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PSYCHOLOGY: UNDERSTANDING SELF AND OTHERS

We often experience moods of anger and joy. We do have remarkable ability to learn and memorize poems, stories and events. We often notice powerful effect of leaders on the behaviour of followers. While interacting in groups we often experience conflict and cooperation. At times some of us suffer from depression, hyper-anxiety, etc. All of us remain curious to know about the causes of these happenings and try to make sense in our own ways. Our understanding is often based on beliefs and personal experiences which may not be true. The knowledge gathered in this way cannot be used to formulate theories or to solve problems faced by people in their lives. We need dependable and relatively accurate understanding of the principles describing the working of human mind and behaviour. Psychology is the subject that provides insights into various aspects of human behaviour. In this lesson you will learn about the nature of psychology, activities of psychologists and different branches of psychology.



OBJECTIVES

After studying this lesson, you will be able to:

- explain the need for the study of psychology and nature of psychology;
- describe what psychologists do;
- state briefly the development of psychology as a discipline;
- state the relationship of psychology with other allied disciplines; and
- describe the changing face of psychology and different fields of psychology.



1.1 NEED FOR THE STUDY OF PSYCHOLOGY

People hold a variety of expectations from the study of psychology. Many of them are because of ignorance but some are also true. Psychology promises to help us in understanding how various mental functions operate and how people behave in different conditions. Its principles and theories are used in many situations. Psychology is relevant to solving teaching-learning problems in schools, problems in socializing children at home, motivating people in organizations and helping people to solve their emotional problems in personal lives. In addition, there are numerous human phenomena which require psychological theories and techniques. Selection of people for various jobs, assessing abilities and aptitudes of people, providing training for developing skills, setting goals and motivating people to achieve them and improving the style of life for better health are some of the very popular applications of psychology. In brief, understanding the growth and development of a person or functioning of a group are important areas of psychological applications.

Thus it is clear that the study of psychology is needed to understand ourselves better in terms of the potentialities that we possess and shaping them in desired directions. Such an effort is also done at the level of groups and organizations which represent human collectivities. In other words, a proper study and understanding of psychology can help us understand ourselves and others better and enhance the quality of life.

1.2 NATURE OF PSYCHOLOGY

How human beings receive information from environment and perceive objects?

How people, learn and remember experiences?

How do people think, reason and solve problems?

How do they differ in various psychological characteristics like intelligence, personality and interest?

How do people cope with various problems in life?

A moment's reflection will make it clear that in all the above questions brain, mind or mental activities and behaviour are involved. Any observable action is an outcome of a coordination of brain, mind and behaviour. Brain has a physical structure whereas mind is considered a functional correlate of brain. Psychology tries to understand the laws and principles characterizing the linkages across them in a scientific manner.



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In our everyday life we behave in different ways and use the term 'behaviour' to refer to the verbal and physiological responses and actions.

Interest in psychological issues has a long past. However, attempts to formalize the understanding of psychological phenomena in modern sense started only during 19th century. It was influenced by the developments in the disciplines of philosophy as well as natural sciences. Today psychology is considered as a science as well as a profession contributing to the improvement in quality of life. It focuses primarily on the study of various aspects of mental and behavioural functioning. Psychologists use scientific methods to understand the causes of behavioural phenomena and develop principles and theories about them. They attempt to understand various questions related to human behaviour.

In the course of its growth, in this century, psychology has expanded in many directions and has encompassed almost all areas of human life. Thus we can say that psychology is a scientific study of mind, brain and behaviour.

1.3 WHAT PSYCHOLOGISTS DO?

Many of us carry the impression that psychologists can read the face of a person and tell one's mental make up, may cure people suffering from mental abnormalities, can guess what is one's future, and can change one's mind instantaneously, like a magician. As we will see later, there is no magic in the hands of psychologists. A psychologist uses certain procedures and tools to collect information and tries to draw inferences and conclusions about the probable causes of behaviour. Psychologists share twin goals:

- (1) understanding and explaining the complexities of behaviour, and
- (2) contributing to the improvement of the quality of human life.

The academic psychologists pursuing basic research are interested in the first goal. They try to test hypotheses about the diverse aspects of behaviour and mental processes. They develop principles, laws and theories using various methods such as observation and experimentation. They make efforts to describe, explain, predict and control behavioural phenomena. In contrast, the second goal is addressed by applied psychologists who are practitioners. They try to use psychological knowledge in solving various human problems. They are engaged in activities like counselling, therapy, personnel selection, career guidance, consultancy in organizational behaviour (e.g., team building, decision making, leadership training), consumer surveys, and psychological assessment and training in various skills (e.g. communication, self presentation). Psychologists are now seen working not only in academic institutions doing research and teaching but also in institutions like hospitals, schools, industries, sports-complexes, military establishments, community centres and so on.

**Notes****INTEXT QUESTIONS 1.1**

Choose the correct alternative:

1. Psychology is most appropriately defined as the:
 - a. Study of mind.
 - b. Scientific study of unconscious mental processes.
 - c. Science of brain, mind and behaviour.
 - d. Science of behaviour and knowledge.
2. Which one of the following is not used by psychologists?
 - a. interview
 - b. reading lines of one's palm
 - c. experiment
 - d. observation

1.4 DEVELOPMENT OF PSYCHOLOGY AS A DISCIPLINE

Understanding human nature has proved to be a major concern of human beings since time immemorial. The Indian thinkers had developed elaborate theories about consciousness, self, mind, mental activities since Vedic and Upanishadic period. The Indian thought systems like Vedant, Samkhya, Yoga, Buddhism, Jainism, Sufism, etc. have generated voluminous literature relevant to psychological processes. Let us know that the scholars and teachers in Ancient India like Charaka the famous physician of first century AD, Vatsyana and Kautilya all provided the theoretical foundations to apply the Psychological principles. But there is a need to understand the concept in Indian context because social and cultural setting has its own influence on the development of Psychology.

In the western world psychology took the shape of a scientific discipline towards the end of 19th century. It is generally held that Wilhelm Wundt established the first psychological laboratory at Leipzig University in Germany in 1879. He was a pioneer and attracted a large number of students from different parts of the world who started expanding the discipline. Gradually the study of psychology was organized around certain schools of thought. The main schools are as follows:



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Structuralism : Developed by Edward Tichener , it focused on the study of consciousness and its components, i.e., sensations, images and affects.

Functionalism : Developed by William James it focused on consciousness, memory, learning and emotions as related to survival, growth and adaptation of living beings.

Behaviorism : Developed by J.B. Watson it focused on the objective study of observable behaviour.

Gestalt : Developed by Wolfgang Kohler, Kurt Koffka and their mentor Max Wertheimer this school focused on a holistic view and consciousness. Perception was the main area of study.

Psychoanalysis : Developed by Sigmund Freud it gave importance to unconscious processes, conflicts, anxiety and disorders.

The era of schools provided great opportunity for the diversification of psychology. However, it was felt that none of them could explain psychological processes in totality. As a result, there grew use of concepts from different schools of thought and use of scientific method.

Recent movements include emphasis on information theory and computational models which characterized cognitive revolution. The neural processes and role of cultural processes in shaping psychological functions are now being studied vigorously.

In modern India psychology started at Calcutta University in 1916. Dr. N. N. Sengupta was the first Head of the Department. Sri Girindra Shekhar Bose succeeded Dr. Sengupta. The Indian Psychological Association was founded in 1924 and *Indian Journal of Psychology* was started in 1925. The Lumbini Park Mental Hospital at Calcutta was founded in 1940. Gradually psychology departments were opened in various universities like Patna, Lucknow and Mysore. During seventies psychology became more popular in various areas and institutions. Its presence is widely felt in education, industry, health, defence and other related domains of life.

1.5 MAJOR PSYCHOLOGICAL PERSPECTIVES

Unlike physical objects and animals, human beings are self-conscious and can, therefore, subject themselves to their own study. This capacity to reflect about oneself makes the study of human behaviour and related processes quite complex. The complexity of studying human behaviour is further increased due to multiple causes involved in it. For example, let us see the case of someone who complains that a colleague of his/her is not working or performing upto the mark. This behaviour can occur due to many factors independently or jointly. It may be due



to lack of ability or lack of motivation or lack of supportive climate at the work place or some problem at home. Any one of these factors or their combination may result in poor performance. This is true for most of the behavioural phenomena.

Thus, we find that while psychologists do use scientific methods they cannot operate like physical or natural scientists. They have to take into account a large number of factors while studying behaviour. They share the characteristics of physical as well as social sciences.

However, the psychological predictions are complex and have certain limitations because the subject under study is human mind which itself is influenced by various factors. Their accuracy is limited by the stimuli used, type of tools used, environmental conditions and by the nature of psychological processes under study. The dynamic nature of psychological processes make generalizations difficult. Such generalizations are probabilistic in nature. In other words they indicate that under the given conditions the chance is that so and so event may take place.

While studying human behaviour we need to remember the following:

- (i) Changes are observed in individuals due to maturation, learning and ageing.
- (ii) Human behaviour at any moment is a joint function of the personal characteristics and the properties of environment.
- (iii) The measurement of psychological attributes (e.g., personality, intelligence, interest, attitude) is usually indirect and based on inferences.
- (iv) Many aspects of social behaviour are rule-governed and culture specific.
- (v) Human behaviour is usually determined by multiple causes.

The analysis and understanding of psychological phenomena essentially implies some model of human being. These models are rooted in certain cultural and philosophical assumptions. This is one important reason why there exist many approaches or perspectives to understand human behaviour.

Let us study more about these perspectives below:

Biological perspective : It considers human beings as nothing but a biological structure. Treating behaviour in purely physical terms, it looks at the internal physiological structures (e.g., brain, nervous system). Subscribing to a materialistic view it asserts that all behaviour has a physiological basis. In this view the working of nervous system and the role of genetic factors in shaping behaviour become major concerns. It is held that all social and psychological processes are derived from biological processes. This view prefers analysis of complex phenomenon in terms of smaller units. It has revealed the mysteries of brain functioning. The studies on effects of drugs on behaviour, consequences of electrical stimulation of various



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parts of brain, influence of meditation and altered states of consciousness have shown interesting results.

Behavioural Perspective : This perspective stresses on the role of environmental stimuli in determining the way people act. It argues that what we are is largely the result of past learning. Accordingly, the overt or observable behaviour becomes the subject matter of psychology. This approach does not give importance to consciousness and subjective mental states. In this tradition observable behaviour and its relationship with environmental conditions is the main focus of study. Its proponent W.J. Watson and exponent B.F. Skinner believed in the objective study of behaviour. Behaviourism has many variants but all share common interest in learning and use explanations based on observable events.

Psychodynamic Perspective : We are often unaware of the true reasons for our actions. Sigmund Freud, the founder of psycho-analysis, is closely associated with this view. Focusing on motivational questions about behaviour, this perspective examines the role of internal processes. It believes that each behaviour has a cause and that cause is to be found in the mind. It is held that much of our behaviour is governed by the unconscious processes that lie outside the range of our awareness. This view uses the observations of people suffering from mental disorders and considers early childhood experiences as determinants of adult behaviour. According to this view, human being is driven primarily by sexual and aggressive instincts. The neo-Freudians like Horney, Erikson and Erich Fromm have developed psycho-analysis in various forms. Similarly Jung and Adler developed different traditions.

Cognitive Perspective: The main focus of this view is on how people know, understand and think about the world. Much of our behaviour involves mental or cognitive processes such as perceiving, remembering and thinking. They are as important as environmental stimuli in understanding our behaviour. They mediate between environmental stimuli and organism's responses. They function in organized and systematic way. As active organisms, we process information and act upon it. Our cognitions determine the course of our behaviour. We observe the environment and respond on the basis of its interpretation. Our thoughts are both causes as well as results of our overt actions. This perspective has links with the emerging fields of cognitive science and artificial intelligence.

Humanistic Perspective : Often termed as a third force, this perspective views humans as basically good and responsible beings. It is also held that one's behaviour is not simply determined by either past experiences or the current circumstances. People can make choices. The emphasis is on 'free will'. The subjective experiences and interpretations of the people are important in determining the course of their actions. The theories must be useful not only for understanding people but also for



understanding one's own life. In this perspective, self-actualization and spirituality play important role. It tries to see the pattern in life histories of the people. It emphasizes the phenomenal or experiential world of the people. Abraham Maslow and Rogers were the chief proponents of this view.

Indian Perspective: The Indian thought system has discussed the problem of human life from a broader perspective. A human being is embedded in relationship with environment and divinity; and harmony of mind, body and soul is emphasized. People are attracted to objects of desire unmindfully and that creates problems. People are ignorant of their true nature. The difficulties in life are because we are not aware of the potentialities and misidentify with physical objects. The remedy is proposed in terms of various forms of Yoga like Bhakti, Gyan, Karma and Raj yogas. In addition, there have been many other developments in all these systems and other traditions.

1.6 RELATIONSHIP OF PSYCHOLOGY WITH OTHER DISCIPLINES

As a behavioural science, psychology is situated at the intersection of many subjects. The psychological investigations share interest with different branches of biological sciences, social sciences and humanities. All these knowledge areas are collectively known as behavioural sciences. In recent years linkage of psychology with different subjects has been recognized. Now multi-disciplinary and cross-disciplinary studies are increasingly receiving greater attention. Let us see how psychology is related to other disciplines.

Sociology: The social or collective aspect of human behaviour is a matter of common concern for the students of sociology as well as psychology. However, the levels and approaches of the two are different. Both the disciplines help us to understand the influences of social context on human behaviour. Both analyze social phenomena such as leadership, socialization etc. However, sociology is molar and focuses on broader or macro units. It stresses on the study of groups and communities, while psychology focuses more on individuals. It is interesting to note that society comprises of individual. Hence both are inter-related. It also uses experimental survey and observational methods for collecting information.

Anthropology: Anthropology tries to understand the evolution of mankind and development of civilization. It also focuses on the characteristics and processes of culture by detailed observation and recording the lives of people through participant observation in different cultural groups. In contrast, psychology tries to establish generalizations about human behaviour. These generalizations are often limited by the culture in which research is conducted. In recent years the relationship between



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culture and psychology has become closer. The psychological studies which respond to the needs of culture have shown that there are important differences and similarities in the nature and expression of emotions, self concept, motives, personality, norms, morality and child-rearing across different cultures.

Education: Education and psychology have a history of very long association. The theory and practice of education is based on the principles and findings about various psychological processes like learning, memory, motivation, personality and intelligence. Also, effective class-room teaching and learning is possible only when teachers are trained in the principles of human development. Children are active learners who process information and act accordingly. A teacher, therefore, is required to be skillful in the techniques of motivation and communication. Teachers are often required to provide guidance and counseling to students and parents. Similarly evaluation of students requires basic understanding of the principles and procedures of psychological assessment.

Biology and Neuroscience: One of the main concerns of psychologists is to understand the biological foundations of behaviour. Many breakthroughs in understanding, controlling and modifying behaviour have come from the knowledge of the functioning of brain and nervous system. Localization of brain functions, nature and properties of nerve impulse, biological factors in arousal and motivation, role of various parts of brain in determining psychological functioning constitute an exciting area of enquiry.



INTEXT QUESTIONS 1.2

A. Match the following statements:

- | | |
|-------------------------------|---|
| (1) Biological perspective | (a) human beings as positive force |
| (2) Behavioural perspective | (b) behaviour involves mental process |
| (3) Psychodynamic perspective | (c) function of biological entity |
| (4) Cognitive perspective | (d) harmony of mind, body and spirit |
| (5) Humanistic perspective | (e) unconscious aspect of mind |
| (6) Indian perspective | (f) function of environmental characteristics |

B. State whether the following statements are True or False.

- (i) Sociology and psychology help to understand the influence of social context on human behaviour. True/False



- (ii) Anthropology studies the evolution of mankind and development of civilization. True/False
- (iii) Education and psychology are unrelated. True/False
- (iv) Human behaviour does not have any biological foundation. True/False

1.7 FIELDS OF PSYCHOLOGY

In the course of its disciplinary journey, psychology has diversified and expanded in many directions. Beginning with experimental and physiological psychology which focus on the basic psychological processes, attention was shifted to the application of psychology in different spheres of life. In the following paragraphs we shall briefly study the different branches of psychology.

- (a) **Experimental and Cognitive Psychology:** Traditionally experimental psychology has been concerned with the study of psychological processes such as sensation, perception, learning, memory, motivation, emotion, etc. The goal is to understand the principles underlying these processes with the help of experimental method. For a long time this area has dominated the scene. With increasing information this field has diversified. The new field of cognitive psychology happens to be the closest one to experimental psychology. This field tries to explain processes involved in the perception, comprehension and use of information for various purposes. Thus reasoning, problem solving, attention and related processes are being analysed with sophisticated methods and tools. This branch tries to understand the fundamental causes of behaviour.
- (b) **Physiological and Comparative Psychology:** This field of inquiry is devoted to the analysis of biological foundations of behaviour. It asserts that all behaviour can be reduced to various physiological processes. For instance, activities in cerebral cortex and hypothalamus are found to be systematically related to thinking and motivation. The field of comparative psychology investigates the dimensions and complexities of behaviour among animals like rats, pigeons and monkeys and compares *those* across species.
- (c) **Developmental Psychology:** This subfield of psychology deals with the problem of changes in behaviour throughout the lifespan. These changes take place in physical, motor, cognitive, personality, emotional, social and linguistic domains. Study of these changes may be undertaken by following the same person for a longer period. Alternatively, one may study people of different age groups. The first approach is called longitudinal and the second is cross-sectional. Important divisions of this branch include child psychology, adolescent psychology, and psychology of adulthood and aging. The study of



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developmental psychopathology has great significance for rehabilitation of children with disabilities and behaviour problems.

- (d) **Social Psychology:** Interactions with other human beings are one of the most significant aspects of our life. Social psychology tries to understand the influence of other individuals and groups on our behaviour. Perceiving other individuals, forming attitudes, persuading others to change their views, prejudice, interpersonal attraction, group decision, social motivation and leadership are important themes in social psychology. More recently, great concern has been shown for applications and a new specialization entitled applied social psychology has emerged. Social psychology has particularly benefited by the contributions from sociologists.
- (e) **Educational and School Psychology:** As an applied field this branch of psychology tries to help solve the problems of teaching and learning in classroom setting. It helps the students and teachers both to deal more effectively with the learning situations. Much of the work of educational psychologists is devoted to the areas of curriculum planning, teacher-training and instruction-design. Psychology of learning and motivation supplies the necessary theoretical framework and empirical data regarding learning process, the principles of learning, reinforcement, transfer of training, retention and forgetting. Educational psychologists plan and suggest curriculum to a school board in the light of student's interest, abilities, and needs. The job of school psychologists is to deal with more immediate problems in the school. The school psychologists are particularly concerned with diagnosis of learning difficulties and their remediation, and vocational and other forms of counseling.
- (f) **Counseling Psychology:** A counseling psychologist deals with people who have milder emotional and personal problems. She/he tries to enable an individual to utilize his/her present resources most effectively in solving personal problems. Thus a counselor's task is to modify behaviour in areas like marital life, delinquency, school maladjustment, dispute in work setting, etc. The counselor systematically changes the behaviour through various procedures including behaviour modification, modelling, sensitization and rational thinking.
- (g) **Clinical Psychology:** The general image of a clinical psychologist is that of a doctor who diagnoses psychological disorders and treats them using psychotherapy. But s/he is not a doctor and should not be confused with a psychiatrist who holds a medical degree. S/he uses various techniques to relieve the symptoms and to help people understand the reasons of their problems. A clinical psychologist strives at changing personality in order to enable a person to cope with his/her situation in an adaptive manner. A clinical psychologist mainly aims at the identification of negative or problematic aspects in development and their alleviation. For example, a clinical psychologist, treating



phobia, a kind of unreasonable fear behaviour, tries to remove reinforcements that maintain the behaviour, and at the same time provide reinforcement in order to promote learning of more rational and effective coping patterns in people.

- (h) **Industrial/Organizational (I/O) Psychology:** Psychologists working in this area help industries and other organizations in personnel selection, training, solving problems related to communication, productivity, and interpersonal and intergroup relations. Various interventions for organizational development (e.g., team building, development of communication skills, goal setting, job design) are currently employed to improve the conditions of work setting and enhancing the quality of products.
- (i) **Environmental Psychology:** This is a relatively new field of psychology which specializes in understanding the relationship between human beings and environment. Environmental planning, environmental perception and attitude, design of environments, environmental stressors (e.g., crowding, pollution, disasters) and environmental attitudes are being studied. The goal is to save the environment and improve its quality.
- (j) **Engineering Psychology:** Human life in the modern world is dominated by machines of various kinds. The human-machine interaction raises many problems. Engineering psychology, also known as human factors engineering, tries to specify the capacities and limitations of human-machine-environment system so that the system can be operated safely and efficiently. Therefore, the task of engineering psychologists is to help designing instruments and machines and developing the layout of work setting. With the advent of computers and innovations in the area of information technology, many new methods are being used to solve the related problems.
- (k) **Health Psychology:** It is an emerging branch of psychology which focuses on understanding the factors that promote the status of health. In contemporary life the number of health hazards (e.g., stresses, pollution in the environment, frustration) is increasing. In order to cope with them successfully we need to adopt patterns of health behaviour such as exercise, meditation, proper diet, physical activity etc. Health psychology examines the role of these behaviours in promotion of physical and mental health. It also tries to find ways to modify inappropriate behaviours and prevention of illness.

1.8 CURRENT TRENDS : THE CHANGING FACE OF PSYCHOLOGY

With increasing complexity in modern life psychology is required to play greater role. It is clear from the description of various branches of psychology that its field



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encompasses a broad spectrum of issues faced by us. It's goal is to further knowledge in various domains and apply that knowledge in solving problems. In such efforts psychology has grown in different directions. Some of the current trends that are prominent in shaping this discipline are as follows:

1. Emphasis on Cultural Context

Psychologists are realizing the fact that psychological phenomena can be understood in the specific cultural context in which they take place. The studies in cross-cultural psychology and cultural psychology show that many of the concepts (e.g., self, morality) and practices (e.g, socialization, life tasks) are culturally specific. It is therefore necessary to understand these issues and processes in their cultural context.

2. Breakthrough in Neurosciences

In recent years considerable knowledge has been gained about brain and other parts of nervous system and biological functioning. This has helped in not only understanding the nature of psychological processes but has provided ways and means (e.g., drugs) to cure various diseases.

3. Multidisciplinary Concerns

Psychologists as well as other scientists are now convinced that human reality is complex and one discipline cannot properly comprehend it. Hence multidisciplinary efforts have started to understand the various aspects of human life. In particular, the collaboration of linguists, anthropologists and cognitive scientists is taking place in the study of issues related to language, personality, emotion and values.



INTEXT QUESTIONS 1.3

A. Choose the correct alternative:

1. Which of the following psychologists is most involved in the treatment of psychological problems:
 - a. counseling psychologist
 - b. community psychologist
 - c. clinical psychologist
 - d. social psychologist

**Notes**

2. Suppose you are writing an article on the factors that attract people to one another and lead to friendship. It is likely that you will try to read books written by a:
 - a. developmental psychologist
 - b. educational psychologist
 - c. social psychologist
 - d. community psychologist
3. You are attending a meeting/seminar of psychologists. You find that one talk is on infant perceptual abilities, the second is on adult socialization, the third deals with physical changes in the elderly. What is your guess about the specialization of these psychologists?
 - a. Physiological
 - b. Cognitive
 - c. Social
 - d. Developmental

1.9 PSYCHOLOGY AS A CAREER

By now you must have got a fair idea of the various fields of psychology. Frankly, nowadays, no area has been left untouched by psychology. Whether it is related to society or the armed forces or educational setting, the need of a psychologist is being felt by all. It is becoming a very popular subject rapidly. With a degree in psychology, one can find various jobs such as -

- a) PGT - Psychology.
- b) Counsellor - freelancer/ school/ institution.
- c) Examiner who conducts various tests.
- d) Psychologist in an industrial setting.
- e) Researcher.
- f) Work in NGOs.
- g) Lecturer.
- h) Clinical Psychologist.
- i) Child Psychologist.



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- j) Health Psychologist.
- k) School Psychologist.
- l) Human Factors Psychologist.

All the jobs stated here demand at least a graduate degree with specialization in a particular field of psychology.



WHAT YOU HAVE LEARNT

- Psychology is a science which studies mental and behavioural functioning in a systematic manner, using scientific methods.
- Psychologists describe, predict and control the processes like perception, motivation, cognition, memory, learning, personality, and intelligence.
- As professionals, they apply psychological knowledge towards the solution of problems in various settings including schools, industries, hospitals and organizations.
- It is closely related to allied disciplines such as education, anthropology, sociology, and biology.
- The study of psychological issues and problems has been characterized by several perspectives including behavioural, cognitive, psychodynamic, humanistic, biological and Indian.
- The perspectives are rooted in varied philosophical assumptions, and describe human nature in different ways.
- As a growing discipline, psychology is expanding across various branches which specialize in providing psychological services in different walks of life.
- Developments in neurosciences, study of culture and collaboration with other disciplines is shaping the development of psychology in important ways.



TERMINAL EXERCISE

1. Describe the nature of psychology.
2. Explain the psychodynamic perspective in psychology.
3. How is psychology related to education?
4. Discuss the fields of clinical psychology and industrial psychology.



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ANSWER TO INTEXT QUESTIONS

1.1

- (1) c
- (2) b

1.2

- (A) 1 - c, 2 - f, 3 - e, 4 - b,
5 - a, 6 - d
- (B) (i) True (ii) True (iii) False (iv) False

1.3

1. C
2. C
3. D

HINTS TO TERMINAL EXERCISE

1. Refer to section 1.2
2. Refer to section 1.5
3. Refer to section 1.6
4. Refer to section 1.7

**Notes****2**

HOW PSYCHOLOGISTS STUDY?

