, analyses personal shortcomings as well as tries utmost to get rid of them and is always prepared to welcome the knowledge acquired as a consequence of new experiences. Further, a creative teacher is always very cautions not to develop any sort of prejudice, making sincere efforts to learn something from all types of experiences.

A creative teacher very well understands the laws of learning and keeps in view these laws while making appropriate and desirable changes in the methods of teaching. He/she also tries to understand each and every student and plans the teaching technique in accordance with the interests and abilities of the students. In addition to this, he/she studies maladjustments present in the student's personalities and strives hard to release their creative potential by making a multi-prolonged attack on the problem. Thus, he/she tries to enable them to lead life with sound mental and physical health. A creative teacher always yearns that his/her students should become broadminded instead of becoming rigid and obstinate, that is, they should always be receptive to the ideas and opinions of others. He/she also tries to develop among his students habits like keeping decisions suspended until complete information is gathered, analysing the causes of a problem by plunging deep into it, evaluating and event or behaviour on the basis of available facts, which in turn helps to develop positive values.

In creative teaching, rote memorizing and blind imitation are not encouraged, whereas special emphasis is laid on independent thinking. Besides protecting the creativity of children, creative thinking helps further development of their creative potential. A creative teacher possesses abilities constituting the creativity syndrome in abundance and makes use of them in various teaching–learning situations. Creative teaching is always constructive. Efforts are made to ensure that students do not remain passive listeners only. They are encouraged to acquire knowledge actively. According to Torrance (1970), creative teaching usually results in increased creative growth, involvement and participation in creativity.

Check Your Progress

4. What are the three dimensions of creative performance measurement?
5. Mention the five broad categories of measuring internal performance.

12.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

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. 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. The following are some characteristics of a creative personality:
   - Adventurous
   - Curious by nature
   - Desirous to excel
4. The three dimensions of creative performance measurement are as follows:
   - Internal performance measurement
   - External performance measurement
   - Comprehensive performance measurement
5. There are five broad categories of measuring performance:
   (i) Cost
   (ii) Customer value and service
   (iii) Asset management
   (iv) Quality
   (v) Productivity
   (vi) Control of finance

NOTES

12.5 SUMMARY

- 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.'
- According to Guilford (1959), creative thinking means divergent thinking and uncreative thinking means convergent thinking.
- 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.
- Education across the world faces several challenges. The education system needs to be flexible and adaptable enough so that the various challenges can be faced in an effective manner.
- An education system wherein creativity is considered integral must give learners the freedom to recognize their potentials and capabilities.
- Traditional method of teaching is a one-way flow of information where the teacher talks continuously for hours without getting to know about the response or the feedback of the learners.

NOTES

- Creativity is a general ability possessed by all essentially healthy individuals, to some degree.
- A creative teacher will have adequate mastery over his subject and a strong desire to acquire more and more of it.
- A creative teacher very well understands the laws of learning and keeps in view these laws while making appropriate and desirable changes in the methods of teaching.
- In creative teaching, rote memorizing and blind imitation are not encouraged, whereas special emphasis is laid on independent thinking.

12.6 KEY WORDS

- **Creative thinking:** Creative thinking means divergent thinking and uncreative thinking means convergent thinking.
- **External performance measurement:** It refers to visualizing it from the point of view of competition and customers. It is necessary to monitor, understand, and maintain the performance to keep the customer happy and loyal as well as remain on competitive terms in the market.
- **Internal performance measurement:** It refers to a comparison of the present level of processes and activities or goals with the previous operations or goals. These measures enable the management to locate the existing gaps and identify deviations in the actual performance in order to meet current and future requirement.

12.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions

1. Differentiate between divergent thinking and convergent thinking.
2. What is the role of school and teachers in promoting creativity in children?
3. What is the importance of creativity in education?
4. Mention the essential features of a creative person.

Long Answer Questions

1. Discuss the various theories of creativity.
2. Describe the nature and characteristics of creativity.
3. Explain brain storming as a strategy for developing creativity.
4. Discuss the three dimensions of creative performance measurement.

12.8 FURTHER READINGS

Colman, Andrew. 2016. *What is Psychology?* United Kingdom: Routledge.

Eysenck, W. Michael. 1994. *Perspectives on Psychology*. United Kingdom: Psychology Press.

Carr, Alan. 2012. *Clinical Psychology: An Introduction*. United Kingdom: Routledge.

Nevid, S. Jeffrey. 2012. *Psychology: Concepts and Applications*. United States: Cengage Learning.

Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. United Kingdom: Psychology Press.

NOTES

UNIT 13 GIFTED AND MENTALLY RETARDED CHILDREN

NOTES

Structure

13.0 INTRODUCTION

This unit will provide an overview of different disabilities. Their concept, nature and characteristics have been discussed in detail. Disability or impairment refers to a physical condition that limits a person's movements, senses or activities.

Visual impairment, which refers to the deceased ability of vision loss, varies from partial to severe. Similarly, hearing and speech impairment create difficulty in understanding and speaking. In some cases there is a sub-average general intellectual functioning, which results in an adaptive behaviour, this is termed as mental retardation. Such a disorder is more quantitative than qualitative in nature. Children who are slow in learning and grasping are often mistaken as mentally retarded, which however is not the case. Children with a slow learning capacity suffer from learning disability which keeps them away from keeping up with other normal children and friends. Other than learning disability, there is autism—a neurological behavioural condition. Such children have difficulty in communicating with each other.

13.1 OBJECTIVES

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

- Define the meaning and characteristics of gifted children
- Describe general characteristics of mentally retarded children
- Explain the different methods of classification of mental retardation
- Discuss the needs and problems of gifted children and mentally retarded children

13.2 MEANING AND CHARACTERISTICS OF GIFTED CHILDREN

NOTES

The education of exceptional children is quite a stimulating and interesting field for educators and for those who are concerned with the welfare of exceptional children. It is particularly an important area of study and research for those who have accepted teaching as a profession.

In India, it is quite a new field which was totally neglected before independence. The field of special education attracted the attention of politicians, parents and educators after 1947. In the British regime, sporadic efforts were made by individuals, parents and some enterprising teachers to cater to the needs of exceptional children but the society at large had apathetic attitude towards these children. They were left unattended on the mercy of the society, and hardly an institution existed that could cater to the needs of this group of children.

The term exceptional child is difficult to define because the word exceptional carries different meanings. It represents medical as well as psychological groupings of children. Some psychologists mean by exceptional, extraordinary talents, others may use the term for dull or backward children who lag behind in academic achievement.

According to W.M. Cruichshank, 'an exceptional child is he who deviates physically, intellectually, emotionally and socially so markedly from normal growth and development that he cannot be benefited from a regular classroom programme and needs special treatment in school.'

Psychologists have made attempt to define the term exceptional child but no single definition has been agreed upon by them. Kirk in his book, *Educating Exceptional Children*, has given a comprehensive definition of exceptional child which is reproduced as follows:

'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.' The term exceptional represents children on both the extremes of achievement in intellectual work: either they are far above or below average in one or more aspects of educational achievement. Both definitions cited above define the exceptional children as the ones who deviate from the normal growth in various dimensions of development and who require special attention in school.

Types of Exceptional Children

(*i*) *Intellectually exceptional*. (*a*) The gifted and creative, (*b*) The slow learner, (*c*) Educable mentally retarded, and (*d*) The severally mentally retarded.

(*ii*) *Physically exceptional*. (*a*) Impaired vision, (*b*) Impaired hearing, (*c*) Impaired speech, (*d*) Crippled, and (*e*) Brain injured.

(*iii*) *Emotionally exceptional*. Delinquents.

(*iv*) *Multi handicapped*. Children with more than one defect.

Importance and Need of Special Education

NOTES

The following are the specific needs for organizing special education:

1. Exceptional children do not benefit from regular classroom teaching. For example, we can take the case of gifted children. These children do not get proper motivation in regular classes.

   They need different treatment in learning. If they are not attended properly they may develop behaviour problems which may cause harm to the individual and to the society. So it is imperative to make special arrangements for their education.

2. The second need of organizing special education is for the mentally and physically handicapped who find it difficult to adjust in home and society. If these children are not properly educated to stand on their own legs, they will become a liability on society. They may develop adjustment problems which may ultimately lead them to neurotic behaviour. Education, for exceptional children, should aim to develop confidence and competencies in handicapped children to earn their livelihood independently. They may become assets for the society if properly trained.
3. Special education will give insight into the problems of exceptional children to parents, educators and administrators. It will help in the process of adjustment of exceptional children in the society. The attitude of the society will be changed towards these children.
4. Special education will solve the problems which exceptional children present in regular school programmes.
5. There are categories of children who cannot be educated with normal children. Deaf, dumb and blind children require special schools with different curriculum, methods of teaching and teacher for their education.
6. An exceptional child is quite different from a normal child as regards his interest, motivation and aims of life. To meet the needs of the child, the society must provide special facilities for their education.
7. Special education must meet both needs in its efforts to bring exceptional children to the maximum of their developmental potential and to prepare them adequately for a satisfactory life adjustment. These exceptional children if left unattended become great liabilities to the nation. They should be provided education to develop their potentialities.

Meaning and Definition of Gifted Children

The definition of giftedness has been given from different angles. Some psychologists emphasize the importance of superior endowment, others on exceptional

NOTES

performance of the individual in different walks of life. We can broadly classify all the definitions into three classes on the basis of IQ, social potentiality and in statistical terms. Now let us examine, in brief, all the three types of definitions:

1. *Intelligence quotient* (*IQ*). (*a*) The gifted is usually defined in terms of IQ. Different psychologists set different range of IQ for gifted children as for example, L.M. Terman, in his famous study of gifted children, set IQ 140 as the lower limit of giftedness. (*b*) Other authorities in psychology set the lower limit of IQ from 110 to 140 and upwards.
2. *Social potentiality.* The second class of definitions of giftedness is in relation to social potentiality of the child. According to Witty, 'gifted children are those whose performance is consistently remarkable in music, art, social leadership and other forms of expression.'

   According to R.W. Tyler, the gifted child is he who is exceptional in the amount of his production, rate and quality of his production.
3. *Statistical.* The third type of definitions are related to the concept of percentage. Some educators say that gifted children are those who fall in the top 2 per cent to 4 per cent of intelligence. L.X. Magnifice categorised gifted children into two classes: (*a*) A child whose ability as indicated by an intelligence test is within the range of the upper 2 per cent to 3 per cent of the population and (*b*) A child having outstanding ability in a specific area of knowledge as art and science.

   But there are educators who consider the academically talented as those who are within the top 15 per cent to 20 per cent of secondary schools population.

Lucito has defined giftedness as: 'The gifted are those children whose potential, intellectual powers are at such a high ideational level in both productive and evaluative thinking that it can be reasonably assumed that they could be future problem solvers, innovators and evaluators of the culture if adequate educational experiences are provided to them.'

According to Renzulli (1978), 'Giftedness consists of an interaction among three basic human traits—these clusters being above average general abilities, high level of task commitment, and high level of creativity. Gifted children are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance. Children who manifest or are capable of developing an interaction among three clusters require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional programmes.'

Discovery of Gifted Children

The history of identifying gifted children dates back to Plato's time who proposed a plan for identifying highly capable individuals and advocated for their proper training for ruling the country in his utopian state.

NOTES

The Romans adopted some of Plato's ideas to give special training to leaders in war, oratory and government. In the sixteenth century, Suleiman, the magnificent, sent emissaries to Asia Minor with instruction to examine and select the most intelligent Christian youths for special education.

Organised education of gifted children almost disappeared during the 17th and 18th centuries. Here and there a few superior children were given special attention with remarkable results.

Identification of Gifted Children

It is a collective effort of parents, teachers, psychologists and social workers to help in the early identification of gifted children.

There are several methods for identifying gifted children. A systematic-procedure is given below:

1. Doctors and health visitors can play an important role in the identification of children with high intelligence. Parents can identify gifted children by observing their behaviour in various situations within home and outside the home. Following are the behavioural characteristics of gifted children:
   - Early language development.
   - Probing and pinching at food.
   - Peering thoughtfully at strangers.
   - Walking at 10 or 11 months of age.
2. (*a*) Group tests of intelligence are very useful as preliminary screening device. But group test may not identify children with reading difficulties. Individual test of intelligence may be administered after screening gifted children on the basis of group test of intelligence.

   (*b*) A standardized achievement test may be used to identify gifted children.
3. School marks and cumulative records of pupils' achievement may give some indication of giftedness.
4. The teacher, on the basis of his observation in the classroom and outside the classroom, may form some opinion of the child's ability. But some educators doubt as regards the teacher's competency to pick up gifted children. There are different opinions. Terman believes that teachers were able to pick up only 1/3 gifted children in his studies.

Characteristics of Gifted Children

Terman and his associates made an intensive longitudinal study of 1528 gifted children. They studied the physical, mental, social and emotional characteristics of a group of gifted children. The results of their study are as follows:

1. *Physical:* The average member of this group of gifted children was slightly better in physical characteristics than the children of average intelligence. Incidences of illness are lower in gifted children than the average children.

2. *Mental:* The gifted children showed superiority in reading, language, arithmetical reasoning, science, literature and art. They were better in reasoning ability, generalisation and comprehension. They had the ability to see the operations of larger systems of knowledge than are seen by ordinary children.
3. *Interests:* The interests of gifted children were many sided; they were interested in abstract subjects.
4. *Sociability:* The gifted children were observed less inclined to boast or overstate their knowledge. They were found more trustworthy and sincere. Their character preference and social attitudes were more wholesome. They scored more on test of emotionality.

A number of researches have been conducted in recent years on the characteristics of gifted children. These studies invariably indicate that the gifted children when compared to average children show the following characteristics:

(*i*) Receive higher grades, (*ii*) Have more positive attitude, (*iii*) Have more reading ability, (*iv*) Participate more in curricular activities, (*v*) More concerned with abstract ideas, (*vi*) More successful in sports, (*vii*) Well-adjusted, (*viii*) Better relations with peers, (*ix*) More confident, (*x*) Greater ego-strength, (*xi*) Greater individual independence, (*xii*) More mature in their reaction to the external world.

James M. Dunlop has stated positive and negative characteristics of gifted children. These are as follows:

A. ***Positive characteristics***

1. Learn rapidly and easily.
2. Retain what they learn without much drill.
3. Show much curiosity in questioning.
4. Rich vocabulary marked by originality.
5. Enjoy reading.
6. Show interest in words and ideas.
7. Reason things out.
8. Greater ability to generalize.
9. Know and appreciate things of which normal children are unaware.
10. Be interested in the nature of man and universe at early stage.
11. Seek older companions.
12. Possess a good sense of humour.
13. Have a desire to excel.