*I*n the previous lesson you have learnt about the nature of psychology, what psychologists do, different branches of psychology, etc. Now you can well understand the important place which psychology has acquired among various disciplines. Today there is considerable interest among common people, policy makers, students, professionals and businessmen and women in learning about psychology as a discipline. As we know, psychology is the scientific study of brain, mind and behaviour, and psychologists conduct their studies by using scientific methods. In this lesson you will study about the various methods, techniques and tools that psychologists use in their research and study.

**OBJECTIVES**

After studying this lesson, you will be able to:

- describe the goals of psychological studies and research;
- explain basic and applied aspects of research;
- familiarize with different methods used by psychologists;
- explain the steps involved in conducting experiments;
- know the different tools used by psychologists; and
- understand the uses of statistical analysis in psychological studies.



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2.1 GOALS OF PSYCHOLOGICAL STUDIES AND RESEARCH

As a science, psychologists try to understand the nature and functioning of behaviour and experience. They try to answer questions regarding various psychological processes like memory, thinking, learning, perception, intelligence etc. In doing so the researcher or investigator adopts a scientific perspective. They make efforts to develop knowledge of phenomena in such a manner that can fulfil the requirements of science. Here, science refers to a method of systematic inquiry which is based on unbiased observation. In this way scientific knowledge becomes available for scrutiny by any person who wants to understand and verify the same. This is why scientific knowledge is made available to all.

In everyday life our observations are often biased by our likings or dislikings. In fact, we accept what others say and our casual impressions become part of our personal understanding which may be wrong or right. In contrast, a scientist relies only on the observations which are not influenced by personal preferences but are free from such biases. Similarly, scientific knowledge is not anybody's personal property. You must have heard about scientific journals. If you get a chance to go through a journal you will find that the way a scientific study is conducted is fully described or documented. In other words, the knowledge is public and open to any one who wants to have access to it. The documentation of research is useful for another purpose. Such a study can be replicated by any person who wants to conduct the study himself or herself.

Finally, the scientific study is objective. It is supposed to be free from subjective factors and it is seen, observed or experienced in the same way by each and everyone who follows the given method.

Psychologists have accepted scientific method and try to generate knowledge which stands well on the above mentioned criteria of science. As scientists they try to achieve the following goals regarding the objective of their study.

1. **Description:** The first step towards gaining understanding is to obtain a proper or systematic description of the phenomenon under study. It determines the range and boundary of the phenomena.
2. **Explanation:** Explanation means statement of the factors which determine the phenomenon under study. In other words, one may say that explanation provides the factors which make something happen. Thus, when a psychologist shows that practice leads to change in behaviour he or she is explaining learning.
3. **Prediction:** Once we are able to get the explanation of some phenomena we are in a position to tell or predict what will happen under certain circumstances.

The ability to make prediction is based on systematic analysis of the various causal factors. The presence or absence of those factors can help one to tell what will happen in future.

4. **Control:** The ability to predict provides the knowledge necessary to bring the change that is desirable. For instance, use of polio vaccine prevents the occurrence of polio. Similarly practising yoga or relaxation can be used to improve health and quality of life of the people. Thus knowledge can be used to produce results desired by the user of knowledge. This, however, is possible only when we have scientific knowledge.



INTEXT QUESTIONS 2.1

1. Fill in the blanks

- (a) Science is a method of _____ inquiry which is based on _____ observation.
- (b) Science is public or which can be _____ with other person and it can be _____.
- (c) Scientific study is _____.

2.2 BASIC AND APPLIED RESEARCH

To get indepth study of research, Psychology has considered mainly the basic and applied research. Let us know more about basic and applied research. Any study or research begins with a question or problem that we want to answer or solve. Such problems are of various types. One broad way to classify these problems is to put them in “basic” and “applied” categories. Basic research deals with developing understanding, theory building and testing of a theory and applied research deals with solving real life problems. It may be noted that the line demarcating these two types of research is very thin. Also, there can be movement from theory to application or from application to theory.

In practice, applied research involves development of technology to solve specific problems that are faced in personal, familial, health, organizational and environmental areas. In fact many new branches of psychology have emerged which are predominantly applied in nature. This emphasis is so attractive that many universities offer courses in applied psychology or its various specialized areas.

The distinction between basic and applied studies in psychology may be indicated as follows. The basic research focuses on providing theoretical understanding. It offers understanding in terms of principles and laws which are not confined to



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limited circumstances or persons. In contrast, applied research has a narrow goal of solving a very specific problem. It is concrete in its orientation and confines itself to a limited condition.

Today psychological knowledge is growing in basic as well as applied directions and there is mutual give and take between the two. The scope of psychology is expanding in a big way to contribute to the enhancement of quality of life of the people. For instance, developing an intervention program to help children with learning disability or for people suffering from anxiety is applied research.

2.3 EXPERIMENTAL METHOD

In simple language an experiment may be defined as observation under conditions which we can control and vary. Experimental method is generally preferred above other methods, because of its ability to understand the causal factors. An experiment is concerned about the study of relationship between changes in antecedent conditions and the corresponding changes in the consequents. The experimental method helps psychologists establish cause-and-effect relationship between these two sets of conditions which are usually considered as variables. To understand it let us take an example.

Suppose a teacher wants to know if recitation method will aid retention (of a poem) than silent reading? She will proceed as follows:

Forming a Hypothesis: To answer a problem the teacher has a question or problem in which effect of one thing (recitation method) on the other (retention) has to be explored. On the basis of her previous knowledge and researches, the experimenter (E) forms a hypothesis. In present case the teacher states a possible answer to the problem. She may hypothesize that the recitation method is better for retention of a poem. To verify the hypothesis she will undertake an experiment.

Identifying Independent and Dependent Variables: In order to understand the experimental method, one must be familiar with the concept of variables. “Variable is any measurable attribute of objects, things or beings”. Quantitatively measured variables are age, intelligence, number of trials, sex, religion, caste etc. The E is concerned with two main kinds of variables:

- **independent variable (IV), and**
- **dependent variable (DV).**

An independent variable is manipulated by the E (e.g. method of learning is the IV in the present case) in order to understand its effect on some chosen aspect of behaviour.



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Effects of IV are observed on the DV e.g. retention in the present example. In other words, dependent variable is the consequent variable on which the effect is to be observed.

While studying the effect of IV on DV the relationship is often influenced by a number of factors present in the environment. Such relevant variables need to be controlled by the E. The E plans the experiment using two groups i.e., experimental and control. The experimental group receives the treatment of IV and control group performs in the absence of the IV. These two groups are supposed to be similar in all respects except the treatment of IV.

Sampling of Participants: The next step is to decide the population to be selected for the study and deciding on the method of selecting a sample. For example, if one wants to take the students of 10th class for the experiment she can not possibly go to all the schools. So she decides to take equal number of students of 10th class of one school. A sample represents the whole population. One has to decide which type of sampling method should be used. Random sampling is considered to be the best method because in this way of sampling all members of population have equal probability of selection.

Control of Extraneous Variables: There is a possibility that some other variables, like age, gender, etc., may affect retention. All these variables have to be controlled. In order to do so the E selects participants of similar intelligence, age and gender. Experimenter may use a number of techniques to control the unwanted extraneous variables. Some of them are as follows:

1. **Matching:** The participants are matched on their characteristics.
2. **Elimination :** An unwanted variable may be controlled by elimination (e.g., noise).
3. **Constancy of conditions:** If elimination is not possible, the condition may be made constant for the entire duration of experiment.

Planning (designing) the Experiment: The E will select group of students, divide them in half and give them same material (poem in this case) to memorize. One group is instructed to read the material silently. This group is called the “control group”. The other group recites the poem loudly for the same amount of time. This group is the “experimental group”. Retention of both the groups will be compared.

Verifying the Hypothesis: If the experimenter finds a significant difference in the amount retained by the two groups, she may infer that recitation method is better for retention of poems. These findings will prove the hypothesis.

Limitation of Experimental Method: The experimental method is very powerful



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for gathering scientific data. But it also has limitations. The findings obtained from this may not apply to natural situations. Sometimes an experiment might prove unethical or dangerous. In some situations, experiment may interfere with behaviour that is measured.



INTEXT QUESTIONS 2.2

State whether following statements are True or False

- | | |
|---|------------|
| (1) Experiment is observation under controlled condition. | True/False |
| (2) Independent variable is not manipulated. | True/False |
| (3) Experimental group receives the treatment of IV. | True/False |
| (4) Control group may be different in its properties than experimental group. | True/False |

2.4 NON-EXPERIMENTAL METHODS

Experimental method is the preferred method in psychology because it has greater precision but many a times we face problems that cannot be subjected to experimental manipulation. Behaviour of people in a crowd cannot be brought to the laboratory, neither it can be understood why a child breaks things in the class through experimental method. Such situations require different methods. Some of these non-experimental methods are described below:

Observation: Observation is the starting point for all sciences. It is a study of spontaneous occurrences, at the time they occur. But simply observing may not be enough. One should know what one wants to observe. Otherwise a lot of data may be missed. In psychological studies we use **naturalistic** as well as **controlled observation**. Also, there is another kind of observation which is called **participant observation** in which the observer observes by being a part of the group.

Introspection: To introspect means to look within. This is the oldest method in psychology. It is a very important method to understand the feelings of pain, happiness, fatigue etc. If some persons go to see a movie they may have liked the movie which others may have disliked ; but they can understand the emotional response of liking only by looking within. In introspection, attention is directed inwards to find out what is happening at the experiential level. For example, you meet a school mate after years, you greet him by shaking hands – an act of friendly behaviour but inside you may not feel happy to meet him because he had bullied you in the class.



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Survey: It is for the study of social problems such as incidence of alcoholism, popularity of certain careers, causes of unsuccessful marriages. People cannot be manipulated to observe these problems. Psychologists go into the field with prepared list of questions and interview schedules to a group of people. They may want to know how many people are buying a certain brand of tooth paste. The surveyor may sometimes face problems like refusal of people to answer, biased answers, misleading answers etc. A carefully conducted survey provides information about the trend in a particular area of concern.

Case History: ‘Case history’ is a detailed compilation of data about a single individual. A psychologist may gather complete history, from infancy to present period in order to understand a person’s behaviour. This method is often used to study abnormal behaviour, behaviour of criminals, problem children or even to study the developmental changes in personality. The focus is on the assets as well as the weaknesses of the person concerned.

Correlational Research: It is used to find out the relationships between two sets of factors/variables. We may use this method to find out the relationship of intelligence with scholastic achievement, or religiosity with spiritual well-being, language skills with examination performance etc. The strength of relationship can be represented by a correlation coefficient, which ranges from -1.00 to $+1.00$. A positive correlation indicates that as the value of one variable increases the value of the other also increases. A negative correlation tells that as the value of one variable increases, the value of other variable decreases. Correlational research can not demonstrate cause-and-effect relationship. But it gives new insights about the phenomena under study.



INTEXT QUESTIONS 2.3

1. What is an independent variable?

2. List the goals of psychology as a science?



Notes

2.5 PSYCHOLOGICAL TOOLS

While undertaking studies psychologists use a variety of tools to collect relevant data. These tools or instruments are of various kinds and are used for various purposes. Memory Drum and Tachistoscope are frequently used in studies of memory and perception. Similarly EEG, ECG, PET, GSR, MRI, FMRI, etc. are used in the study of neuro-psychological functioning. These electronic and electrical gadgets help to make the presentation of stimuli and recording of responses. Tape recorders and video recording are also used. Apart from these, there are paper-pencil tests used to measure to access various psychological attributes. Let us discuss basic various tools:

1. **Questionnaires and Interview Schedules:** In order to elicit information from people psychologists and other social scientists use questionnaires which are mailed or interview schedules which are presented by the researcher himself or herself in person. The questions may be open ended or closed ended. The open ended questions provide freedom to the respondent to answer the way he/she likes but closed ended questions have fixed answers and the respondent is required to choose out of the given responses. Preparation and use of these tools is an art and demands proper training. Interviews are used in many settings (e.g., clinical, personnel selection, research) and present a situation of social interaction. A good interviewer encourages the respondent to open up and share his or her views in clear terms.
2. **Psychometric Tests:** As a learner of psychology it is essential to be familiar with intelligence tests, personality tests, aptitude tests, interest inventories and many other similar psychological tools. They provide measurement of individual differences. A test is a standardized measure of sample of behaviours and attributes. These tests are used to determine the status of the person being assessed on an attribute, relative to the community of people on which the test has been standardized. In order to be useful the tests must have several features. (see box 2.1)

Box 2.1: Characteristics of psychological tests

Reliability: It refers to the consistency of a test. In order to be dependable a test must yield similar results on different occasions. Thus if a person is found to be above average in intelligence today he or she shall also show the same level of intelligence after 3 months. If the scores are similar then we may say that the test is reliable. This is called **retest-reliability**. There is another kind of reliability which is called **internal consistency** which indicates the degree to which the different items of a test are related to each other.

Validity: A test is valid if it measures the same property for which it has been prepared. Thus a test of intelligence is valid if it measures intelligence (and not interest or personality). For this purpose we relate the scores on the test with some external criteria.

Norms: Norms refer to the scores obtained by a group which works as a reference point. We do not know the zero value of psychological attributes. Therefore, absolute measurement is not possible. **The score of a test is meaningful in the context of scores obtained by other persons. A psychological test score is a relative score.** It is therefore necessary to develop norms for tests. They help to interpret test scores.

Standardization: Standardization is mainly concerned with establishing collectiveness of the tool in various conditions. This is carried out by finding validity, reliability and objectivity of the tools. In other words standardization also includes establishing ways and conditions for administering the test (e.g., time, instruction, scoring, interpretation). It is systematically done and described in the test manual. It helps to obtain meaningful data.

- 3. Projective Tests/Techniques:** This includes a variety of tasks which are unstructured or ambiguous. The performance of a person on these tasks cannot be used in any direct manner. The performance is viewed as projection of the psychological attribute under consideration. In other words these tests provide indirect assessment of the psychological property and the investigator interprets the obvious behavioural expression or performance. Thus what a person says or does is not accepted at its face value. The hidden meaning is more important than what is apparent. Some of the famous projective tests include **Rorschach Ink Blot Test and Murray's Thematic Apperception Test (TAT)**. In the first test a person is shown a set of ink blots and is required to identify what the blot represents or what are various objects that are seen. The responses obtained from a person are used to discover his/her personality. This test is frequently used in clinical setting. The TAT consists of a set of pictures and the respondent is required to write about the pictures. These stories are then interpreted to understand the personality of the person.

2.6 ETHICAL CONSIDERATION IN PSYCHOLOGICAL STUDIES

Psychological studies are done with human beings. It is therefore necessary to follow certain principles so that no harm is done to the participants. Some of the accepted principles are as follows:



Notes



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1. **Informed consent:** The investigator can conduct a study on other persons only after obtaining their prior permission to do so.
2. **Confidentiality:** The findings of research remain confidential and are not disclosed with anybody.
3. **Debriefing:** If some kind of manipulation or deception has been done in the study the researcher has the duty to clarify that to the participants after completing the study.
4. **Right to withdraw:** The participants have a right to withdraw from the study if they desire to do so.
5. **Responsibility:** The researcher has to bear the responsibility of any harm done to the participants during the course of study.

Today it is a common practice to have Ethics Committees which examine ethical aspects of research before it is undertaken by the researcher.

The use of tests in clinical setting is made for certifying people in terms of mental disorders. It should be done with proper care and by trained persons only. It should not be misused.

2.7 NEED OF STATISTICS IN PSYCHOLOGY

Statistics is a branch of mathematics. It deals with collection, classification, description and interpretation of quantitative data. In psychology, statistics is used for:

- **describing behaviour,** and
- **predicting behaviour.**

When the statistics is used for describing behaviour, descriptive statistics is used. When it is used for explaining behaviour, inferential statistics is used.

Descriptive statistics are the numbers which are often used to describe a variable. The major descriptive statistics are the measures of central tendency (mean, median mode), measures of variation, and correlation.

Inferential statistics are used in experiments or investigations which are designed to make generalization about population on the basis of a sample. There are many inferential statistics. 't' test is one of those.

Functions of Statistics

Statistics serve many purposes. Important ones are as follows:

- (i) Data and information can be presented briefly and precisely.

- (ii) Results obtained are more accurate and objective.
- (iii) Analysis of data is made more scientific.
- (iv) General conclusions can be arrived at.
- (v) Comparative studies are made possible.
- (vi) Relationship between two or more variables can be investigated.
- (vii) Prediction about behaviours can be made.

2.8 SOME BASIC STATISTICAL CONCEPTS

When a large set of data is collected, it is usually presented in a condensed form in a frequency distribution table making it more meaningful and understandable. Frequency distribution table is the primary stage of statistical analysis.

Frequency Distribution

Suppose you have given a test to the class of 25 students and obtain the following scores:

10, 7, 6, 5, 5, 6, 8, 9, 3, 6, 8, 7, 4

8, 9, 5, 7, 4, 9, 6, 6, 11, 10, 8, 9, 8, 3

In the above distribution of scores the highest score is 11 and lowest score is 3. Thus the entire group has scored in between these two limits. The above data can be presented in the form of a Table where the scores and the frequency of their occurrences are shown. The Table shows that maximum numbers of students are in the score range of 6 – 8.

A tally mark (I) is used for one score and tallies are done in a duster of 5 scores. The fifth tally mark cuts the first four tally with a slanting line (/). These clusters helps us in counting large numbers.

Table 2.1: Frequency Distribution

Score	Tally	Total	Score	Tally	Total	Score	Tally	Total
3	II	2	6	IIII	5	9	IIII	4
4	II	2	7	III	3	10	II	2
5	III	3	8	IIII	5	11	I	1





Notes

Methods which are used to summarize the characteristics of the data are called measures of central tendency. These are the measures that depict the tendency of the distribution of scores. Let us study about them.

(a) Mean: Mean is the most popular and important measure of central tendency. It is also known as ‘arithmetic mean’. For psychological research, mean is very useful because it provides the basis for calculating other statistics like standard deviation and correlation and describes the summary characteristics of the variables measured.

For instance, you must have noticed that whenever any Cricket Series is played people stick to their T.V. sets. Very often in the second part of the match a caption occurs on the TV screen as ‘Run Rate’ — Present and Run Rate — Expected. The Run Rate is the average score per over.

The mean is the weighted average of all the raw scores. It is computed by totalling all the raw scores and then dividing by the number of scores together. For example if we have the 7 scores like: 10, 20, 20, 40, 50, 10, 10

The mean can be computed with this method:

N (Number of scores) = 7

$$10+20+20+40+50+10+10 = \frac{160}{7} = 22.86$$

The mean (M) represented by \bar{X} (pronounced as “X bar”)

Individual score is denoted by “X”

Total number is denoted by “N”.

(b) Median: The median is the value that divides a group of scores into two equal parts, one part comprising of all values greater and the other comprising of values less than the median. Median is a positional average and is not affected by the magnitude of scores. It is easy to understand and calculate.

Example: The median for the following scores is 25 :

12, 20, 23, 23, **25**, 26, 28, 35, 40

There are four scores below 25 and four above scores above 25.

(c) Mode: The mode is that score which occurs maximum number of times in a given series of scores. The word mode has been taken from French language which means fashion, hence mode is the most frequent or ‘popular’ number. The mode in the following scores is 20:

10, 15, **20, 20, 20**, 35, 35



Notes

It is easiest to calculate. Mode is frequently used in business, weather prediction, fashion etc.

(d) Correlation: Correlation is a method of numerically showing how closely related are any two sets of variables. In a large number of instances two variables always tend to fluctuate in the same or in the opposite direction. When it is found that a relationship exists it is called “correlation”. When scores in one variable change in the same direction as those in the other or in the inverse direction — correlation (relationship) is said to exist.

The score through which the psychologists express the relationship between two variables is called the **coefficient of correlation**. It is an index which indicates the quality as well as quantity of relationship. With the variables three possible relationships are possible — positive, negative and zero/no relationship.

Magnitude of correlation ranges between -1.00 to $+1.00$. The range of correlation, coefficients can be interpreted in the following ways:

Co-efficient	Relationship
.00 to + .20	negligible
+ .21 to + .40	low
+ .41 to + .60	moderate
+ .61 to + .80	high
+ .81 to + .99	very high
+ 1.00	perfect

This is a range of positive correlation. Similar range exists for negative correlation, which means scores in one variable change with the other in inverse direction.



INTEXT QUESTIONS 2.4

1. What are the measures of the central tendency?



Notes

2. What is correlation?

3. How is statistics helpful?

Inferential Statistics

When an experiment is specifically designed to measure the causal effects between two or more variables, inferential statistics are used. The main purpose of inferential statistics is to draw conclusion/results on the basis of treatment and interpretation of data. There are many types of inferential statistics like 't' test, F-test etc are used for this purpose.

WHAT YOU HAVE LEARNT

- The goals of psychological studies are: description, explanation, prediction and control.
- Basic research is related to developing theories and applied research deals with problem solving.
- Experiment helps to find the cause and effect relationship. It is observation under controlled conditions.
- An experiment has various parts. It starts with a hypothesis which is the possible explanation. Variables are measurable attributes of objects and people which the experimenter observes, manipulates, and controls.
- There are various steps in the experimental method which have to be followed. They are stating the problem, forming of hypotheses, sampling, design of the study, material, controls, instructions, results and discussion, and generalization.
- Non-experimental techniques are used to obtain descriptions of behaviour.

Some of the techniques are observation, surveys, case study, introspection, correlation etc.

- The psychological tools include questionnaire and interview, psychometric test, projective test/technique.
- Statistics is used by the psychologists to judge the significance of research results. It is of two types: descriptive and inferential. The descriptive statistics deal with summarizing the data and inferential deal with drawing conclusions about population on the basis of sample.
- Statistical methods which are used to summarize the characteristics of the data are called measures of central tendency. Mean, median, mode and correlation are frequently used descriptive statistics.



TERMINAL EXERCISE

1. What are the goals of doing psychological studies?
2. What are the different steps in planning an experiment?
3. What are the tools used by psychologists in understanding human behaviour?



ANSWER TO INTEXT QUESTIONS

2.1

1. (a) systematic, unbiased (b) shared, replicated, (c) objective

2.2

1. True
2. False
3. True
4. False

2.3

1. A variable that has been manipulated by the experimenter to know its effect on dependent variable
2. Description, Explanation, Prediction, Control



Notes

**Notes****2.4**

1. Mean, median, mode
2. Correlation is a method of numerically showing the relations between two variables.
3. refer to section 2.8 to frame your answer.

HINTS TO TERMINAL EXERCISE

1. Refer to section 2.3
2. Refer to section 2.4
3. Refer to section 2.6

**Notes****3**

BIOLOGICAL AND CULTURAL SHAPING OF MIND AND BEHAVIOUR

We often wonder how do we behave in a wide variety of ways. Sometimes we feel happy; sometimes sad. The equipment with which we are born – the brain, nervous system and sensory – motor system is central to the functioning of organism. Earlier, it was believed that there is some inner spirit in all of us that controls our behaviour. Today, we know that our actions and bodily movements take place in an environment and are jointly determined by the socio-cultural environment and the nervous system. We are born in a culture which is already in existence. As a result, the functioning of the system is often mediated by the socio-cultural environment. In a way, our nervous system acts like an engine in the automobile that controls every movement and speed of the vehicle. The socio-cultural context provides opportunities to act in specific ways and, in turn, shapes the way we think and act. Any analysis of human behaviour will remain incomplete without taking into account the interplay of biological and cultural factors.



OBJECTIVES

After studying this lesson, you will be able to:

- relate the connections between evolution, heredity and environment;
- describe the structure and functions of cell and neuron;
- describe the structure and functions of nervous system;



- describe specific areas of the brain and their related control of behaviour;
- describe endocrine glands and their functions; emphasizing secretions of gonads and ovary;
- explain transmission of hereditary characteristics;
- describe the relationship between culture and gender role;
- understand the nature of socialization and acculturation processes focus on behavior in terms of gender identity.

3.1 EVOLUTION, HEREDITY AND ENVIRONMENT

If you look around yourself you will notice that you are surrounded by a variety of organisms differing in form and behaviour. They include human beings, insects, reptiles, birds, anthropoids, mammals and fish etc. The experts in biology believe that the organisms existing today are outcomes of the process of evolution that has taken place in the course of a long span of time spanning over several million years. The idea of *evolution* was given by an English biologist named Charles Darwin. The physical structure and pattern of behaviours found today is a consequence of the evolutionary history. According to this view *adaptation* to environment is central to the process of evolution. The traits and behaviours which enable an organism to survive are retained and others are extinguished. It is known as the process of *natural selection*.

Let us see what are the features that distinguish human beings from other species. The first feature is called *bipedalism*. It indicates the ability to walk upright. The second feature is *encephalization*. This indicates increase in brain size and proportion of specialized brain tissues. The third feature is development of *language*. This ability is undoubtedly a key to effective communication and cultural achievement of human beings.

Heredity refers to the genetic endowment that a human body inherits from her parents. It is often known as biological blue print. A person's genetic potential or genetic code interacts with the environment to influence and shape the pattern of behaviour. Environment includes the physical and social surrounding in which a person lives, grows and conducts himself/ herself. The context of family, school and community within which a person lives, interacts with the genetic characteristics to determine the pattern of behaviour displayed by him or her. You will study more about the genetic bases of behaviour in a subsequent section of this lesson.