B. ***Negative characteristics***

1. Restless, disturbing, inattentive.
2. Careless in handwriting.

3. Indifferent to class work.
4. Outspokenly critical.

Educating the Gifted Child

NOTES

The most difficult problem before the educators is how to make provision for the education of gifted children so that their potential ability may be developed to the maximum. The education of the gifted raises many important questions, as what kind of teachers do the gifted children need? What methods are most effective for them and what would be the nature of curriculum for gifted children? Needless to mention that teachers for gifted children must have some special characteristics. The teacher must have emotional maturity and a healthy self-concept so that he may not regard the gifted child as a threat to his position. He should be superior in intelligence. He should have broad background of knowledge and should be cooperative, more sincere and dedicated in his work.

All teachers are interested in what and how to teach gifted children. Authorities agree that whether a gifted child is taught in a regular class or a special class he needs a greatly enriched curriculum. The enrichment of curriculum must be both qualitative and quantitative. Qualitative enrichment of the curriculum means that gifted children should have greater opportunity than average children to delve more deeply into the subtle and abstract aspects of the topic. They should be allowed to evaluate facts and argument critically to create new ideas and originate a new line of thought. Quantitative enrichment means the breadth of work, an addition of units of work or topic, participation in activities such as production of a school magazine, plays, trips to museums, visits to public library, development of hobbies and interests other than the regular curriculum.

Durr suggests four fundamental principles on which to base the enrichment method. The programme for a gifted child should:

1. represent an extension of general educational objectives.
2. provide a stimulating learning environment.
3. place a special emphasis on creative ability, insight and social responsibilities.
4. promote basic fundamental skills, knowledge, appreciation etc. The teacher should not forget that gifted children like other children need certain fundamental competencies in the language and in arithmetic to work effectively in the society. These competencies do not have to be taught in a dull manner.

We can summarize that the class work for the gifted should be challenging for maximum intellectual growth.

13.2.1 Different Types and Identification of Gifted Children

In emphasizing special talents, Paul Witty enumerated the following criteria for defining very young gifted children:

NOTES

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 encyclopedias;
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 per cent 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.

NOTES

3. Have a rich vocabulary marked by originality.
4. Show interest in ideas and words.
5. Show much curiosity in questioning.
6. Enjoy reading.
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.

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 Gullagher 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. Gallagher pointed out the following limitations of various techniques in this regard:

	Method	***Limitations***
1.	Intelligence Tests (Individual)	Best but expensive and time consuming.
2.	Group Intelligence Tests	Generally good for screening. May not identify those with reading difficulties and emotional problem.
3.	Achievement Test Batteries	Will not identify under achieving gifted children.
4.	Observation by Teachers and Others	Not suitable for children with emotional problems, and children with hostile attitudes towards school.

Gallagher 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.

13.2.2 Needs and Problems of Gifted Children

NOTES

Gifted children are, by definition, 'Children who give evidence of high performance capability in areas such as intellectual, creative, artistic, leadership capacity, or specific academic fields, and who require services or activities not ordinarily provided by the school in order to fully develop such capabilities.' The National Association for Gifted Children defines gifted learners as, 'Gifted individuals are those who demonstrate outstanding levels of aptitude (defined as an exceptional ability to reason and learn) or competence (documented performance or achievement in top 10 per cent or rarer) in one or more domains. Domains include any structured area of activity with its own symbol system (e.g., mathematics, music, language) and/or set of sensorimotor skills (e.g., painting, dance, sports).'

Therefore, we can say that gifted learners are children who have high cognitive abilities that make them relate to the world in a unique manner. Gifted learners demonstrate the need to learn at a much faster pace as compared to their peers. These children also process information in greater depth and therefore possess a lot of knowledge. Gifted learners also use their imagination, intellectual powers and energy in a manner which is not exhibited by the general population at large.

Some characteristics that gifted learners exhibit include the following:

- Such learners have unusual alertness levels even in infancy.
- Gifted learners learn at a very fast pace.
- Gifted learners have an extensive vocabulary and complex sentence structuring for their age.
- These learners have an excellent memory.
- Gifted learners are highly sensitive and are always pre-occupied in thoughts.
- Gifted learners have high levels of curiosity and a wide range of interests.
- Such learners think of complex issues in a logical manner.
- Gifted learners have a vivid imagination and like to experiment with their thoughts and ideas.
- Gifted learners have an advanced comprehension of abstract ideas and like solving problems.
- Gifted learners usually have self- taught reading and writing skills at a very young age.

The following are the learning characteristics of gifted learners:

- The gifted learners have keen powers of observation and an eye for important details.

NOTES

- Gifted learners may read a lot on their own, preferring books and magazines written for children older than they are.
- Gifted learners almost always indulge in intellectual activities.
- These learners have well-developed powers of abstraction, conceptualization, and synthesis.
- Gifted learners can easily identify cause-effect relationships.
- Gifted learners have a questioning attitude and have the desire to seek as much information as possible.
- They are often sceptical, critical, and evaluative.
- Gifted learners can easily make valid generalizations about events, people, or objects.
- Gifted children can quickly perceive similarities, differences, and anomalies.
- Gifted children often analyse all problems by breaking them into smaller parts and then systematically finding the solutions.

The following are the creative characteristics of gifted children:

- Gifted children think in a manner that enables them to generate possibilities, consequences, or related ideas.
- They often come out with unique approaches and solutions for a given problem as they are flexible and original thinkers.
- They are elaborate thinkers, producing new steps, ideas, responses, or other embellishments to a basic idea, situation, or problems.
- Gifted learners often want to deal with complex issues and problems so that their minds are challenged.
- Gifted learners are good guessers and can readily construct hypotheses or 'what if' questions.
- They are extremely curious about objects, ideas, situations, or events.
- Gifted learners differ from other learners of their age in the following ways:
- Gifted learners learn to read and write before they enter school.
- Gifted learners read quickly and widely and have a large vocabulary.
- Gifted learners seek the why and how of everything they learn.
- Gifted learners begin to work independently at a very young age and have high concentration span.

Since gifted children have high intellectual abilities, it is assumed that they will always do well academically and do not need assistance and help of their teachers, parents or peers. However, this is not true and these children like others

may need to be guided by their teachers and parents. The following are a few myths about gifted learners:

- **Gifted learners rise to the top of the class:** It is not always essential that gifted children always rise at the top of the class. There are times when gifted learners may have some learning disabilities that go unnoticed in the initial years but may develop and be become prominent with age.
- **Gifted learners do not need special help and programmes:** Gifted learners learn on their own but they need to be guided and properly challenged to learn in the most effective manner. Therefore, they need help of their teachers, parents and peers so that their intellectual abilities can be developed and challenged in the right manner.
- **Gifted and talented mean the same:** Gifted learners are not essentially talented and vice versa. A child may have academic talent and score well but this does not mean that the child is also a gifted learner. Similarly, it is not essential that a gifted learner always perform well academically. Academically talented children and intellectually gifted children need different environments to realise their full potential as they have different aptitudes and abilities.

A gifted learner as opposed to general thinking may even face some behavioural and other problems like:

- Gifted learners may want perfectionism in everything which is always not possible.
- Since gifted learners have keen observation and imagination, they may not be able to mingle with other kids of the same age and may be socially shy and isolated.
- Gifted learners are highly sensitive which may often cause them to take criticism or remarks of other people personally.
- Gifted learners are able to understand and relate to concepts intellectually but they may not be able to do so at an emotional level.
- Since a gifted learner has advanced verbal and reasoning abilities, the child may turn out to be manipulative and argumentative. The child may even outsmart teachers and parents which is not always acceptable.
- Because of their giftedness, gifted learners may feel different and superior to others of the same age which may eventually lead to their isolation and rejection.

Check Your Progress

1. What do you understand by the term exceptional child?
2. Mention some of the behavioural characteristics of gifted children.

NOTES

13.3 MEANING, DEFINITION AND CHARACTERISTICS OF MENTALLY RETARDED CHILDREN

Many people assume that the child suffering from the disorder of mental retardation may not be able to lead a normal life like an average child but research has proven that this disorder is more quantitative than qualitative in nature. Mentally retarded children need not be a burden on their parents all their lives and could eventually lead a near normal life and earn a decent livelihood for themselves if they are given a careful expert and apt upbringing. Such children are not able to live up to the expectations of the normal schooling system.

According to the American Association of Mental Retardation, the disorder of Mental Retardation can be defined as–'A significantly sub-average general intellectual functioning, resulting in or associated with concurrent impairment in adaptive behaviour, and manifested during the developmental period.'

According to Medical Deficiency Act of 1921, in England mental retardation is– 'A mental defectiveness as a condition of arrested or incomplete development of mind existing before the age of eighteen years, whether arising from inherent causes or induced by disease or injury.'

In 1941, Dool gave the earliest definition of mental retardation. According to him following are the various characteristics displayed by mentally retarded children:

- Social incompetency
- Mental sub normality
- The deficiency is developmentally linked
- The retardation finally comes on maturity
- Retardation is constitutional in origin
- It is essentially incurable

Characteristics of Mental Retardation

In many ways mentally retarded children are not different from normal children. Some authorities have described the characteristics according to the severity of retardation; some other experts opine that the characteristics depend upon the level of educatability. Thus, we have two different categories of the characteristics of mentally retarded children. They have been discussed below:

(i) General Characteristics of Mentally Retarded Children:

- The intelligence of mentally retarded children may be low and according to its mental level, its development is not adequate.
- There are two types of mentally retarded children-

(1) Educable mentally retarded with an IQ of 50-75 and

(2) Trainable mentally retarded with an IQ of 55-50.

- A mentally retarded child is different from a normal child for physical development, adjustments and learning emotions.
- There are several reasons for the poor adjustment of a mentally retarded child – insecurity and lack of motivation being primary.
- It is usually very difficult to identify such children. They are not able to generalise or conceive abstract thinking concepts.
- Some specific features of mentally retarded children are as follows:

  1. Delay in development.
  2. Short temper.
  3. Lack of coordination.
  4. Inability to remember.
  5. Lack of concentration.
  6. Inability to decide.
  7. Inability to understand quickly.
  8. Inability to learn fast.
  9. Absence of clarity and
  10. Slow reaction.

(ii) Specific Characteristics of Mentally Retarded Children: The features of mentally retarded children have been classified into three categories: They are as follows:

1. **Educable Mentally Retarded (EMR):** The Educable Mentally Retarded children have an IQ of 50 to 75. Such children may not be identifiable until they become teenagers. At an intellectual level such children are able to learn only the basic subjects taught at school and acquire the basic skills of learning, reading, writing and mathematical calculations. Upto the age of 13 they are expected to acquire these skills. Such children are able to make friends, communicate socially and participate in group activities of the school. Their disorder may never get noticed. They can eventually go on to have a skilled or semi skilled based job, they may get married, have children, be good parents and also travel on their own to far off places. However sometimes they may need assistance in their jobs for functions which may otherwise seem quite easy for others.
2. **Trainable Mentally Retarded (TMAR):** The Trainable Mentally Retarded children have an IQ of 25-50. Due to the disorder such children tend to have sensory or physical impairments which may make them have different physical characteristics or facial features. Due to their

NOTES

NOTES

deformity they have very limited formal academic learning. They can be taught to feed, dress and do the necessary ablutions themselves. They can converse rudimentarily with others and at best do the basic household work. They however need expert help from an apt institution to teach them the basic skills of rudimentary academics, language development and self care activities. Special schools or classes are required for such children.

3. **Custodial Mentally Retarded (CMR):** The Custodial Mentally Retarded children have an IQ below 25. Due to the disorder such children are so much retarded in their intellectual functioning and adaptive behaviour that they are completely dependent on others for their existence. This retardation is so severe that the child never goes to a normal school and needs a special institution from the beginning. Such children may not even be able to perform the tasks of speaking and ablutions.

13.3.1 Different Types and Identification of Mentally Retarded Children

How to know who is really mentally retarded? Despite the controversy over the concept of IQ, IQ continues to be a criterion for identification of retardation and its classification. The concept of adaptive behaviour is also used in classification and identification. It refers to the effectiveness with which an individual copes with the natural and social demands of his environment. There are also certain tell-tale signs observable in these children.

Behavioural Signs

Certain behavioural signs give an indication of the presence of mental retardation among children. These can be observed by teachers and parents.

1. General academic retardation characterised by slow rate of learning, poor problem solving skills, slow reaction to environmental demands.
2. Poor memory and inability to retain things mentally for long periods.
3. Difficulty in developing concepts, especially abstract concepts. Absence of clarity.
4. Inability to arrive at generalisations and see common elements among different objects or events.
5. Slow language development-usually the language is limited in terms of vocabulary and variety.
6. Below average in imagination and creative thinking.
7. Inability to delay gratification and satisfaction by immediate reward.
8. Short attention span and intolerance of frustration.
9. Limited play and social interests.

10. Lack of concentration, heightened distractibility and incapacity for comprehension.
11. Lack of coordination in self-help skills (sucking, chewing, eating, use of hands, legs, fingers, etc.).
12. Some have physical features like a small or large head, small eyes, straight hair, fissured tongue, low set ears, and short stature, physical deformities and paralysis of one or more limbs.
13. In case of school going children there are repeated failures and inability to cope with the lessens.

Testing

For the mentally retarded, assessment includes basically intelligence and adaptive behaviour along with developmental material supplied by parents, teachers, social workers and professionals. The two most widely used intelligence tests are: the Stanford Binet, and the Weschler Intelligence-Scale for Children. These individual tests along with functional assessment tests developed by the National Institute for Mentally Handicapped can be used.

Adaptive behaviour is assessed using adaptive behaviour scales. In these scales, assessment is made on the basis of maturational and developmental skills in the areas of communication, motor ability and self-help in early childhood. In later periods, learning and social skills receive greater emphasis. During adolescence, social and vocational adjustments are emphasised. AAMD adaptive behaviour scale and the Vineland Social Maturity Scale are quite well known tests of measuring adaptive behaviour.

The National Institute for Mentally Handicapped (NIMH) at Secunderabad has done commendable work in developing behavioural assessment scales for Indian Children with Mental Retardation, Functional assessment tools, Assessment of the Mentally Retarded Individuals for grouping and teaching; Problem Behaviour Checklist; Maladaptive Behaviour Checklist; Behaviour disorder checklist; Adaptive Behaviour Scale (Indian Revision); etc. The skill development tests for Gross and Fine motor skills, Meal time skills, Toilet Training, Tooth Brushing, Bathing, Grooming and Social skills, activities developed in a series of bookets by Thakur Hariprasad Institute for the Welfare of Mentally Handicapped would also go a long way in bridging the gap between testing and training for the development of skills.

The approach so far has been the use of psychometric tests even though adaptive behaviour assessment has formed a basic component in testing for screening, placing and making any intervention. Although AAMD Adaptive Behaviour Scale, Vineland Social Maturity Scale and a few others have been adapted in our country, there have been wide shortcomings in their use. There are culturally atypical children, hyperactive children to whom such tests can be administered with lots of difficulties.

NOTES

Classification of Mental Retardation

There are different methods of classification of mental retardation. The medical classification is based on the cause, the psychological classification on the level of intelligence, and the educational classification on the current level of functioning of the mentally retarded person/ child. The proportion of children who fall under the various categories of mental retardation are depicted below.