3.2 THE CELL AS THE BASIC UNIT OF LIFE

Have you seen a brick and then a building in the process of its construction? The architect designs and the mason keeps brick by brick and the building comes into



Notes

existence. In the same way, our body is also made up of cells. As the brick is the smallest unit in a building so is a *cell* — the small unit in a human body. Each living being whether it be a plant, animal or human being, is made up of these small units, called cells. There are certain differences between the cells of different living beings as well as the cells in the different parts of a living organism. All cells contain a fluid called *cytoplasm* and a *nucleus*, and are enclosed in a *cell membrane*. Operations within the cells and the co-ordination among various cells make the life possible. The life of all the living beings is, therefore, based upon the working of the cells.

3.3 THE NEURON

The cells that compose the nervous system are known as *neurons* and *glia*. Only the neurons or nerve cells transmit information (impulses) from one location to another. Appreciating a sunset, enjoying the music, thinking of some loved one at a distant place or solving a problem— all these acts reflect the co-ordinated actions of thousands or millions of neurons. These nerve cells collect information from the environment by means of receptors and then combine the information as well as make the action possible. The neurons also store information and lead to behaviour.

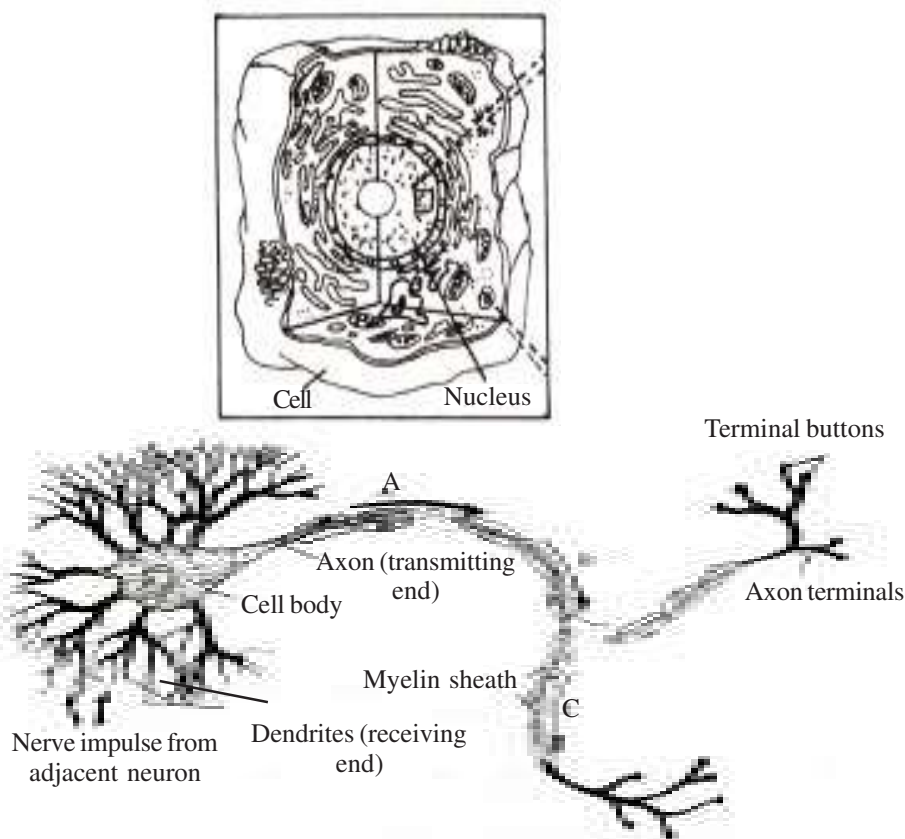


Fig. 3.1: Cell and Structure of a Neuron



Neurons make up half of the volume of the brain. Glial cells constitute the other half of the nervous system. Neurons in the central nervous system (CNS) are of various shapes and sizes, but most neurons may have features in common. There are three main structures of a neuron. They are the *cell body* (soma), the *dendrites*, and the *axons*. A brief description of these structures is as follows.

- (1) The **soma**, or the *cell body*, is the largest part of the neuron. It regulates and controls the metabolism and maintenance of the entire cell. The soma also receives impulses from other neurons. The cell body contains the *nucleus* that manufactures the chemicals used to transmit signals.
- (2) The **dendrites** are the branches that extend from the cell body and spread out in complex ways. The neurons receive much of their input through dendrites via *synaptic connection* from other neurons. The cell sending information releases a chemical that influences the activity of the receiving cell. Information passes from synaptic terminal to the dendrites or cell body, but does not go the other way.
- (3) The **axon** is a long fibre that leads away from the cell body. The axons send signals to the dendrites, other neurons or to muscles and glands. The axons make neural pathways in the (CNS). The axons are insulated by *myelin sheath*. Myelin sheath is made up of glial cells.

The Nerve Impulse

An information is carried through a series of electrical impulses that travel from one neuron to another. These are called nerve impulses. They are sent to the specific areas of the brain where sensations take place. The axons or nerve fibres do not carry sensations like pain or cold. The sensations occur only when the information reaches the brain.

Synapse

The regions where impulses cross from one neuron to the other are called synapses. The synapses are thus junctions between the neurons. Through the gap at synapse (*synaptic cleft*) signals are transmitted from one neuron to another. The sending side of synapse is axon terminal where as the receiving side of synapses is the tips of the branching dendrites. The chemical substances that facilitate the transmission of the signals are called neurotransmitters.

3.4 TYPES OF NEURON

Depending upon the function, the two major types of neurons are receptor and motor neurons. Receptor neurons bring information into the nervous system. Such



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information is brought through senses. The motor neurons carry out the orders of brain for muscular movements such as chewing, walking, writing and so on which are under our conscious control. The reflex actions are mediated by the spinal cord. Breathing and eye blinking are involuntary action. These involuntary actions are controlled by motor neurons.

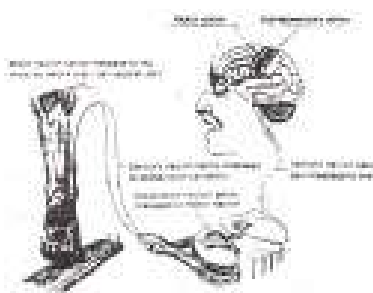


Fig. 3.2: Reflex Activity

Try this yourself

You can initiate an eyeblink reflex in a friend. For that you need orange peels. Hold the peel at about five or six inches from his/her eye and squeeze it into the eye. Your friend will exhibit an in-voluntary reflexive blink of the eye.



INTEXT QUESTIONS 3.1

1. What are the features that distinguish human beings from other species?

2. Describe the main parts of the structure of a neuron.

3. State whether the following statements are True or False:
 - (i) Only the neurons transmit information from one location to another.
True/False
 - (ii) Nerve cells collect information from environment by means of receptors.
True/False
 - (iii) Neurons do not store information.
True/False
4. Fill in the blanks with appropriate words:
 - (i) Neurons make up _____ of the volume of the brain.
 - (ii) A cell has three parts. They are _____, _____ and _____.



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3.5 NERVOUS SYSTEM

The nervous system is made up of billions of neurons. It is responsible for receiving, processing and sending of information. All the functions of the body are controlled by the nervous system. It has two parts i.e. *central* and *peripheral*.

The Central Nervous System (CNS) consists of the brain and the spinal cord. The spinal cord is the narrow column that starts at the base of the back and extends up through the neck and the base of the skull. The brain is surrounded by a protective skull. The CNS is responsible for sending nerve impulses and receiving the sensory information.

The Peripheral Nervous System consists of the group of neurons which transmit information between the CNS and the rest of the body. It is responsible for carrying nerve impulses to and from the body. The peripheral nervous system is further divided into two parts:

- Somatic system, and
- Autonomic system

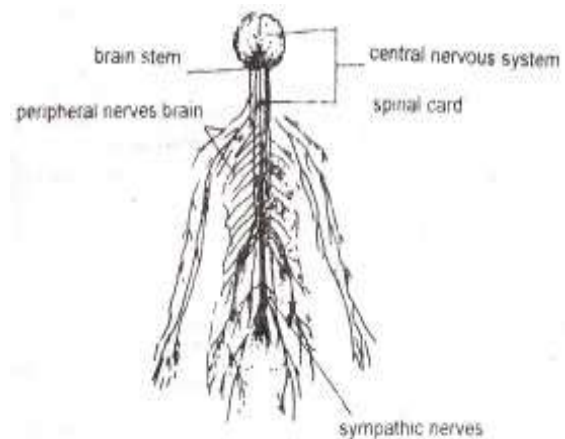


Fig. 3.3: Nervous system

The nerves in the somatic system connect the brain and spinal cord with voluntary muscles of the body. This system senses and acts upon the external world. It consists of both sensory and motor neurons. Sensory neurons transmit incoming signals to the CNS. These signals originate in the receptor cells, and are located in the sense organs such as eyes and ears. Motor neurons, whose cell bodies lie inside the spinal cord, transmit outgoing signals from the spinal cord. The somatic nervous system controls the skeletal muscles that help the movement of the body.

The neurons in the *autonomic nervous* system control the involuntary actions in the body such as those performed by heart, stomach and liver. The autonomic nervous system is composed of the *sympathetic* and *parasympathetic* systems. The sympathetic nervous system dominates in emergency situations. This system controls our emotions. It responds by increasing blood sugar level, heart rate, and blood pressure and slows the process of digestion. These changes enable us to cope with stressful situations. The parasympathetic nervous system dominates the activities in relaxed situations. However, the two systems work together in many situations and make adaptation possible.



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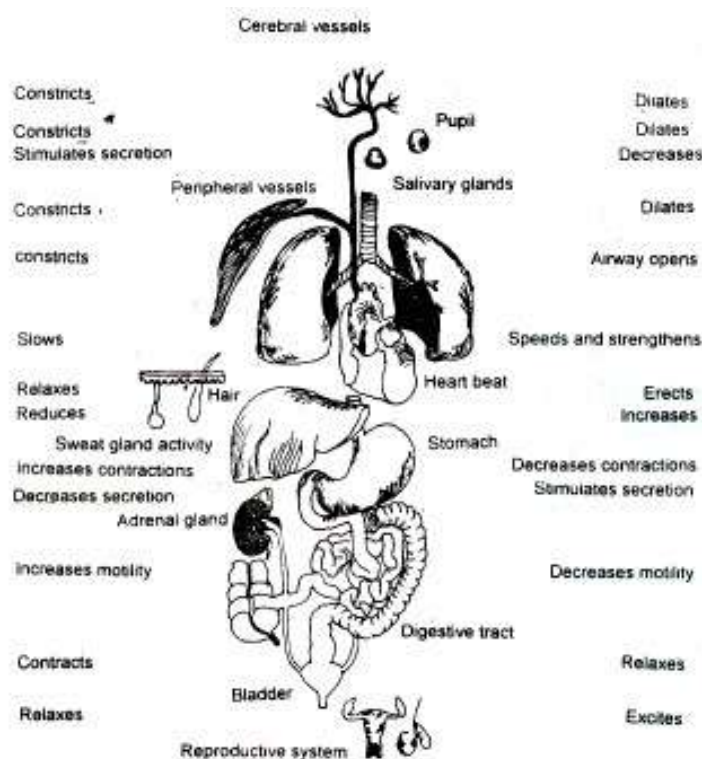


Fig. 3.4: *The Autonomic Nervous System*

3.6 THE CENTRAL NERVOUS SYSTEM (CNS)

The CNS consists of the brain and the spinal cord. You have learned that the neurons in spinal cord can produce reflex action. Also, it acts as a relay station. It sends information from sensory neurons in the body to the brain and takes motor commands back to the muscles. The severe injury to the spinal cord usually results in loss of sensation and paralysis at levels below the points of injury. It has two major components, namely *Gray matter* and *White matter*.

The Gray Matter found near the center of the spinal cord processes the information and the White Matter found in the outer layers, which contains axons, transmits information to and from the brain.

If tea is brought to you in steel glass and you suddenly try to pick it up, do you realize how hot your fingers feel?

In this case, the heat receptors in our skin are stimulated and fire nerve impulses. The incoming information from the receptors in our hand travels through neurons to our spinal cord where it enters the gray matter in the center of the cord. It travels through the white matter to our brain. The brain analyzes the sensory



Notes

information and initiates a voluntary movement leading to response such as dropping the glass.

The Brain

If you would like to get a feel of the physical structure of the brain you might try this. Stand in front of the mirror and draw an imaginary line across the front of your face running from left ear through both your eyebrows to your right ear. The bulk of your brain is located above this line.

The brain is the primary part of the CNS, occupying the cranial cavity. It is surrounded by the skull for protection. The brain weighs an average of three pounds (about 1.4 kilograms) comprising about 97% of the entire CNS. The brain is connected to the upper end of the spinal cord and has three structures: the *cerebrum*, the *cerebellum*, and the *brain stem* leading to the spinal cord. The brain stem is also divided into the *medulla oblongata*, the midbrain, and the *pons*.

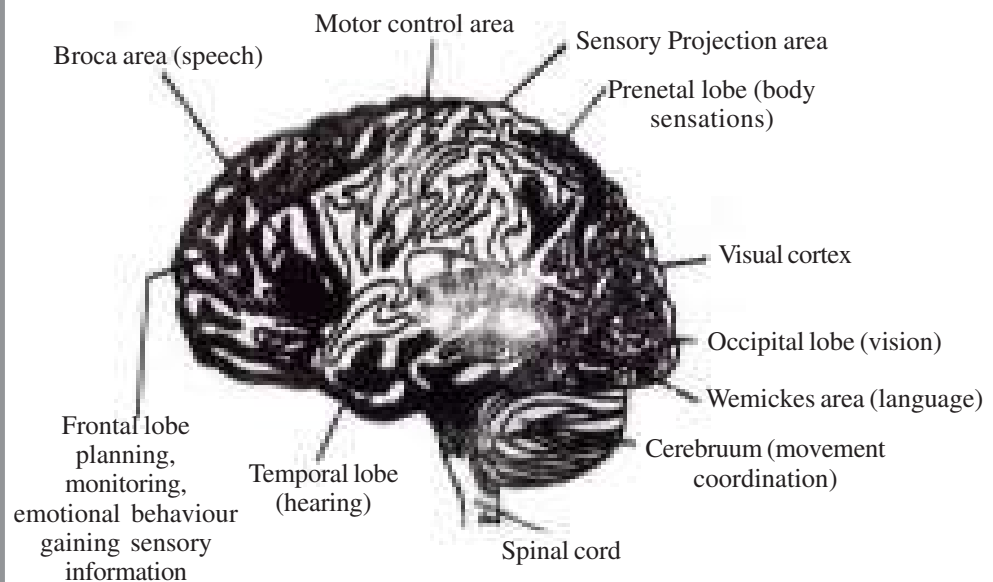


Fig. 3.5: Diagram of human brain

Do you know?

Our brain appears something like a walnut.

Our brain contains at least 15 billion nerve cells (neurons).

The cortex has the “decision making center” that influences what we do feel and think?

The major psychological function of our brain is to process information.



Notes

(a) Cerebral Cortex

The uppermost layer of the brain is called cerebral cortex (see Figure 3.5). The brain is divided into two halves: the *left hemisphere* and *right hemisphere*. They resemble the halves of a walnut. It is interesting to note that each hemisphere processes information about the opposite side of the body. For example, when you write with your right-hand, the motor information enabling your right hand to move comes from your left hemisphere. The cortex consists of a thick layer of densely packed neurons. It has large area to be fitted into the skull cavity and therefore it has a large number of turns and twists. The turns and twists make the structures like hills and valleys, which are called *gyri* (singular gyrus) and *sulci* (singular sulcus).

The brain has two basic functions: cognitive functions (learning, memory, thinking, etc.) and the regulation of physiology of the body.

(b) The Lobes of the Cerebral Cortex

The cerebral cortex is divided into four lobes: *frontal*, *occipital*, *parietal* and *temporal*. Various centres in these lobes are responsible for the awareness of environment and responses to the changes in the environment.

The visual information is received by the primary visual cortex located in the occipital lobe. Any damage or disorder to eye, optic pathway or to the visual cortex results in visual disorders. Similarly, the auditory information is received by the primary auditory cortex located in the temporal lobes. Any damage of our ears, auditory pathways, and to the auditory cortex results into hearing problem. The information from body senses is received by the somatosensory cortex that is located in the parietal lobe.

The right and left cerebral hemispheres of cortex receive sensory information, and control the muscular action of the opposite side of the body. The two hemispheres play crucial role in higher mental functions including language, processing and integration of sensory information, planning, decision making, and reasoning.

**INTEXT QUESTIONS 3.2**

(A) State whether the following statements are True or False:

- (1) The central nervous system consists of brain and the spinal cord. True/False
- (2) The spinal cord has three components. True/False



- (3) The brain is surrounded by the skull for protection.

True/False

- (4) The lower most layer of the brain is called the cerebral cortex.

True/False

(B) Fill the blanks with appropriate words:

- (1) The two major divisions of the nervous system are _____ and _____.
- (2) Each hemisphere of brain process information about the _____ side of the body
- (3) The CNS consists of the _____ and _____.
- (4) The peripheral nervous system carries the _____ to and from the body.
- (5) The somatic system controls the _____ that help the _____ of body.

Do you know?

Brain Research Techniques : Imaging through the living brain

Several techniques are used to know the functioning of our brain. These techniques are also used to find out if there is any thing wrong in the working of the brain. Some of the commonly used techinques in the living brain system are as follows:

CAT scan: *In Computerised Axial Tomography a weak x-ray beam is rotated about the person's head to produce image. A computer then plots the image on a display. The CAT scan differentiates and localises the extent and site of brain tumours, blood clots, and areas of cerebral damage.*

PET scan: *In Position Emission Tomography a radio active glucose related substance is injected into the blood supply of the brain. The images of the brain are obtained by the consumption of the glucose in the brain. The motion picture in PET scan is generated by the computer.*

NMRI: *In Nuclear Magnetic Resonance Imaging technique, the brain is placed in an intense magnetic field. The changes in the magnetic properties of the cells are then recorded. From these recorded properties again the image is generated.*

**Notes**

3.7 THE ENDOCRINE SYSTEM

You must have heard about some diseases caused by high or low level of hormones in the body. For example, diabetes is caused by the low level of a hormone called *insulin*. Similarly, the level of another hormone, *thyroxin* controls our behaviour. Hormones are chemicals secreted directly into our blood streams. The hormones are secreted by endocrine glands. This system is a collection of ductless glands that controls various body functions. The endocrine glands secrete chemicals that send signals by releasing hormones directly into the bloodstream. The endocrine glands and their major functions are shown in the Box. The location of these glands is shown in the Figure 3.6. Some of the major glands are as follows:

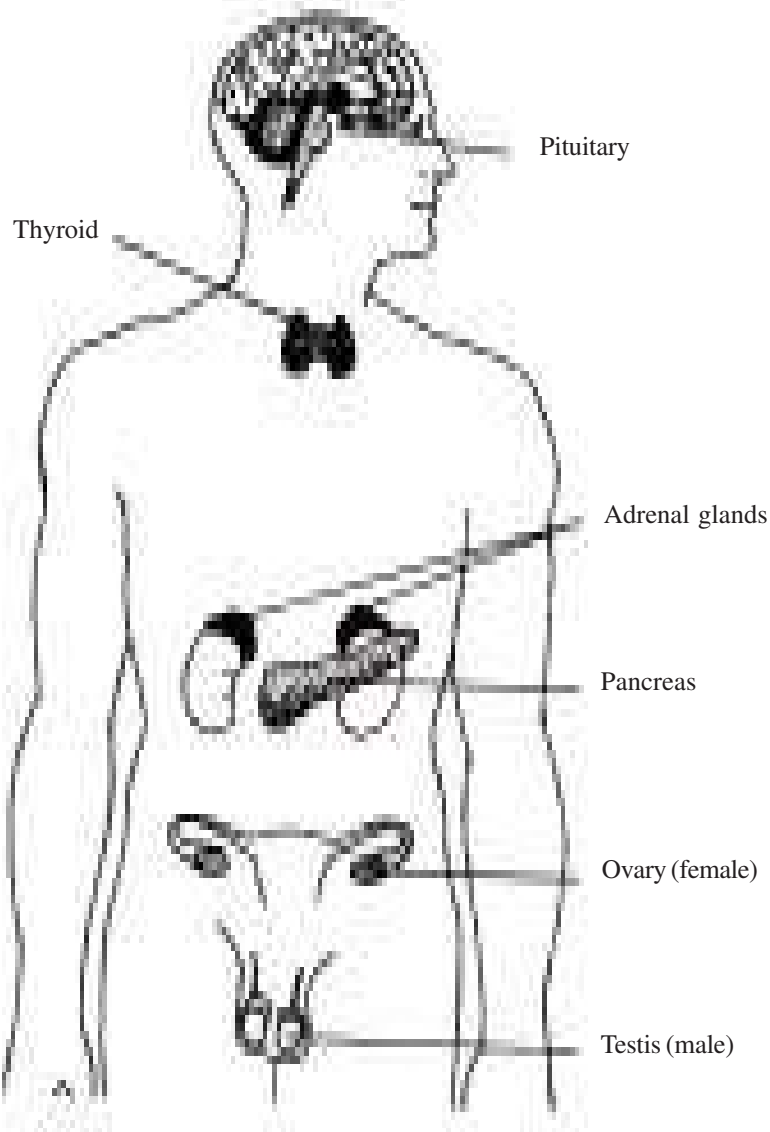


Fig. 3.6: Endocrine glands



Notes

The **pituitary gland** is reddish-grey, about the size of a pea, located in the brain. It is referred to as the “master gland” because some of the hormones it releases stimulate and regulate the hormonal action of other endocrine glands.

The **thyroid gland**, located in the neck, releases a hormone that controls metabolism (transformation of food into energy). It also affects energy level and the mood.

The **adrenal gland** is located above the kidney. It secretes adrenalin and other hormones during emergency situations.

The **pancreas**, is located near the stomach. It produces insulin that controls blood sugar level.

The **gonads** control sexual development and sexual behaviour. The male gonads (testes) are located in the testicles. These glands produce the hormone known as **testosterone**. The female gonads (the ovaries) produce the hormone known as **estrogen**. In both sexes (male and female) these hormones not only control the sex drive, but also regulate the development of secondary sex characteristics, like beards in men and breasts in women.

The androgens (such as testosterone) are generally found at higher levels in males than in females, while the oestrogens (such as oestradiol) are generally found at higher levels in females. However, it is important to understand that, androgens are not ‘male hormones’ nor Oestrogens’ female hormones’. Both classes are found in both sexes.

The Endocrine Glands and their Functions	
Gland	Function
Pituitary	Growth: metabolism (transformation of food into energy (Master gland); regulation of adrenal, thyroid, and gonadal hormone secretion; milk production in females.
Thyroid	control of growth, energy level and our mood
Adrenal	Adaptation to prolonged stress
Pancreas	Control of blood sugar level
Gonads	Reproduction, primary and secondary sex characteristics; sex drive



Notes

3.8 GENETIC INFLUENCES ON BEHAVIOUR

We often talk about people inheriting certain characteristics. Like Neena has inherited her mother's blue eyes, or Ashok has inherited his father's curly hair. We expect tall parents to have tall children. The inheritance of such characteristics is called heredity. The branch of biology, that deals with how heredity works, is called genetics. Behavioural genetics is the study of inheritance of behavioural characteristics.

All living beings are unique as they differ from the members of other species (cats differ from dogs and humans differ from animals). An organism's physical appearance and behaviour varies from individual to individual. The former is known as *genotype* and the later are termed as *phenotype*. Every individual's phenotype is the result of the interaction between its genotype and the environment. The physical development is in large part based upon the genes we inherit from our parents. It is largely believed that the genetic characteristics transmitted by genetic factors set limits on the capabilities of organisms.

The present genetic theory is based upon the work of Gregory Mendel. He showed that the characteristics of parents are passed on to their offspring through genes. These genes might produce visible characteristics in the offspring, or might be carried for possible transmission to another generation. The children of one set of parents do not necessarily inherit all the same characteristics.

The union of two cells, the egg from the mother and the sperm from the father is the beginning of a new individual. These two cells like all others carry within them material that forms a definite number of rodlike units called *chromosomes*. The chromosomes carry hereditary factors or genes. The cell nucleus that contains the *chromosomes* is made up of deoxyribonucleic acid (DNA) in combination with protein compounds. Chromosomes are pairs and each chromosome contains 1000 or so genes that also occur in pairs. (see Fig. 3.7)

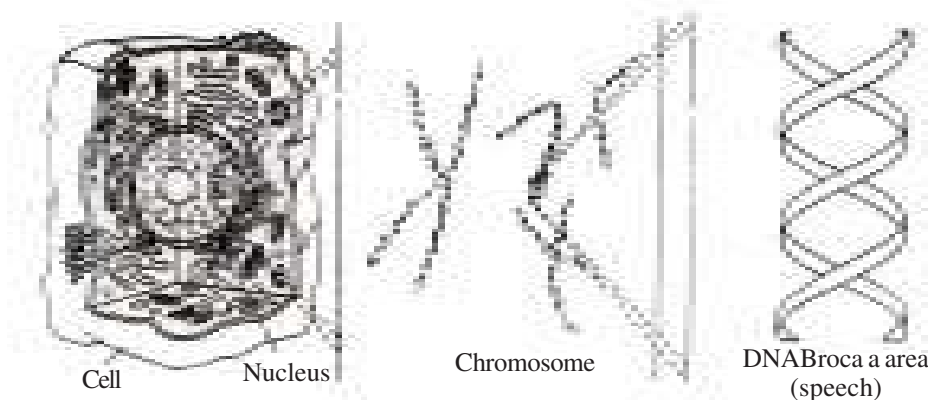


Fig. 3.7: Cell, Chromosome and DNA



Notes

The process of inheritance is based upon the process in which the offspring receives one of each gene pair from each parent. Some genes are dominant and some are recessive. An individual with *dominant gene* for a particular characteristic displays that characteristic, whether only one or both genes in the pair are dominant. In case of a *recessive gene*, the characteristic associated with it does not show up unless both genes in the gene pair are recessive. Some characteristics are produced by a single gene or gene pair. Multi-factor inheritance involves the action of several genes.