Medical		Education	Psychological	
			Wechsler	Standard Binet
1.	Infections and Intoxications	1. Educable-IQ 60-85	1. Mild IQ 55-69	IQ-52-67
2.	Trauma or physical agent	2. Trainable-IQ 30-59	2. Moderate IQ 40-54	IQ-36-51
3.	Metabolism or Nutrition	3. Custodial-IQ Below 30	3. Severe IQ 25-39	IQ-20-35
4.	Gross brain disease (Post natal)		4. Profound IQ Below 25	IQ-20-35
5.	Unknown Parental influence			
6.	Chromosomal anomaly			
7.	Gestational disorder			
8.	Environmental influence			

The various classifications provide an understanding of the level at which the mentally retarded person functions with respect to his education, appropriate behaviour and the degree of his independence. The characteristics of mentally retarded persons vary depending upon the level of retardation, country, age, culture etc. The terms currently used to describe the various degrees of mental retardation are mild, moderate, severe and profound.

Learning and Memory

Mildly retarded children have poor learning ability and they forget things quickly. They have a slow rate of responding. Hence, learning difficulty in the mildly retarded can be partly overcome by slowing down the rate of presentation. Pictorial presentation of materials has facilitatory effect on recall. Sen and Sen (1969a) displayed pictures on two occasions with a gap of one month. Recall improved when larger numbers of pictures were displayed. Sen and Sen (1969b) in an experimental study tried to determine the effect of prior learning on subsequent learning in MR. The results showed that a higher degree of prior learning, led to a positive transfer in learning of the second list. Repeated learning improves memory in the mentally retarded. They are deficient in short term memory. Mentally retarded children have rehearsal deficit. If they are taught rehearsal strategies, they improve in memory. Presentation of materials using concrete objects improve both learning and memory followed by pictorial and symbolic material presentations.

Das (1965) found that the retarded had longer reaction time. The retardates were found to be more sensitive than normal children to evaluative verbal stimuli like 'good' and 'bad'. Retardates could name colours faster than they could read words, and showed relatively less interference than normal in naming the colours of words. Intelligence level among the retarded was related to the ability to acquire and distinguish verbal conditioned responses. The mildly retarded Children suffered

NOTES

from lack of sustained and analytic attention. In the words of Zeaman and House (1963) they have attention deficit. Failure to attend to details is responsible for poor learning. Further these children have low threshold for failure and they attribute their failure to external sources.

They learn better under conditions of tangible and immediate reward. And they do not have the ability to delay gratification. Non contingent approval and attention also improves their learning. They have poor concentration and short attention spans.

If these are the characteristics they display, then what is to be done to help them? Because of their slow rate of learning, mentally retarded children need more extended periods of activities for academic preparation. There is a need to develop their reasoning ability, Primary school teachers need to emphasize manipulation of concrete objects. Varied experiences should be provided to enhance their imaginative powers. The motto for them should be 'learning by doing'. The goals of learning should be adjusted to a basic level because of the slow rate of learning, the need for more repetition, and the mastery of less material.

A few concrete example of visual discrimination training would be:

a. Matching pictures, patterns on the floor,
b. Circling all 'a's or 'b's in a printed page,
c. Having pupils match lower and upper case letters,
d. Having pupils find hidden objects in pictures,
e. Having pupils reproduce block designs/pictures.

Auditory discrimination training would consist of:

a. Identifying the voices of classmates,
b. Making pupils differentiate sounds after listening to rhymes.

Learning and Memory Training would involve:

a. Asking children to write words on small strips of paper; then cutting the words into syllables, mixing up the pieces and asking them to reconstruct the words.
b. Distributing some cards with arithmetical problems and some with answers randomly among pupils in the class, then asking children to move from their seats to another place in the room and read the problems on their cards. Then the children with the correct answers should carry their cards to the child with the problem,
c. Making children choose the correct letters the teacher names from a scrambled group of letters.
d. Demonstrating the concept of cooperation by conducting a three-legged race.
e. Making pupils form two lines of unequal length to illustrate the concepts of longer and shorter.

NOTES

f. Developing comprehension of sequence: giving several pupils sentence strips, each containing a historical fact or an event in a story. The pupils must then physically arrange themselves in the order in which the events occurred.

Mentally retarded children have difficulty with memory. In order to translate short term storage to long term storage the teacher has to: (1) Involve the child in doing certain activities, (2) Asking him to move, and verbalize a number line instead of merely verbalizing, (3) Asking him to set a goal before engaging in a task, (4) Giving a reward contingent upon successful completion of a task, (5) Presenting material in varying tones instead of using a monotonous pattern of presentation.

Materials learned can be made more meaningful by giving examples. Material becomes more relevant when it is related to past knowledge and experience. For example:

- Have pupils close their eyes and form a mental image or picture of the attributes of a word, or form a mental picture associating a word with experience.
- Use verbalization to relate facts. Columbus sailed in the blue ocean in 1492.
- Describe an event in the pupils' own words instead of restating the event exactly as presented in the book or in your own words.
- Use drill and over learning for most school learning. Practice should be spaced over a period of time, with more frequent repetition in the initial stages. Practice should continue until pupils can retrieve the information with ease.

Check Your Progress

3. What do you understand by the disorder of mental retardation?
4. What are the two types of mentally retarded children?

13.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. According to W.M. Cruichshank, 'an exceptional child is he who deviates physically, intellectually, emotionally and socially so markedly from normal growth and development that he cannot be benefited from a regular classroom programme and needs special treatment in school.'
2. The following are the behavioural characteristics of gifted children:
   - Early language development.
   - Probing and pinching at food.
   - Peering thoughtfully at strangers.
   - Walking at 10 or 11 months of age.

NOTES

3. According to the American Association of Mental Retardation, the disorder of Mental Retardation can be defined as–'A significantly sub-average general intellectual functioning, resulting in or associated with concurrent impairment in adaptive behaviour, and manifested during the developmental period.'
4. There are two types of mentally retarded children:
   - Educable mentally retarded with an IQ of 50-75 and
   - Trainable mentally retarded with an IQ of 55-50.

13.5 SUMMARY

- The education of exceptional children is quite a stimulating and interesting field for educators and for those who are concerned with the welfare of exceptional children.
- The term exceptional child is difficult to define because the word exceptional carries different meanings. It represents medical as well as psychological groupings of children.
- '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.'
- Exceptional children do not benefit from regular classroom teaching. For example, we can take the case of gifted children. These children do not get proper motivation in regular classes.
- The definition of giftedness has been given from different angles. Some psychologists emphasize the importance of superior endowment, others on exceptional performance of the individual in different walks of life.
- The most difficult problem before the educators is how to make provision for the education of gifted children so that their potential ability may be developed to the maximum.
- Gifted children are, by definition, 'Children who give evidence of high performance capability in areas such as intellectual, creative, artistic, leadership capacity, or specific academic fields, and who require services or activities not ordinarily provided by the school in order to fully develop such capabilities.'
- For the mentally retarded, assessment includes basically intelligence and adaptive behaviour along with developmental material supplied by parents, teachers, social workers and professionals.
- Mildly retarded children have poor learning ability and they forget things quickly. They have a slow rate of responding.

NOTES

13.6 KEY WORDS

- **Special education:** Special education is a form of learning provided to students with exceptional needs, such as students with learning disabilities or mental challenges.
- **Gifted children:** Gifted children are children who give evidence of high performance capability in areas such as intellectual, creative, artistic, leadership capacity, or specific academic fields, and who require services or activities not ordinarily provided by the school in order to fully develop such capabilities.
- **Mental retardation:** Mental retardation is a developmental disability that first appears in children under the age of 18. It is defined as an intellectual functioning level that is well below average and significant limitation in daily living skills.

13.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions

1. What are the types of exceptional children?
2. What are the characteristics of gifted children?
3. What are the needs and problems of gifted children?
4. Mention some types of techniques that are used to identify giftedness.

Long Answer Questions

1. Discuss the importance and need of special education.
2. Identify the positive and negative characteristics of the gifted adolescents.
3. Describe general characteristics of mentally retarded children.
4. Explain the different methods of classification of mental retardation.
5. Discuss the needs and problems of mentally retarded children.

13.8 FURTHER READINGS

Colman, Andrew. 2016. *What is Psychology?* United Kingdom: Routledge.

Eysenck, W. Michael. 1994. *Perspectives on Psychology*. United Kingdom: Psychology Press.

Carr, Alan. 2012. *Clinical Psychology: An Introduction*. United Kingdom: Routledge.

Nevid, S. Jeffrey. 2012. *Psychology: Concepts and Applications*. United States: Cengage Learning.

Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. United Kingdom: Psychology Press.

UNIT 14 INDIVIDUAL DIFFERENCES

Structure

NOTES

14.0 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 concept and areas of individual differences.

14.1 OBJECTIVES

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

- Define the concept and areas of individual differences
- Identify the types of individual differences
- Explain the causes of individual difference
- Describe the importance of individual differences

14.2 CONCEPT AND AREAS OF INDIVIDUAL DIFFERENCES

The terminology in psychology that has been applied to differences between individuals which makes one a unique individual, is known as *individual*

NOTES

differences. In the words of Charles E Skinner, 'Today we think of individual differences as including any measurable aspect of the total personality'.

We observe that no two learners are alike. Individuals differ in their physical characteristics, emotional characteristics, personality traits—interests, achievement, etc. Mass procedures, no matter how well-intentioned, fail to accomplish the objective of education unless they are supplemented by adequate attention to the individual. This makes it increasingly necessary to have a definite provision of certain form of guidance—guidance which must treat the individual as an individual.

Differences among children may be slight, moderate or extreme. For example, one child may be extremely dull, other intelligent and another extremely intelligent. It has also been observed that differences are found not only among different individuals but can be noticed within the same individual too. For instance, a child may be very good at mathematics but very poor in language expression. A child may do exceedingly well in academic subjects but his performance in the sports field may be very poor. Some may be very good in acting, dancing and musical activities and *vice versa.* Differences are noticed in the way a child reacts to different situations.

Similarities among Children

Like differences, children have some general similar characteristics too. All the children have sense organs, brain, muscles and glands and through the joint action of all these intellectual capacity appear. Every child has some intellectual capacity. The emotions of anger, love, fear and the feelings of pain and pleasure are prevalent in each child. Moreover, he/she feels the need of independence, success and achievement. Every child is influenced by the customs and traditions of the society. Every child also has some rights and responsibilities.

Determinants of Individual Differences

These may be classified under two heads:

1. Hereditary factors 2. Environmental factors

Heredity of an individual is contained in the seed while the environment comprises factors like sunlight, soil, temperature and traditions, customs, rites, a code of ethics, philosophy, literature, and contact with other individuals, etc. Parents, teachers, community and society are expected to play a significant role in providing a rich social environment for a balanced development of its members.

All human beings need help. The same is true with all students. Of course, the degree of guidance needed differs from student to student in view of individual differences.

Dimensions of Individual Differences

Broadly speaking, there are two dimensions of individual differences—psychological differences and physical differences.

Psychological Differences

NOTES

These include:

1. Emotional differences
2. Intelligence
3. Readiness
4. Curiosity and eagerness to learn
5. Experience of success
6. Attention span
7. Academic performance
8. Difference in abilities, attitudes and traits
9. Difference in achievement
10. Difference in social behaviour
11. Sex difference

Psychological differences are being discussed in detail below:

1. **Emotional differences:** Some children are calm most of the time. Some are generally irritable. Some are very peaceful and some become angry very easily. Anger is common to all people but its intensity and depiction differs in different people. Differences in personality characteristics among children also range from very slight to extreme. They are also found to behave differently in different situations. One child may be bold and talkative at home, but may be very quiet and subdued in the school. We also note different children reacting differently in similar situations. For example, when two children are scolded by the teacher for not doing their homework; one child may take it in his stride and decide to be regular in future, whereas the other may cry and refuse to go to school the next day.
2. **Intelligence:** Children differ immensely in intelligence as well. Intelligence refers to (*i*) capacity to learn with speed and accuracy (*ii*) capacity to solve problems, (*iii*) capacity to adjust in the society. Terman has classified mental ability on the basis of intelligence quotient (IQ) as under:

Level of mental ability	***IQ range***
Genius	140 and above
Superior	Between 140 and 110
Normal	Between 110 and 90
Dull	Between 90 and 80
Borderline mentally deficient	Between 80 and 70
Feeble-minded	Below 70

Performance of the individual as a teacher, as a person, as a citizen, as a worker and as a student largely depends upon the intelligence he possesses.

Testing of intellectual abilities led to the discovery that intelligence continues to increase from birth till it reaches a peak about the middle of adolescence.

NOTES

According to some studies, 50 per cent of that development (which is realized at age of seventeen), takes place between conception and the age of four, about 30 per cent between ages four and eight and about 20 per cent between ages eight and seventeen. An example of a test that shows the growth of intelligence is the number of digits a child is able to repeat. The number increases as follows:

Age of child	***Digits he/she is able to repeat***
2 years 6 months	Repeats 2 digits, e.g., 4-7, 6-3, 5-8
3 years	Repeats 3 digits, e.g., 6-4-1, 3-5-2, 8-3-7
7 years	Repeats 5 digits, e.g., 3-1-8-5-9, 4-8-3-7-2, 9-6-1-8-3, or alternatively repeats 3 digits backwards, e.g., 2-9-5, 8-1-6, 4-7-3
9 years	Repeats 4 digits backwards, 8-5-2-6, 4-9-3-7, 3-6-2-9
10 years	Repeats 6 digits, 4-7-3-8-5-9, 5-2-9-7-4-6, 7-2-8-3-9-9
12 years	Repeats 5 digits backwards, 8-1-3-7-9, 6-9-5-8-2, 9-2-5-1-8

3. **Readiness:** Readiness for learning is different in different children; not all children are at the same stage of readiness for learning when they enter school or when they are promoted to the next class or even when a new topic or unit is to be introduced in a subject. This makes a difference in the new situation.
4. **Curiosity and eagerness to learn:** Considerable difference can be detected in the degree of curiosity and eagerness that the students display. These differences may be partly due to their early upbringing and experiences at home and the family influences.
5. **Experience of success:** It is observed that children with a history of early success persist in their efforts to succeed further.
6. **Attention span:** Difference in the attention span, or the length of time for which a child can pay attention continuously to one activity is also responsible for the difference in the level of academic and other performances.
7. **Academic performance:** Even though all the children are taught by the same teachers and by the same methods in a particular class, they show different levels of performance. All children do not learn at the same speed. Some learn slowly, some with average speed and some learn very fast.
8. **Difference in abilities, attitudes and traits:** Wide variations have been observed among children in the field of creative abilities, special aptitudes and personality traits.
9. **Difference in achievements:** Through achievement tests, it has been found that children differ in their achievement abilities. This difference is more pronounced in learning mathematics and in reading. Difference in achievement is also seen between those children who are at the same level of intelligence.
10. **Differences in social behaviour:** Differences in social behaviour are observed in children in the same class because they come from different

socio-economic backgrounds, from different communities, from different regions, from different localities, etc. These differences are seen in the way children walk, the way they talk, the way they dress, the way they behave and so on. These differences are reflected in their motivation, readiness and achievement.