The scientists working in the area of *genetic engineering* are trying to find out the genetic code so as to manipulate the cell structure. One of the examples of this type of research is the phenomenon of *cloning*. The research is basically aimed to solve the problem of genetically transmitted diseases or behavioural abnormalities. Moreover, through genetic manipulation scientists are trying to control certain undesired behaviours and to facilitate the desired behaviour. The genetic manipulation has so far been tested widely in plants and to some extent in animals. The human research on genetic manipulation is under strict control of ethical principles.



INTEXT QUESTIONS 3.3

1. What are hormones?

2. Why pituitary is called master gland?

3. What is the process of inheritance?

3.9 CULTURE AND BEHAVIOUR

Behaviour of human beings become meaningful in their cultural context. In terms of shared meanings and practices different cultures guide us in choosing our goals and conducting ourselves in various situations. The patterns of behaviour found in different cultures emerge in the context of interactions of the people which are

**Notes**

encoded in different forms. Various traditions, customs and cultural artifacts display these codes. They help to interpret and make sense of the behaviour of people belonging to a given culture. Thus a community may subscribe to certain beliefs and values. They may become part of the social consciousness of the people of that community.

When the existing natural things change with human efforts may be known as cultural change. Culture is said to represent what is contributed by human beings. It has *subjective* as well as *material* aspects. Culture often transmits from one generation to other. The subjective part of culture involves values, norms, roles etc. the material part of culture deals with tools, sculpture, and various artifacts.

People are born in various cultures which provide a set of stimuli, languages and practices. It is through these aspects of culture that we are made what we are. The diversity in behaviour noted in different societies is to a large extent attributed to the cultural diversity. This happens because culture selectively facilitates certain patterns of behaviours and requires its members to inculcate them. Culture works two ways i.e. it provides opportunities as well as puts constraints on us. Depending on the particular eco-cultural context various behaviour patterns and skills are encouraged or discouraged.

It is essential to know that human behaviour is shaped by the biological potential as well as environmental contributions. However, the two interact and jointly determine behaviour in a culture which gives a specific shape or direction to behaviour. For instance, a child grows in a family, gets formal education in school and plays with toys. A moment's reflection will make it clear that families, schools and toys vary across different cultural settings. An extended and a nuclear family puts different demands. Similarly schools in metropolitan cities and remote villages differ in terms of organization of classroom, interaction pattern and other inputs. The toys too differ in metro and remote village. It may, however, be noted that cultures do not remain static. While each culture tries to maintain its identity, it also interacts with other cultures and is influenced by them. Thus there is both continuity and as well as change.

3.10 THE PROCESSES OF SOCIALIZATION AND ACCULTURATION

Now let us talk about socialization process.

Socialization is the process through which cultures are maintained and transmitted across generations. Thus agencies such as parents, media, school, peer group and religious institutions deliberately shape children and people to develop specific behaviour patterns. They make conscious and deliberate attempt to define the expectations of society. The parents, for instance, adopt various styles of parenting which vary in the degree of affection and degree of control exercised on children.

**Notes****Biological and Cultural Shaping of Mind and Behaviour**

It has been found that authoritarian and permissive parenting interfere with the healthy development of personality. Parents use reward and punishment to promote or discourage children's behaviours. Children also learn by imitation and modeling the significant others (e.g., parents, teachers) present in this environment. They also identify with others and internalise the characteristics of important persons they observe. The role models play very important role in shaping the behaviour of growing children.

The process of acculturation deals with the influence of a new or different culture on a given culture. Thus it characterizes the process of contact between cultures. Such contacts take place under various conditions including colonization, invasion, international trade, travel and migration. Indian society presents a good example of acculturation. The British impact on language, dress and education is clearly noticeable.

The process of acculturation demands people to learn many new things and socialize in different ways. Acculturation is often found quite stressful. People respond to acculturative stress in different ways. They may assimilate with the new culture or maintain separate identity. Also, a new kind of integration may emerge which will involve the elements of old as well as new culture. In other situations people may experience marginalization and separation.

**INTEXT QUESTIONS 3.4**

1. In what ways culture shapes human behaviour?

2. Who are the main agents of socialization?

**WHAT YOU HAVE LEARNT**

- Human behaviour is an outcome of the interplay of evolution, heredity and environment. Evolution through natural selection leads to changes in the life of species. Human evolution is characterized by bipedalism, inciphalization and development of language.
- We study the functioning of our body and brain with the help of our brain itself. We receive sensation through our senses and react by the actions of our



Notes

muscles and glands. Both sensation and control of our actions are mediated by our brain. Every organism including human being is made up of small units called cells. These cells constitute the basic unit of life.

- The nervous system is made up of neurons. Sensory neurons carry information from sense organs to the central nervous system. Motor neurons carry command from the brain to the glands and muscles of the body. All the neurons have cell body, dendrites (branch like extensions) and axons that carry information to other neurons. Synapses are junctions between axons of one neuron and the dendrites of the other.
- The nervous system consists of the CNS (brain and spinal cord) and the peripheral nervous system. The peripheral system is further divided into somatic and autonomic nervous system. Somatic system is responsible for receiving the information through sensory receptors and for our actions through the glands and muscles. The autonomic nervous system consisting of the sympathetic and parasympathetic parts acts to mobilise in response to threats and then for returning the body to the normal state.
- The cerebral cortex has four lobes: frontal, occipital, parietal and temporal. The occipital lobe is specialised for vision. The parietal lobe is involved in the sense of touch and the sensations from own body. The functions of frontal lobe include co-ordination of movement, planning, attention, social skills, etc. The temporal lobe is important in audition and language. The right and the left cerebral hemispheres are specialised for various higher order functions.
- The endocrine system is a collection of ductless glands that control various bodily functions through the secretion of hormones.
- Genetics is the study of how traits are inherited, or passed on, from parents to the offspring. Studies in genetics suggest that a substantial portion of the variation among individuals on many psychological attributes such as intelligence and personality are heritable.
- Human behaviour can be meaningfully understood in a cultural context. Culture consists of the man made part of environment. It has subjective and material aspects. Cultures represent meanings and practices which are transmitted from one generation to the other. Cultures do not remain static. They are maintained through the process of socialization. The parents, peers and schools, etc., act as agents of socialization. The contact with other cultures leads to the process of acculturation. The contact may lead to assimilation, isolation or integration in relation to the culture in contact.



TERMINAL EXERCISE

1. Describe the structure and function of a neuron.
2. Describe the functions of central nervous system.



3. Describe the functions of endocrine system.
4. How are the behavioural characteristics transmitted from parent to their children?
5. Using examples describe the role of culture in shaping human behaviour.



ANSWER TO INTEXT QUESTIONS

3.1

1. bipedalism, encephalization and language
2. cell body, dendrite, neuron
3. (i) True (ii) True (iii) False
4. (i) half (ii) cytoplasm, nucleus, cell membrane

3.2

- (A) (1) True (2) False (3) True (4) False
(B) (1) Central, peripheral (2) opposite
(3) brain, spinal cord (4) information
(5) skeletal muscles, movement

3.3

- (1) Chemicals secreted into our blood streams.
- (2) It regulates hormonal action of other endocrine glands.
- (3) It is based upon the process in which offspring receives one of each gene pair from each parent.

3.4

- (1) By guiding the choice of goals, providing codes for interpretation of behaviours, and by facilitating selectively certain patterns of behaviour.
- (2) Parents, Teachers, Peers, Media.

HINTS TO TERMINAL EXERCISE

1. Refer to section 3.4
2. Refer to section 3.6
3. Refer to section 3.7
4. Refer to section 3.8
5. Refer to section 3.9



Notes

4

BECOMING AWARE OF THE WORLD AROUND US

Human beings and animals are able to know the world around them, hear sounds, taste various types of foods, smell different fragrances, feel the warm and cold climate outside, and feel the pain when hurt. The most remarkable characteristic of the organism, human or non-human, is its possession of different sense organs. These sense organs (e.g., eyes, ears, tongue, nose, skin, etc.) are our windows to collect information from the external world. Each of these sense organs is selectively sensitive to different kinds of stimuli. For example, visual sense organ (the eye) is sensitive to receive only light energy, the ear is sensitive to the sound, and so on. Human beings depend primarily on visual, auditory, and cutaneous senses to gather most of the information from the world around them. About 90 percent of the time we use the visual sense, followed by the auditory. In this lesson we will learn about the various sense organs.



OBJECTIVES

After studying this lesson, you will be able to:

- describe the structure and function of different sense organs;
- explain how the organism gathers information about the external and internal world;
- describe the physical nature of stimuli and how these are received and processed at the sensory level;
- analyze the relationship between physical stimuli and psychological responses to these stimuli.



Notes

4.1 VISION, AUDITION, AND OTHER SENSES

The **sense organs**, 10 in all, constitute the information gathering system. Eight of these sense organs are those that collect information from the external world: **vision, audition, smell, taste, touch, warmth, cold, and pain**. The other two are termed as deep senses: **vestibular** and **kinesthetic**. They help us in maintaining body equilibrium and provide important information about body position and movement of body parts relative to each other. In this section, you will study about the structure and function of different human sense organs and how they help us in gathering information from the external and internal world.

External stimulus (e.g. light) is received by a specific sense organ (e.g. eye). Within a sense organ are the specialized receptors that transform the physical energy into **neural signals** (process known as *transduction*) which are then transmitted to the specific area in the brain. The pattern of neural activity is recognized by the brain. In other words, the physical energy (information) is received by the specific sense organ. The sense organ pre-processes (encode) the information and the encoded information is transmitted to the specific area in the brain where **encoded** message is **decoded** and further processed, which leads to perception. The sequence of events is described in Fig. 4.1.

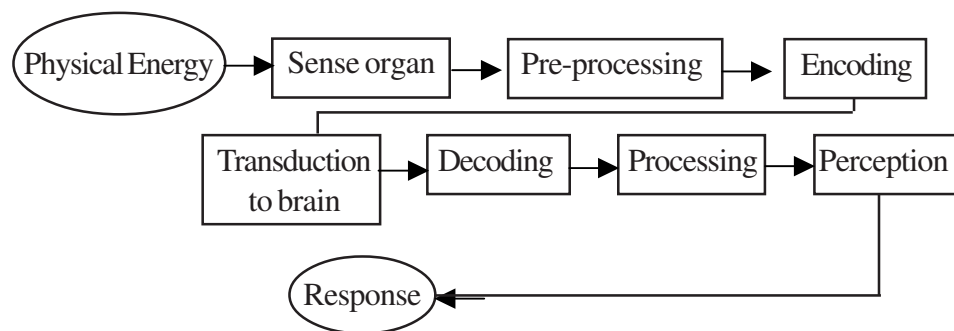


Fig. 4.1: The sequence of processing of stimulus information

Do You Know

Sensory Adaptation

Do you know that on continued stimulation the awareness of sensation involved diminishes or fades out completely? For example, if we sit in a room in which some fragrance has been sprayed, initially we become aware of that fragrance but after sitting for some time the sensation diminishes or completely fades out. This process is known as sensory adaptation. All sensory systems display adaptation. The sense of touch and smell adapt

quickly whereas sense of pain adapts slowly. On the other hand, the process is very different in visual modality. That is, if you keep looking at one object, the object does not fade or vanish, as is the case with other senses. This is possible because the eye ball, due to very fast tremors, keeps shifting image from one set of receptors to others. Different type of adaptation takes place in the visual modality, called light and dark adaptation.



INTEXT QUESTIONS 4.1

Choose the correct alternative

1. Which sense organ is not associated with the collection of information from within the body.
 - A. Kinesthetic
 - B. Vestibular
 - C. Taste
 - D. Proprioception
2. Human beings possess _____ sense organs
 - A. 10
 - B. 5
 - C. 7
 - D. 8
3. The process by which physical stimulus is converted into neural signals is called.
 - A. Transmission
 - B. Transformation
 - C. Transduction
 - D. Signalling

4.2 VISION

The most developed and most frequently used sense organ in human beings is vision. More of the brain is devoted to mechanisms for vision than to any other



Notes



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sense. Vision dominates over the information received from other senses. For example, what we see has more importance than what we hear. In our day to day transactions, within the external world, we make the use of vision much more than all the senses combined, about 90 percent of the time.

4.2.1 Physical Nature of Visual Stimuli

As discussed earlier, each of the different sense organs is sensitive to specific physical stimulus called **adequate stimulus**. For example, tactile sense (touch and pressure) is sensitive to touch or pressure upon body's skin surface. Similarly, the eyes are only sensitive to **photopic stimulation** (light). That is, the adequate stimulus for the eyes are light waves (electromagnetic energy). The light waves activate the visual receptors, called **rods** and **cones**. The eyes receive light reflected from objects in the world and from this we perceive colour, shape, depth, texture, etc.

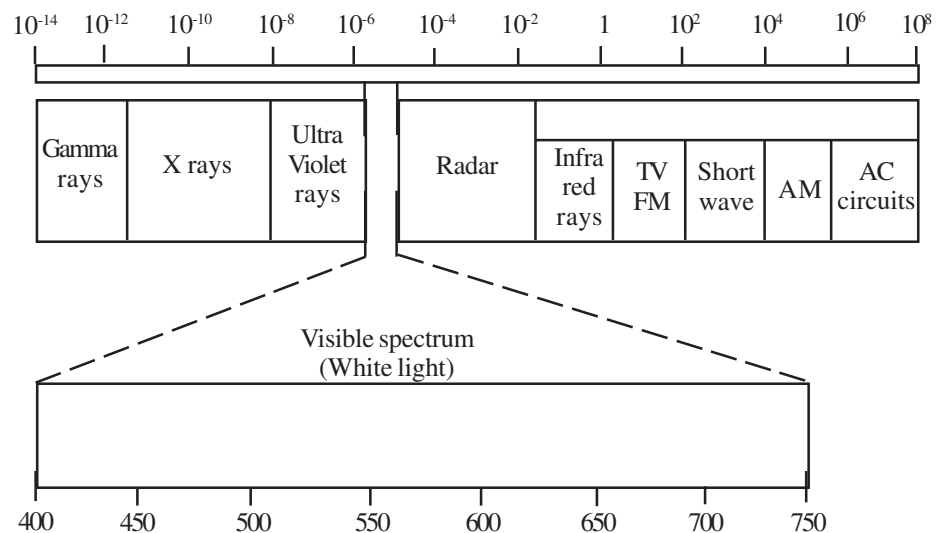


Fig. 4.2: Visible spectrum

The **visible spectrum** for human eye ranges just below 400 nm (**nanometers** or mili-microns) to about 750 nm. Even within this visible spectrum human eye is not uniformly sensitive to all the wavelengths. It can be observed from Fig. 4.2 that the lower end of the **visible spectrum** has Ultraviolet rays and on the upper end are Infrared. These rays are not visible to the human eye and if the eye is exposed to these rays (ultraviolet and infra-red) in large quantity it can harm the eyes.

4.2.2 Structure of the Eye

Each eye is about 25 mm. in diameter and weighs about 7 gms. The human eye consists of four major parts:



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- (i) the cornea
- (ii) the iris
- (iii) the lens
- (iv) the retina.

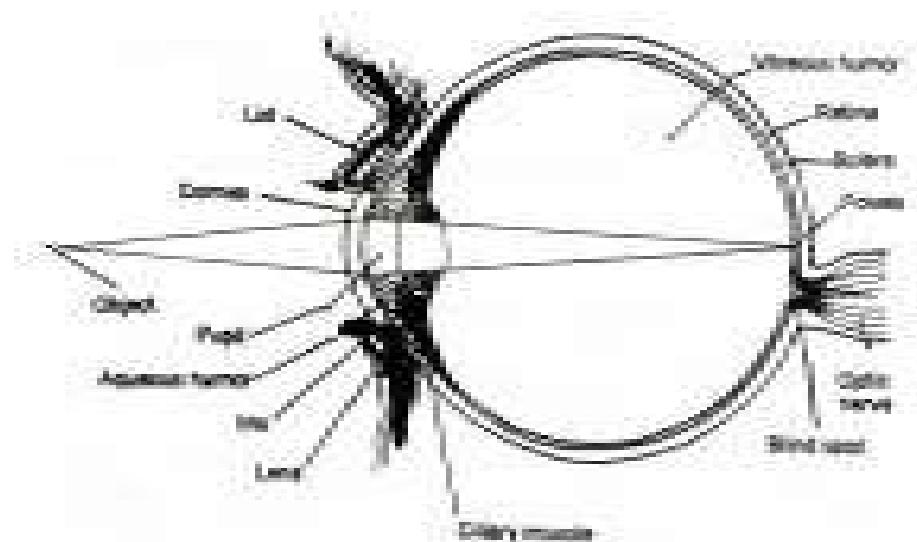


Fig. 4.3 : Structure of eye

Light rays enter the eye through **cornea**, the transparent covering in front of the eye. The cornea is sharply curved. It focuses the light rays on the **retina**. Behind the cornea is the **pupil** that appears black. The amount of light that enters the pupil is regulated by the **iris**, a ring of muscle whose pigmentation gives the eye its colour (brown, blue, etc.). The iris contracts and dilates **reflexively** and regulates the amount of light that reaches the retina in accordance with brightness conditions outside. Iris also allows the eye to **adapt** as light levels change. For example, when we enter a dark room the iris dilates the pupil so that more light can enter the eye, and when we step out from the dark room into bright sunlight, the iris constricts the pupil to reduce the amount of light entering the eye. After passing through a small aperture (pupil), the light rays pass through a transparent structure called **lens**. The **ciliary muscles** attached to the **lens** modify its curvature to focus light (accommodation) on the retina.

The process of adjusting the lens in accordance with distance, so that the image of the external object is focussed on the retina, is called **accommodation**, similar to the focusing in the camera.

The transparent cornea in front and the tough **sclera** surrounding the retina of the eye serve to protect it from injury and to maintain its shape. The **choroid** is the



Notes

middle layer of dark material richly supplied with blood vessels. The retina is a thin and delicate inner layer containing the **photo-receptors** and an elaborate **network** of interconnecting **nerve tissues**. Retina is the most important part of the eye.

4.2.3 The Retina

The light reaches the retina by passing through the **anterior** (front) and **posterior chambers** containing watery fluid (called aqueous and vitreous humor) and the various retinal layers. Finally, it reaches the visual receptors, the **rods** and the **cones**. Each retina contains approximately 120 million rods and 6 million cones, located near the back of the retina. These specialized cells (receptors) convert light energy into **electrical potential** (electrical signals).

Try it yourself (sensitivity of visual receptors)

It has been stated that rods function most efficiently in the scotopic range or dim light and cones are relatively ineffective in dim light. It is interesting to see for yourself the functioning of rods and cone in darkness.

Throw a coin in a dark room and try to search the coin by directly looking at it. You will be surprised to find that the coin is not visible if you look straight at it. Now, try looking at it off center by about 10 degrees that is, fixate your eye little away from the coin so that the image of the coins falls away from fovea, on the rods. You can now find the coin. This shows that the fovea, containing only cones, is blind in the dark, rods function efficiently at this level.



INTEXT QUESTIONS 4.2

Choose the correct alternative

1. Among the different sense organs _____ occupies the most important and dominant position:
 - a. Ear
 - b. Eye
 - c. Semi circular canals
 - d. Tongue



Notes

2. The adequate stimulus for each of the four sense modalities is given below. Identify the stimulus that is not the adequate stimulus for the sense modality.
 - a. vision – light
 - b. Audition – sound
 - c. Tactile – chemical
 - d. Temperature – heat and cold.
3. Light rays pass through _____ to finally reach the retina.
 - a. Cornea
 - b. Pupil
 - c. Lens
 - d. All of the above.
4. The changes in lens which enable the light rays to focus on the retina is called:
 - a. Convergence
 - b. Accommodation
 - c. Focusing
 - d. Centering
5. The cones mediate:
 - a. Daylight vision
 - b. Chromatic vision
 - c. Detailed vision
 - d. All the above.
6. The rods mediate:
 - a. Scotopic vision
 - b. Achromatic vision
 - c. Signal information about brightness
 - d. All the above.



Notes

4.3 SENSORY PROCESSES OTHER THAN VISION

We have so far discussed vision and visual processes in some detail. Now, we take up briefly the other senses. After vision, audition is used more often than any other sense. The senses, other than vision and audition, can be grouped in the following manner:

1. Cutaneous senses-that include pressure, touch, temperature (cold and warmth) and pain
2. Taste
3. Smell
4. Deep senses that include kinesthesia and vestibular.

Audition

The auditory receptors in the ears respond to **sound waves** to produce **neural signals**. Sound waves are produced by **pressure changes** in the atmosphere. The **eardrum** is pushed and pulled by the **compressions** and **expansions**. It vibrates in a pattern that corresponds to the sound.

Sound waves have two important physical aspects: **frequency** and **amplitude**. The **pitch** of a sound depends on its **frequency**; higher the frequency, higher the pitch (e.g. women's voice has more pitch than that of a male). Frequency is expressed in units called **Hertz (Hz)**. Young people can hear sounds with frequencies ranging from 20 Hz to 20,000 Hz, with maximum sensitivity in the middle region. With age the audible range is reduced especially on the high frequency side.

The **intensity** depends upon the **amplitude**. Intensity is usually expressed in units called the **decibels (dB)**.

Some dB values are given below for you to grasp the concept of dB.

Whisper – 30dB

Normal conversation – 60dB

Loud thunder – 120dB

Jet plane take off – 140dB

Sounds above 120 dB are likely to be painful to the human ear. If the sound is produced by the great number of unrelated sound waves, it is perceived as **noise**,

which we cannot analyze. The sound you hear from a jet aircraft engine or your pressure cooker is called **white noise**.

The Structure of the Ear

The ear has three major divisions:

- (i) the outer ear, consisting of **pinna** and **auditory canal**;
- (ii) **the middle ear**, consisting of **ear drum** (tympanic membrane); and
- (iii) **the inner ear** formed by three small bones called **ossicles** namely the **malleus** (hammer), **incus** (anvil), and the **stappes** (stirrup).

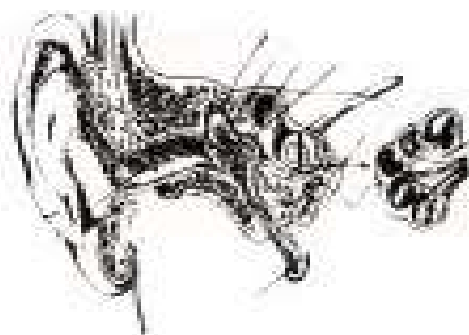


Fig. 4.4: The Structure of Ear

The vibration of the **oval window** creates waves in the fluid that fills the **cochlea**. As the waves travel through the cochlear fluid the **hair cells** bend to and fro. At this point the mechanical energy of the waves is **transduced** into **electro-chemical impulses** that are carried by the **auditory nerve** to the brain. The hair cells in the cochlea are the receptors for hearing, corresponding to rods and cones for vision. The auditory nerve fibers convey the auditory information through series of **relay stations** to the **auditory cortex**, located in the **temporal lobe** of the brain.



INTEXT QUESTIONS 4.3

(A) Match the following:

- | | |
|------------------|-------------------|
| a. Pitch | p. Decibels (dB) |
| b. Intensity | q. Frequency (Hz) |
| c. Audible range | r. Expansion |
| d. Compression | s. 20-20,000 Hz. |



Notes



Notes

(B) Choose the correct alternative

1. What is not a part of the auditory system?
 - a. Tympanic membrane
 - b. Decibels
 - c. Stapes
 - d. Cochlea
2. Auditory receptors for hearing are:
 - a. Hair cells
 - b. Cochlea
 - c. Tympanic membrane
 - d. Malleus

The Cutaneous Senses

The skin or cutaneous senses give us information about the surface of our body. Skin could be considered as a “**giant sense organ**” that covers the entire human body. Skin senses, also called **somesthetic system**, consist of :

- (i) Pressure and touch
- (ii) Temperature sensation : Cold and warmth
- (iii) Pain

It has been found that the skin is not uniformly sensitive throughout the body, but has differential sensitivity. That is, points of greatest sensitivity to touch, cold, warmth, and pain are differently located in the human body, some areas are more sensitive to touch, others to pain, and so on.

Pressure and Touch

The amount of pressure required to produce the experience of pressure varies greatly for different parts of the body. The tip of the tongue, the tips of the fingers, and the hands are the most sensitive areas of the body. The experience of touch is felt if we apply gentle pressure on the skin or if we slightly move or touch the hair on the body.

It is believed that a fairly complex structure called **Meissner Corpuscles** serves the pressure sense in the hairless regions of the body. The **nerve endings** do the



Notes

same for the roots of the hairs. It is believed that **free nerve** endings convey touch impulses.

Sensing the Temperature: Cold and Warmth

Experiences of cold and warmth are felt by the changes in normal **gradient** of skin temperature. That is, difference (gradient) between skin surface temperature and blood temperature. It is believed that free nerve endings appear to be responsible for signaling information about temperature.

Pain

Let us talk about another side of pain, which one has never thought of. Pain has great significance in human life, though, we would prefer not to experience it. It has immense **biological** importance because it signals that something is wrong within the body. If pain sensations were not there, we could bleed to death without being aware of the wound. So pain is friend, not enemy.

There is evidence that **free nerve endings** are the receptors stimulated by tissue damage. It is believed that the free nerve endings of pain spots must be specialized in some way to respond to painful stimuli. That is, free nerve ending are specialized to pick up and convey different body conditions.



INTEXT QUESTIONS 4.4

Choose the correct alternative

1. What is not a part of the cutaneous sense?
 - a. Pressure and touch
 - b. Temperature
 - c. Pain
 - d. Kinesthesia
2. Which of the following receptors is not the part of pressure and touch sensation?
 - a. Meissner corpuscles
 - b. Basket nerve endings
 - c. Free nerve endings
 - d. Hair cell



Notes

3. Sensation of temperature is believed to be signaled through :
 - a. Free nerve endings
 - b. Hair cells
 - c. Neurons
 - d. None of the above

Try it yourself

Though, we try to study the sense organs as entities or units but there is interaction of various sense organs in our perceptual system. For example, when we taste an apple, its taste has the combined effect of specific smell, its visual quality (redness), its tactual quality (roundedness, smoothness, firmness, etc.) and even its temperature (cold or warm). It will be interesting to taste an apple you have had cold, when the smell sensation is at its low functioning or no smell sensation at all. If you do not handle the apple yourself and you close, your eyes, you will find the taste very different. Again try to taste the same quality of apple when you are all right and eat under normal conditions. You will find the apple very tasty, different from the first condition. This indicates that several sense organs contribute towards our sense of taste. This is true for other sense organs also. You enjoy the music more when the singer is singing before your eyes as compared to the some music on the tape-recorder.

The Sense of Taste

The sense of taste, or the **gustatory system**, has four basic tastes: **salty, sour, sweet** and **bitter**. The tongue is not uniformly sensitive to all stimuli. For example, back of the tongue is sensitive to bitter stimuli and the tip of the tongue to sweet. The sides of the tongue respond mainly to sour stimuli and the tip and part of the sides respond to salty solutions.

Taste buds contain **hair cells** that are the taste receptors. People, on an average, possess about 10,000 such **taste buds**, the taste buds are spread all across the surface and sides of the tongue and some are located in other regions of the mouth. However, they are mostly found clumped together on the tongue and are called **papillae**.



Notes

Most of the papillae have **grooves** (moats) around their sides and when we eat or drink something, the liquid in the mouth fill up these grooves around the papillae and stimulate the hair cells chemically. The cells on their part send sensory message to the brain and results in the sensation of taste.

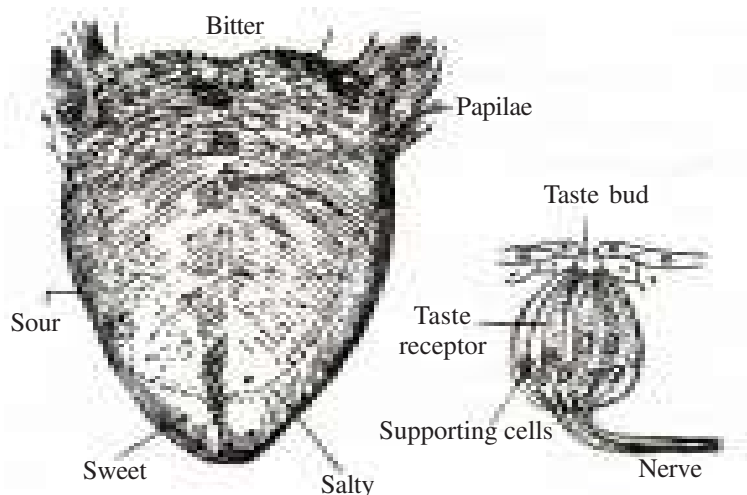


Fig. 4.5: The Structure of the Tongue

The Sense of Smell

Smell, or the **olfactory system**, provides information about chemical compounds suspended in the air. We have three main senses that respond to stimuli at a distance: **Smell, hearing, and vision**. Smell is the most primitive of these three. Though, smell is a minor sense in human beings, it greatly adds to our enjoyment of food and appreciation of perfumes and deodorants. In contrast, smell is of vital importance to many animals, like dogs. Dogs and other animals use this sense to locate food, prey, etc.

Olfactory receptors are located high up in the nasal passage leading from the nostrils to the throat. These receptors lie in two small patches, one on the left and other on the right in the roofs of this passage. These receptors are embedded in a mucus-coated membrane called the **olfactory epithelium**. These receptors lie a little off the main route of air. Chemicals suspended in the air pass through the nasal passages and stimulate the olfactory receptors which connect with the **olfactory nerve**. Human beings can distinguish among about 10,000 different odours. Interestingly females are somewhat more sensitive and accurate than males in odour recognition.



Notes

Deep Senses

One group of senses perform the function of informing the organism about its own movement and its **orientation in space**. The collection of two different senses, **Kinesthetic** and **Vestibular** systems is called deep senses.

- (i) **The Kinesthetic System** : Skeletal movement of the body is sensed through *kinesthesia*, a collective term for all the information that we get from receptors in the **muscles, tendons, and joints**. It provides us information about the movement of the body as well as information about bodily **posture** and **orientation**. Of course, vision helps us a lot in this respect.
- (ii) **The Vestibular System**: Another group of receptors, located in the **inner ear**, signal the rotation of the head. These are receptors in the *semicircular canals* which are located within the **vestibular apparatus** of the inner ear. The three canals in the ear contain viscous liquid that moves when the head is rotated. The motion of this liquid bends hair cells that are located at one end of each **canal**. When bent these **hair cells** give rise to nerve impulses that provide information about the nature and extent of head movement or rotation. At the end of the semicircular canals are the **vestibular sacs**, which contain **hair cells** that are sensitive to the specific angle of the head. It provides information about the position of the head-straight up and down or tilted. The system responds to gravity and keeps us informed about our body's location in space.



INTEXT QUESTIONS 4.5

Choose the correct alternative

1. The back of the tongue is sensitive to _____ stimuli.
 - a. Sour
 - b. Bitter
 - c. Salty
 - d. Sweet
2. Taste receptors are :
 - a. Taste buds



Notes

- b. Hair cells
 - c. Papillae
 - d. Free nerve endings
3. Olfactory receptors are located:
- a. In the nose
 - b. High up in the nasal passage
 - c. In the throat
 - d. In the early part of the nose
4. The deep senses include:
- a. Kinesthetic system
 - b. Vestibular apparatus
 - c. Semicircular canals
 - d. All of the above
5. In kinesthetic system we get information from receptors in the :
- a. Muscles
 - b. Tendons
 - c. Joints
 - d. All of the above
6. The vestibular system is a feedback system that provides information to the brain about:
- a. pain
 - b. touch
 - c. the movement of our body
 - d. all of the above



4.4 MIND, BRAIN AND CONSCIOUSNESS

In part I, you studied the role of the senses in providing information about the external and internal world. However, receiving information from the external world and transmitting the same to the brain is just half the story. The chain of events start from stimulus reception through our senses and ends up in reports such as “beautiful flower”, “a bitter taste, or “bright green”. The sensory experience that we get from stimulus through our receptors is a process and a product the end outcome is what we call **perception**, which is discussed in detail in a subsequent lesson (Lesson 5). However in this section we will study how our brain processes the information received from our senses into a **conscious sensory experience**.

Usually, our **conscious experience** (perception) is a result of processing of information that we receive from different sense modalities (e.g. vision, audition, touch, etc.). So, what we experience is a product of the contributions made by different sense organs (modalities) that results in a conscious sensory experience or sensation.

Consciousness

We become aware of the world around us through our consciousness. **Consciousness** is a state of awareness of external and internal events experienced by an individual. In ordinary waking state (consciousness) we are aware of what is going on around us, we are aware of our thoughts, feelings, desires, perceptions etc. On the other hand, if one falls down unconscious due to low blood pressure, one is not aware of all that is happening around the person. When this person gains consciousness, he/she does not know all that was being done to revive him/her.

The state of consciousness, however, keeps on changing even during the waking state. We keep performing many actions at a particular time, some consciously some automatically. For example, while driving a car we keep talking to the person sitting by our side and during this period when we are busy talking we are not conscious (aware) when we lifted our foot from the acceleration pedal, pressed upon the clutch, changed the gear and again started accelerating. In this example the driver was paying attention to the conversation with the other person (conscious act) while the driving part was automatic (without our being conscious). Though, we can perform one action at a time where allocation of attention is required, we can simultaneously carry on the other task if it is highly learnt (it becomes automatic and no conscious control is required). But, think of a driver who is learning to drive, he will not be able to talk and drive because both the tasks require allocation of attention or conscious effort.



Notes

Computers and Human Beings

It is interesting to compare computer and human being. Modern computers are impressive, but none can match the amazing abilities packed within the human brain. In some ways computer may be considered to be superior to human beings. For example, the memory of a computer could be more than that of human being. Further, computer can process large number of variables simultaneously (parallel processing). On the other hand, human being is basically capable of serial processing (one task at a time). For example, if you read a book which needs attention to grasp the material you cannot listen to the music simultaneously, unless the music does not require any attention. However, tasks which are highly practiced, like driving a car can be executed with other tasks that require attentional resources. That means, one task is being performed automatically (without conscious control) and the other under conscious control.

It is important to note that no computer can perform the function of thinking (atleast presently). Computer has no emotions, imagery, insight, desires, motives, and creativity of human brain. Computer can perform to the extent the hard-ware and programmes allow. On the other hand, human brain is capable of performing various cognitive and affective functions without any limit. The most important difference between the two is that human being has consciousness whereas the computer does not.

Mind is often considered a functional correlate of **brain**. Our thoughts, memory, mental images, reasoning, decision making, and so on are all aspects of the human mind. Brain has a physical structure. (e.g. neurons) and some physiological action is generated whenever the brain works. Its psychological correlate is what we call mind. The cognitive functions of the brain are what we call the functioning of mind. The process of socialization and learning experience a human being undergoes amount to programming the hard-ware (brain) the human being inherits.

Levels of Consciousness

Sigmund Freud, the founder of psychoanalysis, believed that human mind has three distinct levels: **the conscious**, **the preconscious**, and **the unconscious**. The conscious mind includes our current thoughts, whatever we are thinking or experiencing at a given moment. Beneath this conscious realm is the much larger preconscious. The preconscious contains memories that are not part of current thought but can be readily brought to mind (conscious) if need arises. Finally, there is the unconscious. This part of the human mind has been compared to iceberg, of



Notes

which the major portion is concealed. The unconscious contains thoughts, desires, and impulses of which we remain largely unaware. Human behaviour reflects all the three levels of consciousness. However, many psychologists do not accept these three levels of consciousness. The first level, that is, consciousness is well accepted by all. The preconscious is what we call stored material (memory) and the material can be **retrieved** when required. However, the third level (unconscious) is very controversial and most of the psychologists, especially, the experimental or the cognitive psychologists do not accept this level at all.



WHAT YOU HAVE LEARNT

- The sense organs are our windows to collect information from the external world.
- Ten different senses can be identified in human beings. These are : Vision, Audition, Tactile, Warmth, Cold, Pain, Smell, Taste, Kinesthetic, and Vestibular. The specific sense organ transforms the physical energy (information) into neural signals and transmits those to the brain. This message is decoded and processed in the brain which leads to perception.
- The most developed and often used sense organ in human being is vision. Light waves are the stimuli for eyes. The visual receptors, called rods and cones, are activated by the light waves.
- The auditory receptors in the ears respond to sound waves. The sound waves are produced by pressure changes in the atmosphere. The ear has three major divisions-outer ear, middle ear, and inner ear.
- The skin (cutaneous senses) provides information about the surface of our body. Some main senses identified are pressure and touch, temperature sensation (cold and warmth), and pain.
- We can sense taste (gustation) with the help of our tongue. The tongue contains taste buds which are spread all across the surface and sides of the tongue. The taste buds together are called papillae.
- The sense of smell (olfaction) is sensed by the nose. The olfactory receptors are located in the nasal passage. These receptors are embedded in a mucus-coated membrane which is called olfactory epithelium.
- The kinesthetic and vestibular are the group of senses which inform the organism about its own movement and orientation. These are called deep senses.



TERMINAL EXERCISE

1. What are the different sense organs? How is the stimulus perceived by the brain?
2. Discuss briefly the function of
 - a. Retina
 - b. Rods
 - c. Cones
3. What are the three major divisions of human ear?
4. What are the cutaneous senses ? Name them and describe their functions.

Notes



ANSWER TO INTEXT QUESTIONS

4.1

1. c 2. 10 3. c

4.2

1. b 2. c 3. d
4. b 5. d 6. d

4.3 (A)

a-q

b-p

c-s

d-r

(B) 1. b 2.a

4.4

1. d
2. b
3. a

**Notes****4.5**

1. b
2. b
3. b
4. d
5. d
6. c

HINTS TO TERMINAL EXERCISE

1. Refer to section 4.3
2. Refer to section 4.4
3. Refer to section 4.5
4. Refer to section 4.5



Notes

5

ATTENTION AND PERCEPTION

When you walk through a busy street, a large number of stimuli bombard your sense organs, but you can take in and use only a very small number of stimuli. For example, a number of people criss-cross each other wearing different colour dresses, cars and buses pass through on the nearby road, shops and buildings also attract your attention. However, only a small and selected part of the available stimulation is registered by an individual for processing and the rest is filtered out. This process of selectively responding to a stimulus or range of stimuli is called attention. Thus, attention refers to all those processes by which we perceive selectively.

You have read in the lesson “Becoming aware of the world around us” that we have ten senses which provide us information about the external and internal world, but some central regulatory mechanism allows selective pick up of the information. Have you ever thought that the dish antenna on the roof of your home can pick up all the signals that are available there, but the tuner in the television-set selects only the signal that you want to view, others are filtered out. Similarly, from a large number of stimuli that are available in the external world, attentional processes limit the reception of stimuli selectively. Thus, attentional processes serve the tuner function in filtering information selectively for further processing that finally leads to perception.



Notes



OBJECTIVES

After studying this lesson, you will be able to:

- explain the nature and functions of attention;
- describe the process of perception;
- explain perception of shape and illusions;
- understand the problem of space perception and cues used in it;
- describe the factors influencing perception; and
- describe extra sensory perception.

5.1 ATTENTION AND ITS COMPONENT PROCESSES

Attention is a central process and perception is not possible without attentional processes. That means attention precedes perception. Attentional processes serve various functions in the organization of our perceptions and other cognitive functions. The various functions of attention are :

1. Alerting function
2. Selective function
3. Limited capacity channel
4. Vigilance

Let us examine these functions briefly.

- 1. Alerting function:** Carefully observe a cat poised at the mouse hole. If you look at the cat carefully in such a situation, you will observe that the ears of the cat are directed towards the mouse hole (to receive the slightest sound of movement inside the hole), eyes are converged and focused on the hole (to get visual image of the mouse as it tries to come out), the four leg muscles are in a state of high alert (to pounce at the mouse as it comes out). There is a complete physiological and mental preparedness to catch the prey. This is an example of alertness, what we call an **alerting function** of attention. You will notice that the cat is allocating all its available attentional resources, this demonstrates the alerting nature of attention.

Let us take another example to demonstrate the alerting nature of attention. When the teacher asks the student in the classroom to pay attention to what he is teaching, it means that the student can voluntarily create conditions that prepare him/her to be receptive and alert in the class. Attention in this sense



Notes

refers to a state of focused awareness with readiness to respond (e.g., if asked some question). Distraction occurs when some interference (e.g. loud noise) prevents the individual to continue with the ongoing task.

2. **Selective function:** The most important function of attention is *selectivity*. Selectivity refers to a process by which attention is focused on stimulus or stimuli of ongoing interest and other stimuli are ignored. Selective attention acts as a filter, that allows some information in and the other (unwanted) out. The best example of selective attention is that of "tea-party effect" in selective listening (generally referred to as cocktail –party effect)

You are in a tea- party organized by your friend. You will observe that in such parties people take some snacks and cup of tea and stand and chat in small groups of four to five people. You are busy chatting with your friend in such one group. When conversation was going on, you suddenly hear someone mentioning your name in one of the adjoining groups. Your attention is diverted, from your friend, to whom you were talking, to the group from where you heard your name. Your friend is still talking to you, but your attention is diverted to the other side to listen what someone there is saying about you. Apparently, you pose that you are listening to what your friend is talking but you are unable to register anything. This example demonstrates that we can selectively attend to one task at a time. The ongoing task in this case is ignored.

3. **Limited Capacity Channel:** It has been established through research that we have *limited capacity* to process information that is available in the outside world. That is, tasks that require attentional resources cannot be carried out simultaneously because we have limited capacity to process the incoming information. We process the task one at a time, called *serial processing*. For example, if you are asked to listen to music as well as read this page in your text book, you cannot carry out both the tasks simultaneously or *in parallel*. If you attend to music, then during this period you are not able to comprehend what you were reading and vice-versa. That means, when the task requires *attentional resources* (when the task is difficult) you can carry on with one task at a time called serial processing, carrying two tasks simultaneously is not possible.

However, if one task is highly practised or *routinized* then it is possible to carry on with two tasks simultaneously. For example, when you are a practiced driver, you can drive the car as well as converse with the other person sitting by your side. This is possible because driving requires little or no attentional resources or mental effort (because of high level of practice) and you can pay attention to what the other person is talking. This condition is called *automaticity in information processing*.



Notes

In this sense we are *serial processors*. That means, two or more tasks that require complex *cognitive processing* cannot be carried out simultaneously. The **bottle-neck** is at the central level (in the brain). That is, the brain is not able to handle two or more tasks simultaneously. In this case, computer is better than human beings, in that it can process information in parallel.

4. **Vigilance Function:** Maintaining attention on a task continuously, for some time, like looking at the radar screen, is called **vigilance** or **sustained attention**. It has been found that attending to a task for long is taxing, particularly if the task is monotonous and it leads to decrease in performance. You will be able to understand vigilance better by doing the following activity. (see Box 5.1)

Box 5.1: Understanding vigilance

Activity

Prepare a random list of 500 letters (e.g., c, p, x, a, e, t, m...) and put them in rows with a gap of one stroke between any two letters. Letters should be bold and in lower case. Hand over the sheet of paper containing the rows of random letters to the participant and instruct him/her to cancel all the vowels (a, e, i, o, & u) that appear in the rows as fast as he/she can. After two minutes stop the participant and mark where he/she stopped. Immediately, ask him/her to restart with the task and again after two minutes ask him/her to stop the task and mark where he/she stopped.

Count all the errors of commission (wrongly cancelled letters) and omissions (all the vowels not cancelled that were to be cancelled). Add both the errors and compare the two tasks, one carried out in the first two minutes, and the second one carried out in the second two minutes.

You will find that the number of errors (omission plus commission) in the second part of the experiment will be more than the first. This can be explained as due to central fatigue (brain) occurring due to sustained attention on a monotonous task.

You should also compare vigilance over five trials instead of two and you should also try with random digits (e.g. 8, 1, 0, 5, 4 ...) in place of letters and ask the subject to cancel 1, 4, 5, & 8.

**INTEXT QUESTIONS 5.1**

State whether the following statements are True or False

1. Attention is a central process. True/False
2. Perception is possible without attention. True/False
3. Attention refers to all those processes by which we perceive selectively. True/False
4. The four functions of attention are:
 - i.
 - ii.
 - ii.
 - iv.



Notes

5.2 CREATING A WORLD OF REALITY : PERCEPTION

We live and deal with a three dimensional world which contains objects of different shapes and forms, sizes, and colours. Generally, our experience of the external world is quite accurate and error free. However, we do encounter illusions (e.g. perceiving a rope in the night as snake). To survive and live in this world we must get accurate information from our environment. This information is gathered by our sense organs, ten in all. Eight of these are external (vision, audition, smell, taste, touch, warmth, cold, and pain) and two internal or deep senses (e.g., vestibular and kinesthetic).



Fig. 5.1: *Figure and Ground*

You have already studied the chapter on sensory processes (lesson 4, "Becoming aware of the world around us") and in this section you will learn about perception. How do we construct a world of reality from the information that we receive from our sense organs? The difference between sensation and perception is not clearly mentioned, where one ends and the other starts is arbitrary. The division between sensation and perception is made for the sake of scientific analysis. Most psychologists treat perception as interpretation of sensation. For the purpose of scientific investigation we consider the sensory system to include reception of stimulation by sensory organs, *transduction*, transmission of *neural impulses* through afferent *neurons*, and reaching the appropriate area in the cerebral cortex (e.g., visual stimulation reaching occipital lobe in the cerebral cortex).



Notes

In this section you will study how our sensory system gathers information from the external and internal world. Further, by taking into account past experience, knowledge, memory, motivation, cultural background, beliefs, and attitudes, etc. from internal system, the brain makes sense out of the signals that it receives from different sense organs. Thus, how we receive information from the external world and with the help of internal system we construct a world of reality. This is all we study in perception. We have already considered the role of attention in perception. Thus, multiple and complex nature of stimulation is available to us from the external world and with the operation of attentional processes we selectively receive some information and filter out the rest. In the following paragraphs you will study some important aspects of perception.

5.3 PERCEPTION OF SHAPE

The terms “shape” and “form” are often used interchangeably. The study of shape perception raises many questions, such as : How do we perceive shape? Is our ability to perceive shape and form innate or learned? How do we segregate figure from ground? Are there laws that govern the organization of perception? What are illusions and why do these illusions exist? These are some questions that we shall try to explore in this section.

How do We Perceive Shape?

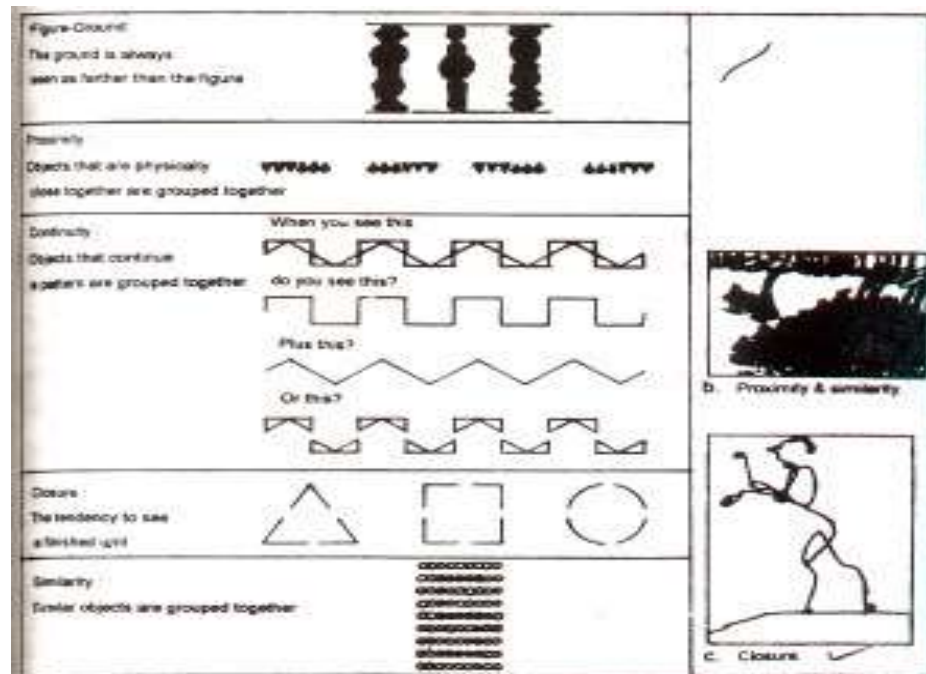


Fig. 5.2:

**Notes**

Shape or form is defined as areas of visual field that are set off from the rest of the field by visible contour. Werner in 1935 demonstrated how contours are perceived and their role in the perception of shape or form. To perceive a shape, its contours must be sharp enough to mark off region that is called shape. For example, see Figure 5.1 in which the contour has been made to clearly delineate an area that is a circle. If the contour becomes too weak or disappears, the shape also disappears.

Figure and Ground

Imagine, if figure-ground segregation was not there how confusing the world would have been for us. Perhaps, perceptual organization would not be possible. For example, see figure 5.1 in which the random shape stands out as a figure and page becomes back ground. Another example, what ever is written on the black-board by your teacher becomes “figure” and the black board becomes a “ground”. You cannot read anything on the blackboard until and unless the figure (words) is segregated from the back ground (black-board). In our visual field (whatever we look out in the environment around us) some area is segregated to form figures and the rest is relegated to the background (that part which is not important for us) against which the figures are perceived. Figure-ground segregation is essential for the perception of shape. It is not only the characteristics of visual perception, it is there in all sense modalities. For example, when you listen to the music, the vocal part of the music (what a singer sings) becomes figure and the instrumental part is relegated to the background. If the listener is interested in the instrumental part (“figure”) of the music then the vocal part becomes “ground”.

Let us know how this occurs.

The distinction between figure and background is presented below.

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

5.4 THE DETERMINANTS OF FIGURE –GROUND ORGANIZATION

The Gestalt psychologists in Germany, principally Kohler, Koffka, and Wertheimer, proposed that the brain has the innate capacity for organizing perceptions. They



Notes

identified the laws of organization which determine the way in which we perceive the objects. They maintain that electrical fields in the brain are responsible for the organization of perception. They were also interested in exploring figure-ground distinction, what makes figures stand out against a background.

Laws of Perceptual Organization

- (i) **Good Form (Law of Pragnanz):** This law states that perceptual organization will always be as “good” as the prevailing conditions allow. The simplest organization requiring the least cognitive effort will always emerge. *Pragnanz* means that we perceive the simplest organization that fits the stimulus pattern.
- (ii) **Proximity:** All the stimuli that occur together in space or time will be organized together. In Figure 5.3 you can observe three groups of two vertical lines. You will find it difficult to see six individual lines.