11. **Sex differences:** There is a general belief that motor skills requiring great endurance, muscular strength and persistence, can be better tackled by men than women. Women are supposed to excel in skills involving close coordination of small muscles and attention to detail. Bergen (1943) found that differences in sex are not significant in pre-school and primary grade children.

    G Fifer (1962) made several studies on grade placement of pupils in relation to age and ability and found that at elementary levels, the girls score higher than boys on achievement test. F R Pauly (1958) concluded that the boys' education should begin after six months from the beginning of the education of the girls. R S Carter's (1953) studies show that the teachers tend to give higher marks to the girls on their own tests as compared to the scores which they obtain on a standardized test. The boys are awarded lesser marks than the girls on the teacher-made tests. According to F S Sobel (1956), girls are given higher marks than boys at elementary level. At secondary level, the lady teachers tend to give more marks to girl students.

Physical Differences

Among the physical differences, important differences are as follows:

(a) Differences in chronological age

(b) Differences in physical maturity

(c) Differences in health status

(d) Physical fitness and fatigue

(e) Differences in appearances.

(a) Differences in chronological age: There is a general belief that children learn better than adults. Many studies have been made on the relation between age and learning. The results indicate that the ability to learn new material increases until about 16 years. Thereafter, it remains constant till 20's. After that there is a slight drop. Round about 50 years, the drop becomes sharper. A result of an experiment to test the retention of items at different intervals of time after viewing a motion picture is given below:

Group	***No. of Items Retained After***		
	1 day	6 weeks	12 weeks
8 to 9 years	52	47	48
11–12 years	66	59	56
15–16 years	81	71	65
Adult	88	72	73

NOTES

Difference in the speed of learning and retention does not depend upon age but more on the mental age or levels of intelligence. Variation in methods and motivation may make it possible for children to learn a given task even at an earlier or later age.

(b) Difference in physical maturity: It is noted that even though the children may be more or less of the same age they may not necessarily have the same level of mental and emotional maturity for learning. This may be on account of different levels of physical maturity. The capacity to learn is vitally connected with the growth and maturity of the nervous system, the development of muscles, body proportions and the functioning of the sensory organs. Physical maturity, thus, affects readiness to learn. It is also one of the underlying reasons for differences in interests in early and late maturers. It must be remembered that adequate physical development is essential for satisfactory mental functioning.

(c) Health status: The teacher must realize how a child's general health status affects his behaviour including learning and academic work. Undernourishment or malnourishment of the child may affect learning efficiency.

(d) Physical fitness and fatigue: It is often seen that some children look rather tired when they reach school. Naturally their response in learning situation will be different in quality from those who arrive feeling fresh. Some children are required to travel long distances either by foot or by bus to reach school. They are tired and fatigued by the time they arrive. They have to put in more effort. There are children who come from underprivileged households and they may have to do many tasks at home to help their parents in different ways. Thus they may not find enough time to devote to their studies.

(e) Difference in appearance: Body-built may influence the self-concept of an individual on account of the expectations of adults and other children. Usually, a tall boy may be chosen as leader by classmates. In the class, some children are outstanding in their looks which are perceived to be good, others are ordinary, a few are plain and one or two border on ugliness. These differences in looks do affect interrelationships among the pupils as well as between pupils and teachers, as they determine to some extent how others react. These interpersonal relationships, in turn, affect the child's self-concept, attitude to life and interest in school work. Teachers must highlight other strong points of children to build their confidence and to lay the foundation of a healthy life.

14.2.1 Implications of Individual Differences for Organizing Educational Programmes

We have seen how children differ in various aspects. It is quite clear that the same curriculum, same methods of teaching and same discipline and in some cases, even the same educational institution will not serve the individual needs of children. Ideally speaking, each student needs a particular setting and individual instruction

with a lot of group interaction. This, however, is not feasible in normal life. At the same time, individual differences of children must be catered to. There are five broad areas in which a lot of work could be done to take into consideration the individual differences. These are as follows:

NOTES

1. Streaming of students 2. Curriculum planning
3. Disciplinary treatment 4. Guidance and counselling
5. Special schools for the handicapped children

1. **Streaming or grouping of children:** Many methods are adopted to group children. Some schools divide students of the same age into classes and each class is further divided into different sections so that the number of students taught together is reasonably manageable. Many schools, while adhering to age, divide students into different sections as homogenous groupings. Usually this grouping is based on intellectual attainments or on intelligence tests, etc. In homogenous groups, the children of high ability, of medium ability and of low ability are kept together in separate sections. Different methods of teaching-learning are followed in different sections. Some psychologists oppose homogenous groupings and favour the division of children in heterogeneous groupings. The gifted as well as the low achieving students are taught together in such groupings. Usually following arguments are cited by the protagonists of this type of grouping:
   (i) The dullards can get incentives and motivation from the normal children.
   (ii) Normal children can get motivation and incentives from the gifted.
   (iii) The gifted get opportunities to lead other children.
   (iv) In homogenous groupings, some sections take the position of privileged groups and others as unprivileged groups. There is rivalry among the teachers as all teachers tend to prefer to teach intellectually normal or superior children and avoid teaching weak students. This does not happen in heterogeneous grouping.
2. **Curriculum planning and individual differences:** In progressive schools, teachers provide a rich and flexible curriculum. Efforts are made to take into consideration the three A's, i.e., age, ability and aptitude of the children. Some schools make provision for advanced and ordinary courses in some subjects. They also provide a variety of curricular activities.

   Often it is noted that some children are weak in science and mathematics but good at language, art and music. It is not a wise policy to prepare such children for the engineering or medical courses. The result would be disastrous both for the children as well as the society.

   Some students tend to go faster than others. Such students may be given double promotion or separate streams can be formed. Some additional work can be given to them so that their progress is not stunted due to the slow learners. Similarly, steps will have to be taken to ensure that the slow learners also make satisfactory progress commensurate with their capacity and ability to work.

NOTES

A deaf, dumb, or blind child would need guidance in the selection of such a vocation where his physical defect may not be a handicap and he can be made able to earn his living in an honourable manner. Such students need special educational courses. Ordinary schools fail to do justice to them.

3. **Disciplinary treatment**: Circumstances pave the way for different individuals. As each person goes through the journey of life, their background and ethics may infer that they demand or need disciplinary treatment. There are some students whose parents are very dominating with the result that their children develop inferiority complex. Too lenient parents allow their children to be free-lancers and such children suffer from other complexes and develop bad habits. Children of the rich and the poor have altogether different situations to be faced with.
4. **Methods of teaching:** The learning and other experiences of children who come from backward homes are usually limited. Hence methods of teaching should be adopted which may broaden their outlook. Gifted children learn very rapidly. Therefore, they need to be provided with more opportunities to explore. Remedial teaching should be adopted in the case of weak students.

   The Dalton Plan of Helen Parkhurst and Winnetaka Plan of Carletone Washbume are various attempts to individualize instruction. Project method of Kilpatrick is the middle way of individual instruction and group instruction.
5. **Guidance**: The programme of proper guidance is not confined to the selection of subjects, schools, vocations, etc. All children need guidance in every aspect for their harmonious development. They need guidance in fields such as recreational, moral and religious, social adjustments, cultural pursuits, physical development, etc.