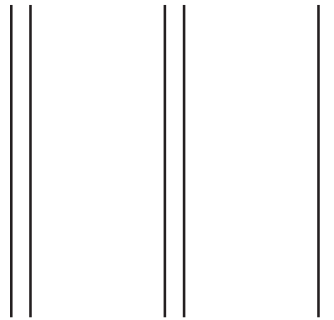


Fig. 5.3: Law of Proximity

- (iii) **Similarity:** Other things being equal, elements which are similar in structure or have common characteristics will be grouped together. In Figure 5.4, five squares, five triangles, and five circles in columns are grouped together.

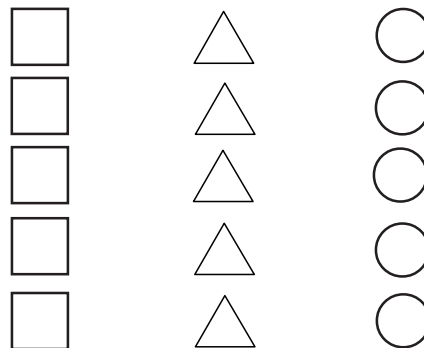


Fig. 5.4: Law of similarity



Notes

- (iv) **Closure:** An incomplete figure will be seen as a complete one. Figure 5.5, is a figure consisting of incomplete lines, that have gap in them. It is perceived as a triangle despite the fact that its sides are incomplete. A closure like phenomenon yields subjective contours. In Figure 5.5 you will observe that the triangle does not exist, (the lines forming a triangle donot exist). Still it is compelling to perceive a triangle in the Figure.

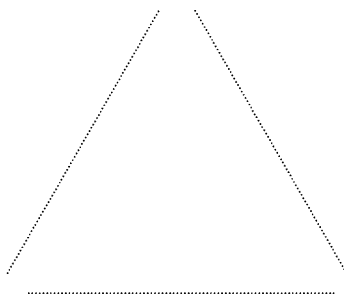


Fig. 5.5: Law of closure

5.5 ILLUSIONS

Illusions are misperceptions resulting from misinterpretation of sensory information. Illusions are also known as **false perceptions**. For example, if there is a thick rope lying on one side in the dark, it could be perceived as a snake. Illusion is a normal phenomenon which is perceived by all human beings and animals.

You must have experienced **moon illusion**. The moon in the horizon looks far bigger in size than moon in the zenith. We know, that the retinal image of the moon at the horizon or zenith is the same (moon being at the same distance from the earth), however, its *perceived size* differs a lot. One explanation takes into account the *size-distance* relationship. Helmholtz long back suggested that judgement of size is related to the judgement of distance. For example, *retinal angle* being constant, if the judged distance of an object is more than the actual *physical distance* then the perceived size will also be larger than the actual *physical size* and vice-versa. It is contended that with retinal image being the same, the perceived distance of the moon in the horizon is more than the perceived distance of the moon in the zenith. Thus, the perceived size of the moon will be larger at the horizon than the zenith.

Geometrical Illusions: there are quite a few illusions that can be demonstrated by drawing some lines, these are called geometrical illusions. The most famous is **Muller-lyer illusion**. See figure 5.6 for some geometrical illusions.

Three different types of geometrical illusions

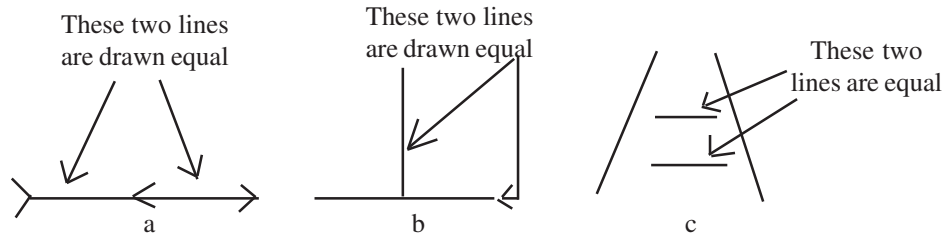


Fig. 5.6: a. Muller-Lyer illusion, b. Vertical horizontal illusion, c. Panzo illusion

5.6 PERCEPTION OF SPACE

Perception of *space* also refers to the perception of *size* and *distance*. The problem emerges from the fact that the image of the three dimensional world is projected on the two dimensional *retina*. This raises the question: From the two dimensional image, how do we perceive the three dimensional world? Or in other words how do we perceive *depth* and *distance*? The problem of space perception is depicted in Figure 5.7.

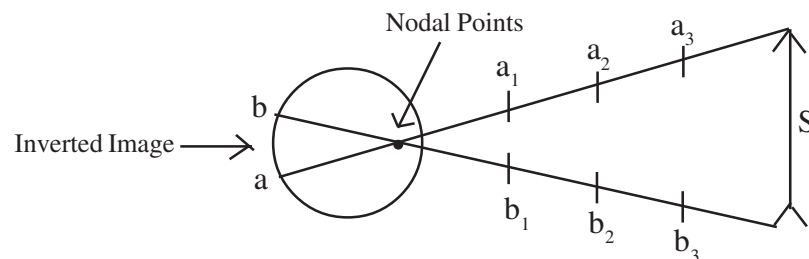


Fig. 5.7: The problem of Space perception

It can be observed from Figure 5.8 that the points a_1, a_2, a_3, \dots on the line of sight fall on the retina at "a". Similarly, those of points b_1, b_2, b_3, \dots fall on "b" on the retina. (The image of the external objects on retina is inverted). The available information on the retina can only indicate the direction of these points in space, but not in any obvious manner about distance from the eye. That is, the location of a_1, a_2 , and a_3 or b_1, b_2 and b_3 .

However, in our day-to-day experience we know that our perceptions about the depth and distance are quite accurate. If our judgement about the depth and distance were not accurate we would be colliding with the objects in the external world. We cannot drive bicycle or scooter if our judgments of depth and distance are inaccurate. The problem is that how do we accurately perceive space (depth and distance) from two dimensional image on the retina. You will find shortly that the perception of space is possible because of the various *cues* available to us.



Notes

Before we study the various cues, it will be in order to have a clear understanding of various terms that are used here.

Distance: This refers to the absolute spatial extent (D) between the observer and the object. See Figure 5.8 a. Corresponding to the physical distance (D) there is a perceived distance (D') sometimes referred to as apparent distance also.

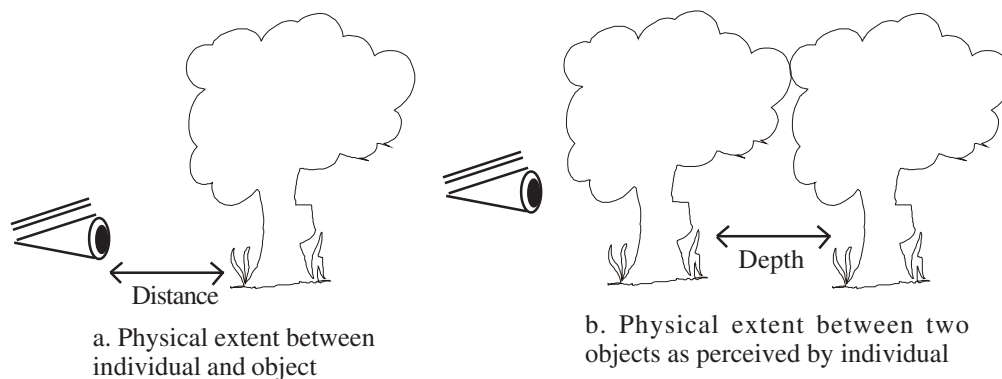


Fig. 5.8: a. Distance b. Depth

Depth: It is the Relative spatial extent between two objects as viewed by the observer. For example, the relative extent between the two trees as viewed by the observer (See Figure 5.9 b). Corresponding to the physical depth is the perceived depth, the depth perceived by the individual.

Size: the object has a physical size (S) that is out there. The individual perceives this, it is called perceived size (S').

It is interesting to understand that we perceive depth and distance with the help of various *cues* available to us. These cues may be divided into three categories

- i. **Non- Visual Cues**
- ii. **Binocular Cues**
- iii. **Monocular Cues.**

We shall discuss these cues briefly.

(i) Non-visual Cues

Accommodation and **Convergence** are the two non-visual cues. These cues are called 'non-visual' because they do not emanate from the retinal image, as is the case with other cues.



Notes

a. Accommodation: What we call focusing in camera, in the case of eye we call **accommodation**. The image of the external objects is focused on the retina with the help of lens in the eye. The lens is adjusted by the **Ciliary muscles** to focus far and near objects on the retina. The ciliary muscle changes the **convexity** of the lens so that the image of the object is clearly focused and this process is called **accommodation**.

If the object is relatively at a distance (more than 2 meters or so) the ciliary muscle is relaxed. When the object comes nearer and nearer the muscle contracts more and more, making the lens more convex. The degree of contraction of the ciliary muscle, signaled to the brain through **Kinesthetic impulses** is a possible cue of distance. That is, if the object is farther away from the viewer, the ciliary muscle is relaxed and when the object is nearer the ciliary muscle is tense. The extent of contraction in the ciliary muscle fed back to the brain is the cue of accommodation. However, research indicates that accommodation is a weak cue of perception of depth and distance.

b. Convergence: When you read the letters of this printed line, you converge your eyes (with the help of six **intra-ocular muscles located** outside each eye) to bring the image in both eyes to fall on the **fovea** of each eye for **fusion** and clear vision. The extent of convergence achieved is signaled to the brain and this provides a cue to distance. For example, if the object is nearer the angle of convergence will be large and as the object goes farther away the angle of convergence decreases. For objects at a far away distance the eyes are more or less parallel. The extent of convergence achieved is fed back to the brain and it is a cue to distance. Again, research indicates that like accommodation it is a weak cue of perception and distance.

(ii) Binocular Cues

Binocular cues, unlike the two cues discussed above, emanate from the retinal image itself. These cues are:

a. Double images

b. Binocular disparity

a. Double images: You have already learnt that when we **fixate** our eyes on an object in space, fusion takes place and we see one object. However, when we fixate on an object, all other objects nearer or farther than the fixation point fall on the **non-corresponding** points and produce double images.

You can try this phenomenon. Take two pencils, hold them vertically in a line in front of your nose, one nearer and the other farther away. Now, fixate your eyes on the nearer pencil, the image of this pencil falls on the corresponding points (as



Notes

you converge your eyes and accommodate) and fusion will take place. You will be able to see the pencil. However, the image of the other pencil will be double, as it falls on the **non-corresponding** points and fusion will not take place. Similarly, if now you fixate on the farther pencil, the image of the nearer pencil will be doubled.

However, the double images you have just experienced are not similar in nature. The first will be uncrossed double image and the second will be crossed. The phenomenon just explained can be seen in Fig 5.9 A & B.

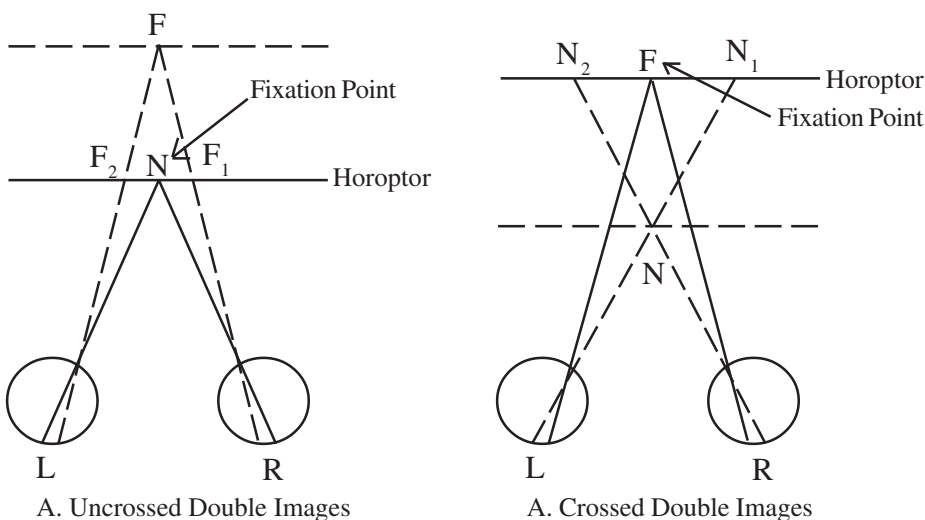


Fig. 5.9: Double images A. uncrossed; B. Crossed. (L: Left Eye; R: Right Eye; N: Near Point; F : Farther Point)

Thus, when we get uncrossed double images, the object is farther than the fixation point. On the other hand when we get crossed double images then the object is nearer than the fixation point.

b. Binocular Disparity: Objects that are nearer and farther than the fixation point project their retinal images on the non-corresponding or **disparate areas** of the two retinas. Greater the distance from the fixation point, greater will be the binocular disparity. That is, disparity increases as the distance of the object from the fixation point increases. This retinal disparity is the possible cue about the distance of the object from the fixation point.

(iii) Monocular Cues

Monocular Cues are also called **pictorial cues** because they include the kind of depth information found in the photographs and paintings. These cues are extensively used by the artists in their paintings. These cues are



Notes

- a. Interposition
- b. Aerial perspective
- c. Linear perspective
- d. Lights and Shadows
- e. Familiar size
- f. Texture-Density Gradient

Let us consider these cues briefly.

- (a) **Interposition:** When an object (A) partially blocks another object (B), the object blocked is perceived farther away than the object blocking it (See Fig. 5.10). This cue develops early in the children.



Fig 5.10: Interposition. The tree is perceived farther than the house

- (b) **Aerial perspective:** When you look at buildings in the city, buildings close by look clearer and their boundaries (contours) are well defined in comparison to distant ones, which look gray and hazy. The buildings, trees, and other objects that look hazy are perceived far away in comparison to those which look clear.
- (c) **Linear Perspective:** When parallel lines recede into the distance, as rail road tracks, they converge towards a point in your retinal image (see Fig. 5.11). Further, the farther away two objects are in the visual field, the closer they will appear to be to each other. On the other hand, the two objects nearer to us appear further apart from each other. This cue appears much later in children.
- (d) **Lights and Shadows :** We are often aware of the source and direction of light. It is generally from above, as sunlight. The shadows cast by one object on another can indicate which object is farther away.

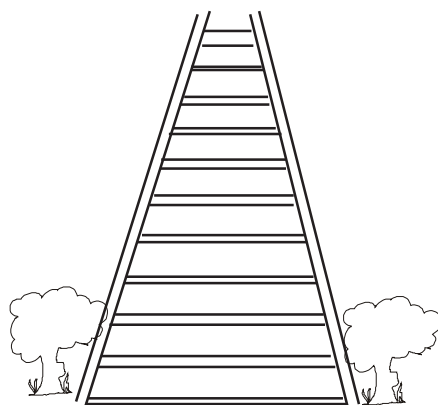


Fig. 5.11: Linear perspective

- (e) **Familiar Size:** Because you know the height of your friend, you can judge the distance at which he is standing. This is possible because we always store the memory image of objects that we see. When we look at an object which is away from us we can interpret the distance from the retinal image by taking into account the familiar size. You can do this activity. Take a playing card and present it to your friend at a distance of 10 ft from him. Ask him to judge the distance at which the card is placed. He will be quite accurate in judging the size of the playing card. Because he is familiar with the size of the card, which is always of the same (standard) size.
- (f) **Texture-Density Gradient :** Look at the ploughed field, the nearer surface looks rough and as we extend our vision farther away the texture gets finer. Similarly, if you look at the grass nearby, you will be able to see the blades of grass clearly, but as you extend your vision to a distant point the ground looks as if painted green and the blades of the grass are no more visible. This texture gradient is a cue to distance. The objects lying on a surface that look fine and smooth in texture are perceived at greater distance than those objects on a rough surface.

5.7 FACTORS INFLUENCING PERCEPTION

At any particular time there are many competing stimuli out there which will gain our attention and result in perceptual organization. The stimulus characteristics are important, as are our own internal needs, motivations, and our specific socio-cultural back ground in which we have been reared. All these factors, stimulus variables and internal factors peculiar to an individual, determine how our perceptions are organized. In the following section you will learn how the stimulus and internal factors determine what we perceive.



Notes



Notes

- i. Context and Set-effects
 - ii. Needs and motives
 - iii. Social and Cultural factors.
- i. Context and Set-effects

A given stimulus may provide radically different perceptions because of the immediate **context**. The context creates an expectation in our brain (top-down phenomenon) that influences our perception at a particular moment. For example, in noisy conditions you are verbally provided with a sentence “eel is moving”. You will perceive the word “eel” as “wheel” because of the context provided by the later part of the sentence. Similarly provide a stimulus verbally “eel the orange”. You will perceive the word “eel” as peel. This is because the later word “orange” provides an expectation for the perception of earlier word.

Perceptual sets also influence our perceptions. Perceptual set refers to our mental expectancies and predispositions to perceive one thing and not another. Perceptual set can influence what we hear as well as what we see. Broadly speaking our educational, social, and cultural experiences shape what we perceive. In other words, our learned assumptions and **beliefs** help us in organizing our perceptions. For example, if we hold very strong beliefs about God, the temple is perceived as a place that gives us peace, love, solace, affection, and a satisfying experience. Similarly, **stereotypes** (a generalized belief about a group of people) help us to perceive persons we meet first time. Much of our social interaction is determined by the stereotypes we hold about individuals and groups.

(iii) Needs and Motives

We have seen above that immediate **Context** and perceptual **sets** affect our perceptions. Similarly, personal variables, like needs, emotions, values, personality, etc. influence our perceptions. An example will demonstrate the effect of need state on the perception of an individual. Two men, a hungry and another thirsty, go to a restaurant and the waiter hands over to each a menu for obtaining order. It was found that, at a quick glance, the hungry man could see eatable items in the menu and the thirsty drinks. This example supports the hypothesis that need states of individuals affect their perceptions. It has been found that emotions, motivation, and personality factors influence our perceptions. For instance, while studying the effect of reward and punishment on the organization of one’s perception, it was found that children perceived significantly more often rewarded aspects of the figure-ground stimuli in comparison to the punished.



Notes

(iii) Social and Cultural factors

Perceptual learning and development takes place in the context of socio-cultural environment. Our perceptions reflect the effect of past learning and, therefore, if learning and socialization takes place in a particular socio-cultural background it will be reflected in our perceptions. A large number of studies support the hypothesis that culture influences our perceptions. It has been found that the Africans living in dense forests displayed greater illusion in the Vertical – Horizontal figure and Western-Urbans in the Muller –Lyer figures. The differences have been explained due to their experiences in different culture. So, it should be clear to you that cultural background influence the individual to perceive the world differently.

5.8 EXTRA – SENSORY PERCEPTION (ESP)

We have observed in the foregoing discussion on perception that sense organs provide the raw material or data on which our perceptions are organized. However, there is another type of perception in which perception is organized without the involvement of senses, called **Extra-Sensory Perception (ESP)**. As the word denotes, extra sensory perception is perception without (physical) stimulation.

Extra sensory perception includes phenomenon like **telepathy, clairvoyance, and telekinesis**.

Telepathy: It refers to transfer of thought between two persons at different places.

Clairvoyance: Perceiving objects and events without the involvement of senses.

Telekinesis: Controlling objects without touching them.

ESP is considered a para-psychological phenomenon. Psychologists, with scientific attitude, are generally skeptical about the phenomena of ESP.

**INTEXT QUESTION 5.2**

1. Define perception.

2. Shape or form is defined as areas of visual field that are set off from the rest of the field by _____.
3. Perceptual organizations will not be possible without _____ segregation.
4. Gestalt psychologists identified _____ which determine our perceptual organizations.



Notes

5. Illusions are _____ resulting from misinterpretation of sensory information.
6. The moon in the horizon is perceived bigger in size than moon in the zenith, it is called _____.
7. Distance and depth is perceived with the help of _____.
8. The three category of cues are:
 - i. _____
 - ii. _____
 - iii. _____



WHAT YOU HAVE LEARNT

- Attention plays an important role in perception. Its most important function is to filter out information that is not relevant at a particular moment; that is selecting the input of information for further processing. The four important functions of attention are: Alerting function, Selective function, Limited Capacity channel, and Vigilance.
- Alerting function refers to the processes by which an organism is physiologically and mentally prepared for a particular situation. It prepares an individual for a task with readiness to respond.
- Selectivity refers to the process in which the stimuli of interest are focused and others are ignored or filtered out.
- The task that requires attentional resources cannot be carried out simultaneously. The information is processed serially; it is due to limited capacity channel.
- Maintaining attention on one task for some time is called sustained attention or vigilance. Sustained attention on some task, especially of monotonous nature, leads to decrement in performance.
- How we construct a world of reality from information that we receive from our sense organs, is what we study in perception.
- By taking into account our past experience, knowledge, memory, motivation, cultural-background, etc. we construct a world of reality (perception).
- We studied perception of shape or form and also about space perception.
- Shape is defined as areas of visual field that are set off from the rest of the visual field by visible contour.
- Contours determine the shape.
- Perceptual organization is not possible without figure-ground segregation. Figure-ground is possible in all sense modalities - e.g. vision, audition, tactile, etc.



Notes

- The Gestalt psychologists in Germany proposed that the brain has the innate capacity for organizing perceptions - laws of organization.
- Laws of perceptual organization are: Good form, Proximity, Similarity, Closure, etc.
- Illusions are misperceptions resulting from misinterpretation of sensory information.
- Perception of space refers to perception of size and distance.
- The problem of space perception emanates from the fact that the retinal image is two dimensional. The third dimension is perceived with the help of various cues of depth and distance.
- The three sets of cues available to us are
 - Non-visual cues
 - Binocular cues
 - Monocular cues
- Factors that influences our perceptions are:
 - Context and Sets
 - Needs and motivations
 - Social and cultural factors



TERMINAL EXERCISE

1. What are the main functions of attention?
2. Describe the laws of perceptual organization.
3. Discuss the nonvisual cues of space perception.
4. Describe the factors that influence perception.



ANSWER TO INTEXT QUESTIONS

- 5.1 1. True 2. False 3. True
4. i. Alerting Function
- ii. Selective Function
- iii. Limited capacity channel
- iv. Vigilance

**Notes**

- 5.2**
- | | | |
|--------------------|---------------------|--------------------------|
| 2. Visible contour | 3. Figure-ground | 4. Laws of organizations |
| 5. misperceptions | 6. moon illusion on | 7. cues |
| 8. | i. Non-visual cues | |
| | ii. Binocular cues | |
| | iii. Monocular cues | |

HINTS FOR TERMINAL EXERCISE

1. Refer to section 5.3
2. Refer to section 5.3
3. Refer to section 5.3
4. Refer to section 5.3



Notes

6

LEARNING PROCESS AND ACQUIRING SKILLS

*H*ave you seen a newly born child able to walk, talk, feed or dress by herself or himself? The mother feeds and dresses the child and gradually teaches to walk and talk. But you can do all of the above actions yourself. Have you ever thought how this dramatic change happened? Of course through learning. Further, you have learned social habits and customs, and as an adult you deal with various situations in life. You would even have learnt various professional skills like typing, reading, riding a bicycle, speaking etc.

Since everything we do and think comes out of learning, it is the key to understanding how most individuals behave. It is through the process of learning that we become competent, skilled, perform various activities and excel in life. We become what we learn. No doubt, you have been learning throughout your life, without knowing how learning takes place. In this lesson we will study how learning takes place, methods of learning and the factors that influence it.



OBJECTIVES

After studying this lesson, you will be able to:

- explain the concept of learning;
- describe the process of learning and its scope;
- describe the different ways of learning; and
- explain certain important phenomena such as preparedness for learning, learning disability related to learning.



Notes

6.1 NATURE OF LEARNING

If a child avoids touching burning firewood after being hurt, it can be said that learning has taken place. Learning is a process by which a certain change or modification in behaviour occurs. 'Behaviour' refers to any action which may be muscular, social, mental or a combination of these.

Learning can be defined as the process by which any relatively permanent change in behaviour occurs as a result of practice and/or experience. This definition has three important elements:

- (i) Learning is a change in behaviour, for better or worse;
- (ii) It is a change that takes place through practice or experience; changes due to growth, maturation, fatigue or injury are not included in learning. Thus learning brings about improvement in performance.
- (iii) Before it can be called learning, the change must be relatively permanent or enduring, that is it must last a fairly long time. For example, once an individual learns to ride a cycle he or she does not forget it.

Try It Yourself

You must be having a child at home or in your neighbourhood of the age of 6–8 months. Show him a small pup and when he touches it, make a pleasant sound. The child will have a pleasant experience and learn to like dogs. On another occasion while showing the pup to the child, make a frightening sound. The child will have an unpleasant experience and learn to avoid dogs. In the first case you have conditioned the child by positive reinforcement and in the second by negative reinforcement. This activity will enable you to understand the relationship between stimulus-organism-response.



INTEXT QUESTIONS 6.1

- (1) Fill in the blanks:

Learning is any change in _____ which occurs as a result of _____ or _____.

- (2) Write True and False against the characteristics of learning listed below:

(a) Learning is not a continuous process. True/False

**Notes**

- (b) Improvement in performance is brought about by learning. True/False
- (c) Learning is a gradual process. True/False
- (d) Changes in behaviour due to maturation or fatigue are called learning. True/False

Learning is a thoughtful reaction to a given stimulus. Learning needs to be differentiated from other concepts, such as, maturation, reflex and instinctive behaviour.

A child cannot learn to walk unless his leg muscles are strong enough to support his/her weight. This implies that maturation provides the necessary readiness to learn. Certain level of maturity is required to acquire skills or knowledge.

Learning and maturation both result in changes in behaviour. Sometimes, it is difficult to differentiate as to which has influenced the behaviour more. Maturation may be considered as the development brought about by growth of the neural and muscular system, while learning is an outcome of stimulating situations.

Other types of behaviour which, do not represent learning are those, which arise from instinctive and reflex actions. Instincts are complex patterns of behaviour. For example, building of nests by birds is instinctive. Each animal type has certain instinctive patterns of behaviour which are necessary for their survival.

Reflex action is a direct automatic and immediate response of a muscle or a gland to the stimulation of a sense organ. For example blinking of eye in response to a sudden movement of an object in front of a person's eyes. These are innate tendencies and are not acquired through practice. However, instinctive behaviour can be modified by learning.

Try It Yourself

Try to teach a 3 month old infant to walk Can she walk? No, because his/her legs have not developed and matured enough. Try to teach a one year old to walk. Can she walk? Yes, because the muscles of the legs have developed and matured enough to support his/her weight. This shows the relationship between learning and maturation.

**INTEXT QUESTIONS 6.2**

(1) Fill in the blanks:

- (a) Maturation provides the _____ to learn.



Notes

- (b) Learning _____ take place without maturation (can/cannot).
- (c) _____ and experience are necessary for learning to take place.
- (d) Reflex behaviour is _____ and _____ response of a muscle or a gland to the _____ of a sense organ.

6.2 BASIC EXPERIMENTS IN LEARNING

Different types of learning have been investigated by psychologists. Some of the important types of learning include 'classical conditioning', 'operant conditioning', 'insight', 'trial and error learning', 'motor learning', 'verbal learning', and 'social learning'. In this section we shall study some of the major forms of learning.

(a) Learning Predictable Signals : Classical Conditioning

Conditioning is a form of associative learning. In classical conditioning a connection or association between a stimulus and a response is established, for example the behaviour of a child who avoids burning match sticks after being hurt by it once.



Figure 6.1: Pavlov's classical conditioning Experiment

Classical conditioning gets its name from the experiments of Ivan P Pavlov (1849-1936). It is also sometimes called respondent conditioning or Pavlovian conditioning. Pavlov observed that just prior to being fed, his laboratory dogs secreted saliva from their mouth. In his first experiment, Pavlov served the dogs food and at the same time or little after a bell was rung. After twenty to forty joint presentations of bell and food, the dogs salivated at the sound of the bell alone. The sound of the bell had come to substitute for the originally effective stimulus of food, so that the bell alone was able to make the dogs' saliva flow. Thus, the salivation response had become conditioned to the new stimulus namely sound of bell.



Notes

The essential requirement for conditioning to take place is that the two stimuli shall occur together. In laboratory, the two stimuli are presented either simultaneously or with the new stimulus slightly prior to the old one. No learning or very little learning occurs if the old stimulus is presented before the new one. This would be like the ineffective procedure of giving a child reward before she had performed a task.

The classical conditioning can be depicted as follows:

UCS → UCR (Food → Saliva)

CS + UCS → UCR (Bell + Food → Saliva)

CS → (Bell → Saliva)

Generalization and Differentiation : In the course of learning a newly learned conditioned response may become generalized with respect to stimuli and responses. If the same response occurs to two different stimuli which are somewhat similar it is a generalized response. For example, a dog taught to salivate when a bell is rung, may also salivate when a buzzer is rung. By further practice, animal can be trained to differentiate between stimuli. If food is given only with a bell tone and not with the buzzer the animal will stop reacting to the buzzer and learn to differentiate.

Extinction and Spontaneous Recovery: Since some conditioned responses are undesirable, as we have seen, it is fortunate that they can be forgotten. One way to make the organism forget a conditioned response is to repeat the new substitute stimulus without reinforcement. In the case of the dog, this would mean ringing the bell without giving food. After a while, the dog will not salivate at the sound of bell. The response has become extinct. Like forgetting, extinction seems to be temporary rather than a permanent loss of response. An extinct response is much more quickly relearned when the reinforcement is given than an altogether new response.

Spontaneous recovery is a tendency of responses to recover spontaneously. Pavlov noticed that a day or so after he gave his dogs a series of extinction trials, salivary responses came back, stronger than they had been at the end of extinction. It is a kind of forgetting in reverse, a tendency to forget the extinction that has occurred.

In human beings we see that the responses learnt to ride a bicycle like balancing, applying brakes etc. are generalized to riding a scooter. However, while riding a normal bicycle one does not use gears. While driving the scooter one differentiates and further learns to use gears. If the human being stops riding a bicycle or scooter



Notes

for a long time he/she may temporarily forget the balance, this is extinction. However, on trying, relearning occurs very fast, faster than the initial time to learn. This is spontaneous recovery.

(b) Learning by Consequences : Operant Conditioning

Another important type of conditioning is operant conditioning. B.F. Skinner, speaks of operant behaviour as voluntary behaviour of an organism. In operant conditioning the reinforcement is dependent on the response of the organism. Since response is instrumental in getting the reinforcement, it is also known as instrumental conditioning or learning.

A central concept of operant learning is *reinforcement*. Behaviour which is reinforced is likely to be repeated. For example, a hungry pigeon is placed in a box which has a lighted button on the wall. The pigeon moves around the box pecking here and there. Finally, it will peck at the button and immediately a mechanism in the box feeds the bird with a little grain. The pigeon eats and then continues its movement in the box. Once again it accidentally pecks the button and is reinforced with food. Finally, the pigeon will stop the random behaviour and will simply peck the button to get food as required. The pigeon has learned to peck the button to obtain food.

Operant learning is by no means confined to the animal kingdom. The principles of learning new behaviour through reinforcement have been applied by Skinner to human beings. For example, (i) teaching new material in schools by means of programmed learning (a method by which in each correct step the learner is reinforced by response). (ii) Behaviour modification techniques for treating behaviourally disturbed children and adults.

Other Forms of Learning

Skill Learning

Skill learning takes place in three stages. For example, while learning to ride a bicycle the individual learns what is required in the task and certain specific components of the task. This is the cognitive stage. In the second stage called 'association stage' the skill is perfected with accuracy and precision. Finally, the individual need not even think about the various aspects of the task to be performed. The skill becomes automatic. Everyday life is full of activities that demand skills learning such as motor learning; eating with spoon, talking, handwriting, typewriting, driving a car, playing a musical instrument etc. In all these, practice is required to make responses with speed and accuracy. Motor skills require coordination between environmental and internal bodily stimuli and the act to be performed.



Notes

Verbal Learning

The child begins to acquire verbal skills as she grows. Initially, a child has limited understanding of what certain words and gestures mean. Verbal learning involves learning to respond to words or with words. As the child grows up she develops improved verbal skills such as naming objects, pronouncing words, combining words to form sentences, writing sentences to convey an idea and so on. She acquires a new vocabulary to communicate properly.

Verbal skills are generally acquired through memorising, by repeating, recalling and recognising the material. Speaking is a complex skill involving both motor as well as symbolic or verbal skills. It is acquired partly on the basis of *reflex vocalisation which appears during infancy* and also through imitation and modelling.

While studying verbal learning, psychologists use a number of methods for presenting the material. They include serial learning, free recall and paired associates learning. In serial learning the learner is asked to recall in the way the words were presented to him. Free recall requires the learner to recall the words without regard to their order of presentation. In paired associates the verbal material is presented in pairs such as CRAT-BOOK

Concept Learning

Concept is a category name and it has certain characteristics. Concept learning involves both generalization and differentiation. An individual learns to distinguish between two or more stimuli which differ in some detail. For example, the child learns what is an animal, later she differentiates between dog and a cat, etc. Thus, an individual learns to make different responses to stimuli from different categories. All concepts represent a set of features connected with the help of some rule.

The individual learns to respond to objects in his or her environment in terms of their different features like colour, shapes, position, number and so on. He/she tries to find certain common properties in a group of objects and attaches some category names to them. Various words which are normally used to denote an object such as house, car, school, animal, doll and so on are examples of concepts. Learning concepts is useful in understanding the world and in solving problems. Most of the subjects which we study involve concept learning.

Social Learning

As we grow our environment widens to include people, objects and events. We learn new habits, as well as modify our perception of objects, events, persons and attitudes. Much of the learning of an individual involves change in one's attitudes. An attitude is a learnt way to act towards an object, person, situation or an idea. It determines favourable or unfavourable responses to the person, situations, places



Notes

or things. For example, one learns to respect and disrespect different persons in his/her environment due to habit formation and attitudes. Certain social responses are reinforced by the society if they are acceptable as per the norms of the society. The learned behaviour of a person is 'shaped' accordingly. In addition to other mechanisms social learning involves 'imitation' of the role models which is a process by which individuals learn new behaviour by observing others, also called modelling or observational learning. In this process no direct reinforcement is involved.



INTEXT QUESTIONS 6.3

(1) Match the following:

- | | |
|----------------------------|--|
| (a) Classical Conditioning | (a) BF Skinner |
| (b) Operant conditioning | (b) Ivan Pavlov |
| (c) Motor learning | (c) Words, sentences to form ideas |
| (d) Verbal learning | (d) Shaping of behaviour as per social norms |
| (e) Concept learning | (e) Muscular movements |
| (f) Social learning | (f) Classification of objects in terms of their common properties. |

6.3 LEARNING CURVE

Learning can be measured by assessing the performance of an individual on a given task. The rate of learning, as normally measured by performance, can be represented graphically by placing the 'units of practice' on the X-axis and 'degree of learning' on the Y-axis. The horizontal axis of the graph represents the amount or units of practice. The vertical axis shows the degree of learning on some measure of performance, such as percentage of correct responses, amount of time to achieve a goal, etc.

In Fig. 6.4 Curve A shows very little or no improvement initially followed by a period of rapid improvement after which there is a period of least improvement or no improvement, indicating a plateau (flatness).

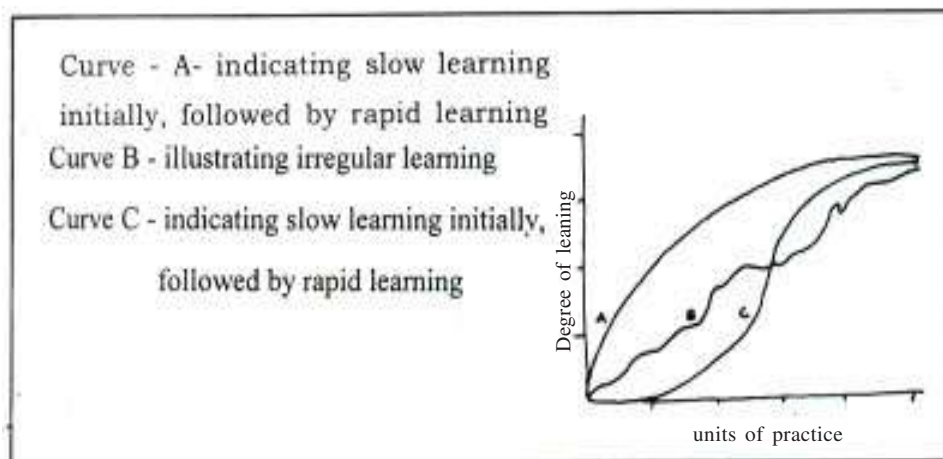


Fig. 6.2: Learning Curve

The rate of learning varies from person to person and time to time for any given individual for any given task. For example in learning to typewrite, in the beginning one student may show rapid improvement while another may need to practice for a long time before his/her performance improves. Sometimes a person may reach a certain level of performance in type writing and may remain at that level for a few days after which he/she may show improvement. Learning curves can be prepared for any learning task.

**INTEXT QUESTIONS 6.4**

(1) Fill in the blanks:

- Learning curve indicates how _____ varies from time to time during _____.
- The learning curve is a _____ drawn to show _____ and _____.

(2) Indicate True/False for the following:

- In the learning curve units of practice are placed on the X-axis. True/False
- The rate of learning varies with practice. True/False
- Performance on a task is not an indication of learning. True/False



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6.4 FACTORS INFLUENCING LEARNING

There are certain factors that affect learning. Some of the important ones are described below. These factors are related to the stimulus, task or the learner.

(a) Reinforcement

Learning requires motivation and reinforcement is an important aspect of motivation. A reinforcement is anything that strengthens a response and increases the probability of its occurrence. A reward is an example of reinforcement. Reinforcement is the key to learning. If it is not applied in the right way at the right time, there will be no observable learning. Reinforcement is of two types i.e. primary and secondary. The source of reinforcement is called reinforcers.

A primary reinforcer is an natural or unlearned source of reinforcement. Food is a primary (positive) reinforcer for a hungry animal.

A secondary reinforcer, on the other hand, is learnt or an acquired source of reinforcement. The rule for learning a secondary reinforcer is that it should be paired with a primary reinforcer. The effect of reinforcement depends on the way it is given.

(b) Feedback or Knowledge of Results

It is another motivational variable. If you are provided with knowledge of results or feedback, the efficiency of your learning is increased. For example, while learning to type, knowledge of one's performance on each trial will help to know where the person has made mistakes. The person may try to correct accordingly. It also helps to eliminate errors and increase the precision in performance. Knowledge of results, especially when favourable, reinforces learning and maintains interest and motivation.

(c) Distribution of Practice

The length of the practice session and distribution of rest periods between trials affect the progress of learning to a great extent. It has been found for a wide variety of motor skills, that practice is more effective when it includes brief and judiciously distributed rest pauses. This leads to rapid learning as compared to continuous practice. However, practice periods should not be too long. The acquisition of skill in playing badminton may improve more, after three one-hour long practice sessions with intervals rather than after one continuous three-hour long session. The practice periods should also not be too small and frequent either. This would tend to break the task into small and meaningless parts.

**Notes****(d) Whole and Part Learning**

If you have learnt this entire lesson in totality it would have been difficult for you to learn as it is easier to learn it in parts than as a whole. Whole learning is often considered as an efficient method to learn the task particularly for fast learners and for short or meaningful material which is easily memorized as a whole. But if the content is very long it may first be learnt in parts and then as a whole.

(e) Meaningfulness

Try to learn words like CAT, DOG, BAT, DOLL which have meaning and NAD, BAB, COL, PEM which are nonsense syllables having no meaning. Meaningfulness of the material to be learnt contributes to your learning efficiency. If the material to be learnt is meaningful, the rate of learning becomes rapid. The more meaningful the material; the fewer the trials or practice sessions are required to learn it.

(f) Interest and Attitudes

One of the important determinants of effective learning is the learner's attitude towards the material to be learnt. For example, if you are interested in learning to learn and recognise that it will help you in achievement of your goals, you develop a favourable attitude towards the lesson on learning and make sincere effort to learn and remember it. If one feels that nothing worthwhile will result from learning something, one's rate or progress of learning will be poor.

**INTEXT QUESTIONS 6.5**

(1) List the factors that affect learning.

- (a) _____
- (b) _____
- (c) _____
- (d) _____

(2) Match the following :

- | | |
|------------------------------|----------------------------------|
| (a) Feedback | (i) Length of practice sessions |
| (b) Distribution of practice | (ii) Length of learning material |



Notes

- (c) Whole vs. part learning
- (d) Meaningfulness of learning material
- (iii) Knowledge of results
- (iv) Better and faster learning.

(3) Write True / False for the statement given below:

- (a) If an individual is interested in the learning material, the learning may take longer time. True/False
- (b) Motivation on the part of an individual brings about better learning. True/False
- (c) Role of reward and punishment in learning is not important. True/False
- (d) Primary reinforcers are learned. True/False
- (e) Punishment is a positive reinforcement. True/False
- (f) Reward and punishment are used in conditioning. True/False

6.5 PHENOMENA RELATED TO LEARNING

Learning is one of the most widely investigated fields of study. As a result, the researchers have observed a variety of phenomena which are peculiar to the process of learning. You have already studied about some of them in connection with conditioning and factors influencing learning. In this section you are going to know about three more phenomena of great importance. They include preparedness for learning, learning disability and transfer of learning.

Preparedness for Learning

You must have noticed that various organisms and animals (e.g., man, rat, cat, dog) differ in their sensory and motor capabilities. Thus dogs have extra sensitive nose. Similarly, cats jump and run very fast. A close scrutiny of the variations found across species indicates that organisms work under certain biological limits or constraints. Every organism is not equally ready or prepared to learn a given response. Organisms are differentially endowed with capability to respond. So, the possibility and ease of learning is determined by the degree of preparedness on the part of organisms for a given learning task. All organisms are not equally prepared for all responses or associations. This becomes one of the key determinants of learning.

**Notes****Learning Disability**

It is a disorder which leads to difficulties in reading, writing, speaking, and doing mathematical exercises. These problems are found because of some problem in the central nervous system. It may be related to sensory impairment or some kind of mental/physical handicap. They may occur in children with average or superior intelligence. If not remedied they may continue and interfere with their personal and social development in subsequent years. The main features of children with learning disability include difficulty in writing and reading, attentional problems, poor motor coordination, perceptual disorders, and difficulty in following instructions. An important problem faced by them is dyslexia in which children fail to distinguish letters (e.g., P and I, was and saw). Remedial teaching is used in helping these children.

6.6 TRANSFER OF LEARNING

Transfer of learning is the process of applying or carrying over the knowledge, skills, habits, attitudes or other responses from one learning situation, in which they were initially acquired, to a different learning situation. For example, a person who has learnt to ride a bicycle finds it easy to learn to ride a scooter. It means that experience or performance on one task influences performance on subsequent learning tasks. A person's ability to recognise objects, perceive relationships and conceptualise the experiences of daily life are facilitated by transfer of learning. The influence of transfer is found, not only in the domain of intellectual tasks and in complex motor skills, but also in emotional reactions and attitudes of individuals. If transfer of learning does not take place, each task would have to be learnt afresh and it would make life difficult.

Types of Transfer of Learning

Transfer of training affects learning of a new task in three ways:

(a) positive, (b) negative and (c) zero

(a) Positive Transfer

When learning of the task makes the second task easier to learn, positive transfer effect is seen. What one has learnt in one subject or a task may facilitate learning in another subject or task. In positive transfer, the carry-over of knowledge or skill is beneficial to future learning.

For example, after learning to spell the word 'house' a child may be able to apply the appropriate phonetic rule and spell the word 'mouse' correctly even without being taught the word 'mouse'. Similarly, skill in riding a bicycle facilitates learning



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to ride a motor cycle. Learning the rules of addition and subtraction makes it easier to count one's change and check the balance when one makes purchases from the market. Learning to drive a car, makes it easier to learn to drive a truck or a bus. In all these cases, the previous learning experience facilitates subsequent learning.

Positive transfer occurs when the responses expected from two tasks or learning situations are similar. However, the maximum amount of positive transfer is obtained, when the stimulus and the response elements in the previous and the new learning situations are similar. For example, learning of a stimulus-response relationship like that of $5 \times 8 = 40$ and $8 \times 5 = 40$. In this case, there is similarity between the elements in the stimulus response relationship.

(b) Negative Transfer

There are cases in which the previous learning interferes with subsequent learning. In such cases, the carry over of knowledge or experience in one task interfere with further learning. As a result of negative transfer, performance on one task may block performance on the subsequent task. For example, a child's experience in learning the plural of 'house' may inhibit his/her learning the plural of a word 'mouse'. He/She may spell the plural of the word 'mouse' as 'mouses', instead of 'mice'.

Negative transfer usually occurs when the stimuli in the previously learnt task and the new task are the same or comparable, but the responses are dissimilar.

(c) Zero Transfer

There are instances, where the learning of one task, does not have any effect on the ability of a person to perform another task. It happens when the tasks are dissimilar in stimuli as well as responses. In zero transfer, the performance in the new situation is neither aided nor hindered by the past learning. Learning history may contribute to the understanding of one's own culture but it has hardly any effect on learning mathematics. Similarly, improving one's skill in playing football will have no effect on the improvement of one's skill in writing an essay. Learning to typewrite, will not affect the learning of painting.

**INTEXT QUESTIONS 6.6**

1. What is transfer of learning?
2. Give one example each of Positive transfer, Negative transfer and Zero transfer.
 - a. _____



Notes

b. _____

c. _____



WHAT YOU HAVE LEARNT

- Learning can be defined as the process by which any relatively permanent change in behaviour occurs as a result of practice or experience. It is a continuous and a gradual process that brings about improvement in performance.
- Learning differs from other concepts such as maturation, reflex actions and instinctive behaviour. Learning is a result of experience, whereas maturation is biological in nature.
- Maturation provides the readiness to learn and occurs due to neural and muscular development, while learning takes place through practice and experience. Learning and maturation both result in modification of behaviour.
- Certain complex patterns of behaviour, which occur innately, are called instinct.
- Reflex is a direct and immediate response of a muscle or a gland to the stimulation of a sense organ.
- Conditioning is a form of associative learning. In classical conditioning a neutral conditioning stimulus (CS) is paired with an unconditioned stimulus (US) that evokes an unconditioned response (UR). After repeated pairing of the two stimuli, the conditioned stimulus will elicit a response similar to the unconditioned response. This elicited response is called the conditioned response (CR).

**Notes**

- Generalization, Differentiation, Extinction and Spontaneous Recovery are some of the concepts related to conditioning.
- In operant conditioning the response is instrumental in getting reward or escaping punishment.
- Skill learning requires a coordination between environmental and internal bodily stimuli to produce a muscular response involving movement. It occurs in three stages viz. cognition, association and automation.
- Verbal learning involves understanding of words such that a child can pronounce words, combine them to form sentences and convey ideas through words.
- Concept learning develops the abilities in an individual to classify objects in terms of their characteristics or common properties.
- Social learning involves the learning of new attitudes, social norms and to be able to live and behave according to the socially acceptable patterns of the society through modelling.
- Transfer of learning is the process of applying or carrying over the knowledge, skills, habits, attitudes or other responses from one learning situation, in which they were initially acquired, to another learning situation.
- In positive transfer, learning in one situation facilitates or brings about improvement in another learning situation.
- In negative transfer, learning in one situation hinders the learning in another situation.
- In zero transfer the learning in one situation does not affect the learning in another situation due to no relationship between the stimuli and responses of the two situations.
- The factors affecting learning include: reward and punishment, feedback or knowledge of results, distribution of practice, division of learning task, meaningfulness, interest and attitude, and motivation.

**TERMINAL EXERCISE**

Answer the following questions in brief:

- (1) Explain how does learning occur.



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- (2) Distinguish between the concepts of :
 - (i) Learning and maturation
 - (ii) Learning, reflex and instinct.
- (3) Describe the two major types of conditioning.
- (4) Which factor according to you affects learning most? How?
- (5) What is the importance of transfer of learning in daily life?



ANSWER TO INTEXT QUESTIONS

6.1

1. Fill in the blanks:
relatively, permanent, behaviour, practice, experience
2. True and false
(a) F (b) T (c) T (d) F

6.2

1. Fill in the blanks:
(a) readiness
(b) cannot
(c) practice
(d) maturation, learning
(e) direct, immediate, stimulation

6.3

1. (a)-(b), (b)-(a), (c)-(e), (d)-(c), (e)-(f), (f)-(d)

6.4

1. (a) performance, learning
(b) graph, units of practice, degree of learning
2. (a) T (b) T (c) F

6.5

1. (a) Feedback or knowledge of results
(b) Distribution of practice
(c) Meaningfulness

**Notes**

(d) Motivation

2. (a)- iii, (b)-i, (c)-ii, (d)-iv
3. (a) F (b)T (c) T (d) F (e) F (f) T

6.6

1. Transfer of learning is the process by which previously learned skills are carried over from one learning situation to another.
2. (a) Learning to draw helps in learning to write- Positive transfer
(b) Learning to drive a left hand drive can block the learning to drive a right hand drive car- Negative transfer
(c) Learning to play football will have no effect on learning to write an essay- Zero transfer.

HINTS TO TERMINAL EXERCISE

1. Refer to section 6.1
2. Refer to section 6.2
3. Refer to section 6.3
4. Refer to section 6.5
5. Refer to section 6.6



Notes

7

REMEMBERING AND FORGETTING

Do you remember your first day in the school?

On what day did you go to the market last week?

Can you name your friends?

In our everyday life almost all activities in one or the other way deal with memory. Loss of memory means loss of one's self. Learning will make no sense if it is not retained by the person. It is only through the capacity of memory that we are able to relate to different events, experiences, conditions, people and objects. Also, we use the understanding thus developed in different contexts and on different occasions. Thus, memory makes it possible to operate beyond the constraints of time and place. A child learns something in class and uses it in the market or at home or some other place. Memory establishes links across diverse experiences. It's a great mental capacity — almost magical. It is needed in developing social relationships, mastering cognitive competencies (mental capacities) and solving various problems. There are also occasions when our memory fails and we forget a name, a formula or fail to recognize a person. The study of memory is one of the oldest fields of research in psychology. Psychologists have been studying various aspects of memory. In this lesson we will study how our memory works, the factors which increase or decrease our memory capacity, and what can be done to improve memory.

**Notes****OBJECTIVES**

After studying this lesson, you will be able to :

- describe the nature of human memory system;
- differentiate between short-term memory, long-term memory and the various ways retention is measured;
- explain the causes of forgetting;
- describe important aspects of everyday memory;
- explain the constructive nature of memory; and
- describe the ways of enhancing memory.

7.1 SIGNIFICANCE OF MEMORY

Memory is a remarkable mental process and a mental system which receives information from (external or internal) stimuli, retains it and makes it available on a future occasion. It provides continuity to our experiences across different time points. A moment's reflection will tell you how difficult it will be if you do not have intact memory function. You would perhaps lose your identity or the sense of what you are and will always remain a new learner because the past learning experience will have no value or significance to you.