   (i) *Educational Guidance*: Educational guidance should begin as soon as a child enters the school and should continue till he leaves and even after that. In the words of Jacobson, 'Neglect of guidance service at any stage in the progress of pupils may result in serious complications at a subsequent stage. As a result, a pupil may experience mal-adjustment not only difficult to resolve but also costly to the school system'.

   Any attempt to separate different aspects of guidance would result in one-sided point of view and prove to be unwise and ineffective guidance. However, for the sake of convenience, we take up various areas of guidance for meeting the needs of individual differences. These are closely related to the educational development of the child.

   (ii) *Health Guidance*: Parents adopt an indifferent attitude towards the health of their children. As a general rule, the responsibility of looking after the health of the child falls upon the teacher. Need for health guidance is apparent as soon as the child enters the school. It lasts throughout the stay of his life in the school. The teacher or the counsellor should distinguish a child with good health from one with bad health.

Children suffering from physical ailments should at once be referred to the school doctor or nurse as the case may be. It is not very difficult for the teacher to locate eye defects, ear defects and cases of abnormal speech.

(iii) *Social Guidance*: Schools must train students to participate effectively and harmoniously in the affairs of the social group to which they belong. Situations have to be provided in the school whereby children learn the 'art of living together'.

(iv) *Recreational Guidance*: A rich programme of the school's co-curricular activities provides opportunities to the students to use their leisure profitably. The school magazine, school farm, school clubs, playground, etc., are the various means to provide suitable outlets for the energies of the students. Such programmes should be conducted under the guidance of those teachers who have the capacity to guide the students in accordance with their interest and abilities.

(v) *Ethical Guidance*: Lack of guidance at home necessitates that the schools should cultivate moral and spiritual values among the students. The best way of doing this is to provide opportunities to the students through which they practise the various virtues that are required to be cultivated in them. No amount of sermons from the elders will be of much help. Ethical values must be learnt through practical situations. Of course the teachers are required to set a high standard of ethical code before their wards.

(vi) *Gender related Guidance*: Individual needs of different sexes should be properly attended to. Students should be helped to select appropriate courses suiting their sex.

General Guidelines for Meeting the Needs of Individual Differences

1. The school programme, administration and management should be made flexible enough to allow for adjustment to individual differences.
2. A wide range of experiences to pupils should be provided in the school.
3. Courses should be selective to meet the needs of individual students.
4. School programmes should take into account the needs of those students who are not likely to go to college as well as those who would join college.
5. Opportunities for acquiring manual and mechanical skills should be provided to students.
6. Remedial instruction should be made available to students who need it.
7. Counselling should be provided to students.
8. Courses should be organized in such a way as bright pupils can learn at their own speed and slow pupils follow their own speed.
9. Guidance regarding co-curricular activities should be provided.
10. Outlets for the release of children's tensions through provisions of plays in the form of dramatics, games, sports and a variety of other self-expressive and creative activities should be provided.

NOTES

11. Assignment should be adapted to the needs of students.
12. Special care should be taken to accept the under-achieving child as a unique individual. His particular needs should be immediately attended to.
13. Efforts should be made to re-establish child's confidence in himself/herself.
14. The teacher should seek the cooperation of other teachers and the parents of the under-achievers.
15. In case of deep-rooted emotional problems which lie at the root of under-achievement, referral may be made to a child guidance clinic after taking the parents into confidence.
16. Students should be taught to recognize their handicaps, and can be counselled through methods to overcome or compensate for them.
17. Some programme of parents' education may be taken up as many problems of the students result from unsatisfactory home conditions.
18. It is very important to observe absolute honesty and frankness in dealing with parents about their children's problems.
19. Good working relations should be established by the school with community agencies like the juvenile court and youth council.
20. Much responsibility may be given to the students for organizing their programmes.
21. Undue reliance should not be placed on tests and measurements.
22. School marks should not be accepted as the sole evidence of successful student development.
23. Case histories of each child from kindergarten through higher secondary school must be made available to concerned persons and kept up-to-date.
24. Small classes may be organized.
25. Time for home visits or conferences with parents should be provided.
26. Opportunity to secure advice from specialists in diagnosis of difficulties should be provided.
27. A good system of accessible cumulative records must be developed.
28. Time table should be arranged in a way that the teachers may compile and use them (cumulative records).
29. School personnel and parents should accept the statement that honest labour performed to the best of one's ability is worthy of commendation, whether the work be in the shops or offices, factories or farms.
30. Professional service to aid teachers in developing the attitudes, skills, and techniques necessary for successful counselling should be provided.
31. Necessary material for testing and recording data necessary to understand the individual child's needs, aptitudes and interests be provided.

Check Your Progress

1. What are the two dimensions of individual differences?
2. Mention any two guidelines for meeting the needs of individual differences.

14.3 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

NOTES

1. The two dimensions of individual differences are psychological differences and physical differences.
2. The following are guidelines for meeting the needs of individual differences:
   - A wide range of experiences to pupils should be provided in the school.
   - Courses should be selective to meet the needs of individual students.

14.4 SUMMARY

- The terminology in psychology that has been applied to differences between individuals which makes one a unique individual, is known as individual differences.
- Like differences, children have some general similar characteristics too. All the children have sense organs, brain, muscles and glands and through the joint action of all these intellectual capacity appear.
- Heredity of an individual is contained in the seed while the environment comprises factors like sunlight, soil, temperature and traditions, customs, rites, a code of ethics, philosophy, literature, and contact with other individuals, etc.
- Differences in personality characteristics among children also range from very slight to extreme.
- Children differ immensely in intelligence as well. Intelligence refers to (i) capacity to learn with speed and accuracy (ii) capacity to solve problems, (iii) capacity to adjust in the society.
- Difference in the attention span, or the length of time for which a child can pay attention continuously to one activity is also responsible for the difference in the level of academic and other performances.
- Differences in social behaviour are observed in children in the same class because they come from different socio-economic backgrounds, from different communities, from different regions, from different localities, etc.
- Many methods are adopted to group children. Some schools divide students of the same age into classes and each class is further divided into different sections so that the number of students taught together is reasonably manageable.
- In progressive schools, teachers provide a rich and flexible curriculum. Efforts are made to take into consideration the three A's, i.e., age, ability and aptitude of the children. Some schools make provision for advanced and ordinary courses in some subjects. They also provide a variety of curricular activities.

- The programme of proper guidance is not confined to the selection of subjects, schools, vocations, etc. All children need guidance in every aspect for their harmonious development.

NOTES

14.5 KEY WORDS

- **Intelligence:** Intelligence is the ability to acquire and apply knowledge and skills.
- **Curriculum:** In education, a curriculum is broadly defined as the totality of student experiences that occur in the educational process.
- **Readiness:** Readiness is the state of being fully prepared for something, willingness to do something, the quality of being immediate, quick, or prompt.

14.6 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short Answer Questions

1. What are the types of individual differences?
2. What are the causes of individual difference?
3. Mention the major principles of individual difference.
4. Identify the nature of individual differences in educational psychology.

Long Answer Questions

1. Discuss the psychological differences in individuals.
2. Explain the physical differences in individuals.
3. Describe the general guidelines for meeting the needs of individual differences.
4. Explain the importance of individual differences.

14.7 FURTHER READINGS

Colman, Andrew. 2016. *What is Psychology?* United Kingdom: Routledge.

Eysenck, W. Michael. 1994. *Perspectives on Psychology*. United Kingdom: Psychology Press.

Carr, Alan. 2012. *Clinical Psychology: An Introduction*. United Kingdom: Routledge.

Nevid, S. Jeffrey. 2012. *Psychology: Concepts and Applications*. United States: Cengage Learning.

Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. United Kingdom: Psychology Press.