Memory appears like a tape recorder which records a song or music and plays whenever we demand. Our memory system does perform this but it is more dynamic and versatile than a tape recorder. When someone asks us to sing a particular song and we sing, then we are working like tape recorders. But human memory differs from a tape recorder in many important ways. For instance, we remember not only verbal material but visual experiences, tactile impressions, feelings of pain and joy, motor skills, events, activities and so on. Second, retrieval of information can be exactly in the same way or in a different form. Third, the reception of new information depends a lot on what information we already have. Fourth, we neither receive nor retain all the information presented to us because there is great deal of selectivity in receiving the information. Fifth, all tape recorders have some limitation on recording but human memory can retain extremely large amounts of information. Finally, our memory system is an active system. It works on the information received. It may integrate, add, modify, omit or reorganize the information. It is not passive like a tape recorder which reproduces the information in its original form.

7.2 KEY ASPECTS OF MEMORY

Based on the features of the human memory system just described, we may say that memory is a perceptually active mental system. It receives, encodes, modifies, retains and retrieves information. Let us understand these terms more clearly.



Notes

Encoding refers to the translation of incoming stimulus into a unique neural code that a person's brain can process.

Storage is the retention of the material encoded over a period of time.

Retrieval is the recovery of the stored or retained information at a later occasion.

These components of memory can be seen in Figure 7.1.

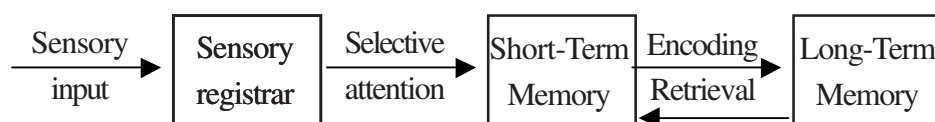


Fig. 7.1 : A General Model of Human Memory System

We gather information through our senses. Each sensory modality has its own sensory register (or sensory memory). It holds information for a very short duration, then it passes the information for further processing to long term memory. Let us try to understand the three major systems of memory.

Sensory Memory: Hold a picture in front of you and look at it steadily for a while. Now close your eyes and notice for how long does a clear image of that picture last. A clear visual image of any object will last in our sensory memory for about $\frac{1}{2}$ a second. Sensory memory occurs within the sensory system while it is being transmitted to the brain.

What we are able to memorize depends to a large extent on what happens to the information once it reaches the sensory memory. We are continually bombarded by sensory stimulations of various kinds. As we cannot respond to all of them, it is important that we must selectively focus on those things which are significant. This kind of selectivity is possible on the basis of attention. The process of attention limits the input of information which we receive from the environment. Thus through selective attention information enters short-term memory (STM). STM holds information for a few seconds and transmits it to the long-term memory (LTM) which has a very large capacity to retain information.



INTEXT QUESTIONS 7.1

Choose the correct alternative:

1. Memory is thought to be made up of _____ stages.
 - a. One

**Notes**

- b. Two
 - c. Three
 - d. Four
2. Approximately how long does it usually take for visual information in the sensory register to fade?
- a. about a second
 - b. from several seconds to a minute
 - c. several minutes
 - d. generally an hour or more
3. In the memory model, in order for information that has just been sensed to enter short-term memory, it must first be
- a. attended to
 - b. stored
 - c. extensively processed
 - d. retrieved

7.3 SHORT-TERM MEMORY AND LONG-TERM MEMORY

We have read that human memory comprises of three interrelated subsystems, namely - sensory register, short- term memory (STM) and long-term memory (LTM). The sensory register as the name implies makes the environmental input or information available for a very short period consisting of milliseconds. The retention which forms the basis for the use of information in future is largely related to the systems of STM and LTM. Now let's find out what is STM and LTM?

The nature and functioning of STM and LTM are different. The distinction may be made in terms of capacity, duration, type of information retained, and the causes of forgetting. These differences are give in Table-1.



Notes

Short-term Memory

While you are studying, look up for a moment and see around you?

What are the thoughts that are occurring to you at this moment?

Do you know what you have just done? You have identified the contents of your Short-term Memory (STM). STM can also be called “working memory”. For example, you look for a telephone number from the diary and after your finish talking, keep the diary back in your pocket. Looking for and using the telephone number is an example of short-term memory. You forget it again after dialling.

Long-Term Memory (LTM)

Can you remember the name of your childhood friend?

Have you ever thought about how you can remember things/events that happened to you a long time ago. It is possible because of LTM. The sensory memory and STM are not limited in terms of duration. Information in LTM can last as long as we live. It is a relatively enduring memory in which information is stored for use at a later time.

Table –1: Comparison of Short-term Memory (STM) and Long-Term Memory (LTM)

Features	Short-term Memory	Long-term Memory
Capacity	Limited up to 7 items or chunks	Unlimited
Duration	Usually up to 30 seconds but varies under different situations	May range from days to a life time
Type of information	Visual images, sounds, words, sentences	Meaningful verbal material, life events.
Causes of forgetting	Displacement of old information by new one, inadequate	Interference, organization of material

It is clear from Table –1 that while STM has limited capacity and exists for short durations, LTM has no known limits. People show large scale variation in memorizing stories and poems. The Vedas have been passed on from one generation to the other in an oral tradition. There are scholars who still retain and recite Vedas, Ramayan and Mahabharat.



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We also find that STM has pieces of information which are simple and relatively less organized. In contrast, LTM consists of a broad range of information and experiences. They are often meaningfully organized and refer to a wide spectrum of information ranging from personal life events to abstract theoretical knowledge.

Finally, the causes of forgetting in these two memory systems are also different. In STM forgetting takes place because of the entry of new information in the system which displaces the old information. This leads to forgetting of the old information.

In LTM various kinds of events, experiences and stimuli are retained. Forgetting is caused by numerous factors including interference from one information to the other, lack of organization in the material retained and/or unavailability of appropriate cues at the time of retrieval.

Eyewitness Memory

Human memory as an active process creates a major challenge when we collect eye witness accounts of accidents or other events. People often interpret what they see in terms of what they expect and their memories reflect that. It has been found that we always actively process our memories and try to fit them in the schemata and beliefs that we hold about the situation. It is only when we look at the overall meaning and context of a memory that we can really judge about the accuracy of accounts. The details do not constitute the most significant aspect of memory in most of the cases of that kind.

Autobiographical Memory

This kind of memory refers to people's memory for their own personal experiences. The studies indicate that autobiographical memory is organized at three different levels. The highest level consists of **lifetime period**. These are the periods of time in which some aspect of personal life remained reasonably consistent (e.g. living with someone, working for a particular organization). The second level is of **general events**. These are major occurrences covering several days or months (e.g. conference, visit or trip). The third level is that of **event-specific knowledge**. It involves details about a particular event or happening in one's life. We organize our personal memories across various phases and periods as we go through our lives.

Measurement of Retention

The measurement of memory is undertaken with the help of two types of measures i.e. **explicit** and **implicit**. The explicit measures require that a person must remember some given information that is stored in memory. The person makes deliberate efforts to recall the details of the previously experienced events or material. Thus



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a direct measure of memory is used. The implicit measure of memory is one in which a person has to perform some task in which no deliberate or intentional effort is made to retrieve from memory. Let us learn about some of these measures in some detail.

Explicit Measures

Recall: In recall a person first learns a list of words. Then he or she is required to recollect the material learned. The number of items correctly recalled becomes the measure of explicit memory. The accuracy of reproduction of the story may provide a measure of explicit memory.

Recognition: In recognition the learner is presented with the previously learnt items or words mixed with new items and his or her job is to identify the previously learned items. Usually recognition is found to be a more sensitive measure than recall.

Implicit Measures

Word Completion: In this task the learner is presented with fragments of words. The learner is then required to complete the fragmented word. Thus f – sh is a fragmented word.

Priming Task: In this task earlier background activities (e.g., reading a story) may help to complete fragments of word in a particular manner. The background task does priming.

In both of the above mentioned tasks the learner is not explicitly asked to remember.

7.4 CAUSES OF FORGETTING

Memory is a very complex psychological process and any kind of mechanical analogy in terms of storage, processing and retrieval (e.g., tape recorder, computer) falls short. In this process information is retained not only as it is but it may be subjected to change and modification. We often fail to remember due to brain damage, resulting in loss of memory functions, called amnesia. But people do forget in the normal course of life. In fact remembering and forgetting are both natural processes subject to a number of factors that operate in everybody's life.

Understanding the factors of forgetting is helpful to clarify the nature of memory and making it more effective. Let us examine some of the important factors which have been found critical to retention.

- (i) **Decay of Memory Traces:** It is a common experience that memories of many events and experiences become “dim” over time, like the colours of a



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photograph bleached by the sun. This notion was proposed by many early psychologists as a general cause of forgetting. However, people remember many events of early childhood during old age without any kind of distortion. Therefore, decay cannot be considered as a general cause of forgetting. However, it has been found that decay is an important factor in sensory memory and in STM when there is lack of rehearsal.

- (ii) **Interference:** Whatever we learn, we learn in some context. Thus every experience of learning is preceded and followed by some other experiences. These experiences are often interrelated and influence each other. When such influences are adverse we call them interference. When earlier learning negatively influences present learning, it is called proactive interference and when present experience influences previous learning then it is termed as retroactive interference. It has been noted that more the similarity between two sets of materials to be learned, the greater will be the degree of interference between them.
- (iii) **Motivation:** According to Freud, forgetting takes place because the event is unpleasant. We forget because we do not want to remember something. We may exclude memories or push them out of consciousness if we do not like them. Freud called this process repression. It's a common experience that we usually remember pleasant events more often than unpleasant ones. Also, we find a strong tendency to remember incomplete tasks more than completed tasks. This has been termed as Zeigarnik effect. The role of mood in human memory suggests that affective aspects of our lives do shape our memory in significant ways.
- (iv) **Retrieval Failure:** It has been found that a lot of forgetting, particularly in long-term memory, is due to absence or non-availability of retrieval cues at the time of recall. The changes in context associated with physical and mental states from the occasion of learning (encoding) to recall (retrieval) often result in poor retention scores. We often "blank out" during examinations.

Memory as a Constructive Process

The meaning of forgetting in terms of failure to retrieve gives the idea that memory storage is static. This, however, is not the case. Memory and remembering in particular has been shown to be a constructive process. In summary the reproduction are found to be constructive in nature. The constructive nature of memory is evident when we recall some event. If you compare recollections of the story of a movie which you and your friends have seen, you will notice how differently people have constructed the same story. In fact rumours often show our tendency to highlight certain details and assimilating some. It seems that recall is always a combination of retrieval and reconstruction. The three main tendencies are sharpening, leveling and assimilation.



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7.5 WAYS OF ENHANCING MEMORY

It is a common experience that forgetting is usually a source of trouble for people. Everyday conversation, class room participation, performance in examination, interview, presentation and communication in meetings often put demands on us to remember information. Failure in doing so has negative consequences which all of us experience to different degrees in our lives. As a result most of us are interested in improving our **memory**. The study of memory aids and related techniques is called **mnemonics**. Some of the techniques used in improving memory are listed below:

1. **Organization:** While preparing for learning a learner needs to organize the material in some form. Such an organization may help by creating a natural context and provide relevant cues while retrieving the learned material. If the material lacks natural organization, an artificial organization may be created by the learner.
2. **Concentration:** One of the main reasons of forgetting is inadequate allocation of attentional resources to the material while processing the same. As a result the material is not stored and we fail to recall when we need it. Thus by focusing attention on the material while processing we can increase the probability of storage and recall.
3. **Method of loci:** As the name implies, this technique uses associations with place or task. The visualization of the same provides cues for recalling the task. By choosing any action properly one can use memory at any point in the day. Use of such mnemonic codes allows one to have vivid and distinctive associations between new information and prior knowledge. Being related to context the cues become very effective. For instance one may have a clear visual image of a building, its rooms, furniture and other details. These may be linked to different ideas and using these linkages, memory of those ideas can be enhanced.
4. **Recoding:** While dealing with non-meaningful material one may recode the items to be remembered in a more meaningful manner. Recoding may take many forms. For example people may use the first letter of all the items and make a sentence. This kind of narrative structure works as a cue. Acronyms (e.g., U.N.O., TV, CBI, WHO) are also used for the purpose in which all the first letters are used. Using elaboration one may add more information which makes the material distinctive. Chunking is a good example of recoding. If a large serial of numbers is presented it becomes difficult to remember. The same, however, may be divided in two or three chunks in some meaningful way using ingenuity. Using elaborative coding one may put many items in a story form and recall the same easily.

**Notes****INTEXT QUESTIONS 7.2**

Choose the correct alternative:

1. Under ordinary conditions, short-term memory seems to be able to hold _____ items at a time.
 - a. about 2
 - b. about 7
 - c. about 17
 - d. about 100
2. Which of the following items is most likely to act as a single “chunk” of information in STM?
 - a. 843348
 - b. CKNUH
 - c. I like you
 - d. Mohan, river, bag
3. Radha and Nishi are studying together for a test. Radha’s strategy is to read her book over and over. Nishi tries to link what she reads to other concepts she knows. What will be the likely result?
 - a. Radha will remember more
 - b. What Radha learns will stay with her for a longer period of time.
 - c. Nishi will become confused
 - d. Nishi will remember better
4. When you are reading a textbook, which technique will facilitate recall of contents of a lesson.
 - a. asking yourself questions about the materials you read
 - b. having other people ask you questions
 - c. using your powers of concentration to focus on each word individually before moving on to the next.

- d. Remaining relaxed and trying not to get too involved with the material.



WHAT YOU HAVE LEARNT

- Human memory is a dynamic system. It helps us to retain information and make the same available for future use.
- We receive information through various sense modalities. The information is registered in the sensory memory and through selective attention it goes to short-term memory (STM). Then it is encoded and enters long-term memory (LTM). Sensory memory lasts for one second.
- The STM has limited capacity and lasts only for a few seconds or minutes.
- LTM has unlimited capacity and persists for hours and months or even the entire life time. Forgetting is caused by a number of factors such as interference, motivation, retrieval failure and reconstruction.
- Capacity for retention can be enhanced through organization of material, concentration, using method of loci and recoding.



TERMINAL EXERCISE

1. Describe the main types of human memory system.
2. What are the main properties of short-term memory?
3. Enumerate the factors which cause forgetting.
4. Try some mnemonic devices and write your experience.



ANSWER TO INTEXT QUESTIONS

7.1

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



Notes

**Notes****7.2**

1. b
2. c
3. d
4. a

HINTS TO TERMINAL EXERCISE

1. Consult section 7.3
2. Consult section 7.4
3. Consult section 7.5
4. Consult section 7.6

**Notes****8**

GOING BEYOND THE REALITY: THINKING AND REASONING

Suppose, you are going to the airport to pick up your friend. Before you leave home, you will decide what route you will be following. You may not follow the shortest route because it will be a rush hour and you may have to face traffic jams at several places. Thus, before you start for the airport you will consider various options available to you. You would like to avoid roads that are under construction, roads that are too busy at that time and so on. Your decision to follow a particular route will depend upon the consideration of such problems that you are likely to encounter. Thus, even a simple problem like this one requires use of thinking and reasoning. The solution to the problem emerges after processing information that is available to you from the environment and past experiences. In this lesson you are going to learn about important aspects of thinking and reasoning.

**OBJECTIVES**

After studying this lesson, you will be able to:

- understand the nature of thinking;
- explain different components of a thought process;
- describe the stages of problem solving;
- explain the types of reasoning; and
- describe the relationship between language and thought.



Notes

8.1 NATURE AND COMPONENTS OF THINKING

Thinking is a mental activity, usually initiated by a problem. It follows a sequence of internal (mental) steps that involve a variety of activities such as judgment, abstraction, inference, reasoning, imagining, and remembering etc. Thinking is a cognitive process in which we use symbols as representations of objects and events. It is a constructive process as we construct something new. Thinking relies on a variety of mental structures such as i) concepts, ii) schemas, and iii) mental imagery. Let us consider these mental structures.

Components of Thought Process

(i) Concepts

We have the capacity to abstract the essential characteristics of objects, events, human beings, or whatever we perceive and experience. For example, whenever we see an apple we categorize it as “fruit”; when we see a cat we categorize it as an “animal”, and so on. Whenever we encounter a new object we tend to categorize it and take the same action toward it as before. For example, when we see a dog in the street we categorize it as an “animal” and like any other animal we take the same behavioural action towards it (e.g., avoid it). Similarly, when we encounter a new social situation, we try to categorize it on the basis of past experience and take appropriate action. This is considered as one of the basic aspects of thinking.

Concepts are mental structures. The categories we form are called concepts. They are the building blocks of thinking. They allow us to organize knowledge in systematic ways. Most words (except proper nouns) represent concepts as they refer not to a single object or event but to a whole class. For example, the word “house” refers to a class of buildings with common features. It has rooms, kitchen, toilet, store, etc., and is used for living by people and families and has certain facilities. The word “building” is more general than house. The word building is a larger concept that includes houses, offices, markets, etc. Concepts represent objects, activities, ideas, living organisms. They also represent properties (e.g., green, or large), abstractions (e.g., honest, love) and relations (e.g., bigger than).

Learning of concepts utilizes the psychological processes of *generalization* and *discrimination*. For example, when a child learns the concept dog, he/she may generalize the term initially to include all small animals (e.g., cat). But from parental corrections and process of learning, the child learns to make finer discrimination until the concept is correctly formed. At this moment it was only the family dog. However, the child may generalize the concept to include other dogs of different breeds and sizes. The child may further refine the concept and distinguish between pet dog and street dog, friendly dog or aggressive dog, etc.



Notes

Concepts may be *concrete* (e.g., a dog, table, tree, etc.) or *abstract* (e.g., honesty, democracy, justice, etc.). The child acquires the concrete concepts much earlier in life and later on abstract concepts. Studies by Piaget indicate that the child first learns object concepts (e.g., ball) and develops more abstract concepts only as he grows older.

Activity 8.1**Concept Formation**

Take 20 white cards of 8 × 12 cms in size. Choose three shapes (say, triangle, square, and circle) and three colours (say red, green, and blue). On each card draw different shapes below (say triangle and square) and above these two shapes in the middle, draw another shape (either triangle or square) as shown in Figure 8.1.

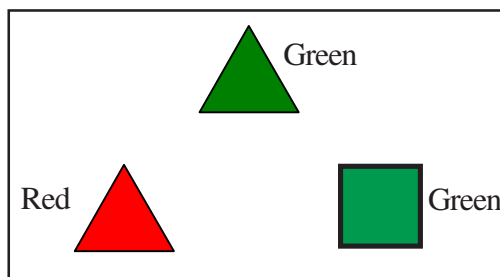


Figure 8.1: A sample stimulus card

The two shapes below are to be different in shape as well as colour and one above should have the shape of one and colour of the other. Take care that the size of the shapes are cut from the same size square. In this manner prepare 29 such cards, all having different combinations of shapes and colours.

Randomly place the cards in a pack. Keep the pack of cards on the table and pick one card at a time, place it before the participant (child) and ask to match the upper shape with one of the two given below. Do not indicate anything about shape or colour. Present the card to the participant one by one and encourage the child to respond as quickly as possible.

Record the responses of the respondent in terms of the response, i.e., colour (C) or shape (S). If the participant matches red triangle with green triangle, then the participant is matching on the basis of shape, so put a tally under shape (S). On the other hand, if the participant matches the green triangle with green square, then the matching is on the basis of colour, so place a tally under colour (C).

In this manner, present all the 20 cards one by one and record the responses. Count the total tallies under colour (concept) and shape (concept). The analysis of your observations will indicate the processes of concept development in the child.



Notes

In the activity you will observe how children classify 'colour' and 'shape' in terms of concepts. This will reflect their level of concept formation. Research indicates that children first develop the concept of colour followed by shape. Classifying objects, events or ideas into common classes minimizes the time and effort required in processing information. It is very helpful in thinking process.

We not only learn to classify objects and events in terms of their features or properties (e.g., colour, shape, size, etc.) but also abstract the conceptual rules associated with the property. For example, we not only learn to classify the colour of traffic light (red, green, amber) but also the conceptual rules by which these colours are related. That is, if the light is red, "stop"; if amber then "get ready to stop or move"; if green, "then go". It is amazing that we learn so many conceptual rules, store them, retrieve on demand, and use them in our day to day interactions in our environment.

(ii) Schemas

Schemas are more complex than concepts. Each schema contains many distinct concepts. For example, each of us possesses a **self-schema**, a mental framework holding lot of information about ourselves (as we perceive ourselves to be). This self-schema will include many different concepts about ourselves. For example, you may consider yourself as intelligent, attractive, healthy, hard working, and pleasant. All these separate concepts make up a self-schema. Such schemas are important building blocks for thinking.

(iii) Mental Imagery

Thinking also involves the manipulation of visual, auditory or other images. Here we may focus on visual images. It has been found that mental manipulations performed on images of objects are quite similar to those that may be performed on the actual objects. Once we form a mental image of any object, person or situation, we perceive it and think about it just as we would if it actually existed. Sometimes we could refer to it as we see things in our "mind's eye." For example, if you have to remove a large table out of the room having a narrow door, you will mentally rotate (mental image) the table and think a way out to solve the problem.

It has been found that we usually think in words (words represent the concepts, e.g., table). At other times we rely on mental images, such as visual image of the table. In the above stated problem one could physically try to manipulate the table to find a way out. But a more mature person will try to find solution through mental rotation (thinking). In the introductory part of this chapter you read about the planning of a route to go to the airport. The individual could think in words or plan the route through mental imagery. That is, create a mental picture of the route to the airport and decide.



INTEXT QUESTIONS 8.1

1. Fill in the blanks with appropriate words:

- (a) Thinking is a _____ process in which we use symbols.
- (b) We _____ objects encountered in our life.
- (c) Children learn _____ concepts earlier than _____ concepts.
- (d) Learning of concepts involves _____ and _____.
- (e) Classifying objects into common classes makes _____ easier.

8.2 PROBLEM SOLVING

Problem solving is an important cognitive activity. It is so central to the process of thinking that many people use it interchangeably with thinking. A moment's reflection will make it clear that all our day's activities involve problem solving. The problem may be simple or complex. The simple problems are of routine nature as deciding what to eat in the breakfast. There could be a complex problem as deciding which career to choose. Problem solving refers to thinking directed towards solving a specific task/situation. This type of thinking has three stages starting from the stage of occurrence of a problem followed by a set of mental operations, leading to the solution of the problem.

Stages and Strategies of Problem solving

A problem signifies a situation that requires a solution. It has three stages or steps as stated below:

- 1. Initial State : A problem
- 2. Operation : Actions
- 3. Goal State : Solution

Let us explain these three stages with a concrete problem. Suppose you get an unexpected bill to pay. Receiving the bill represents the initial state, the problem. Your goal is to find money to pay this unexpected bill without disturbing the original family budget. This leads to deployment of certain operations for solving the problem. Some problem solving operations or steps are more desirable than others.



Notes



Notes

For example, withdrawing money through credit card happens to be a more acceptable solution than borrowing from a friend. By choosing the most acceptable operations or steps, you move from the initial problem state to the goal state, when the problem is solved. Problems may differ with respect to the levels of complexity but steps involved remain the same. For more complex problems the second stage requires more time in order to carry out a number of mental operations.

8.3 MENTAL SET IN PROBLEM SOLVING

A **Mental Set** is a tendency on the part of an individual to respond to new problem in the same manner that he or she used earlier to solve a problem. Previous success with a particular rule provides a kind of **mental rigidity** which hinders **creativity**.

Sometimes a mental set can enhance the quality and speed of perceiving and problem solving, but under certain conditions it can also restrict or inhibit the quality of our mental activity or thinking. However, in solving our day to day and other complex problems we often rely on past learning and experience with similar or related problems. You will appreciate the phenomenon of mental set better if you do Activity 8.2, called *Luchins* water jar problems.

Activity 8.2

Mental Set and Problem solving

Present to one of your friends the following set of problem to solve. Give the following instructions:

There are 7 problems in the table given below. There are 3 empty jars (A, B and C) available and enough water in a container. With the help of the given jars you are required to produce the required quantity of water. How to arrive at the solution is explained with the help of problem NO. 1. given in Table 8.1.

You have three empty jars that can hold 21 ml (A), 127 ml (B) and 3 ml (C). With the help of these three jars you are required to produce 100 ml of water. So, fill jar B with water and pour out enough water from jar B to fill jar A. After pouring water from jar B to A, you are left with 106 ml in jar B. Now, pour out enough water from jar B to fill jar C twice, you will be left with 100 ml of water in jar B. Now, go ahead and solve the remaining 6 problems.



Notes

Table 8.1: The Water Jar Problem

Problem No.	Volumes of empty jars (ml)			Required quantity
	A	B	C	
1.	21	127	3	100
2.	14	163	25	99
3.	18	43	10	5
4.	9	42	6	21
5.	20	59	4	31
6.	14	36	8	6
7.	28	76	3	25

The participants will be able to obtain the solution by following the same steps ($B - A - 2C$). However the 6th problem is critical, in that the solution can be worked out by the method used earlier and also by using a straight and simple method of pouring water from jar A to jar C (i.e., $A - C$). However, because of the mental set (formed through the solution of earlier 5 problems) the individual becomes mentally blind to the simpler and different solution. The 7th problem is the second critical problem. In this problem the person is not able to arrive at the solution by using the earlier method ($B - A - 2C$). It is interesting to observe the time taken by the person in solving the problems from number 2 to 7. The participant will take maximum time in solving problem 7, because he cannot solve the problem with the help of the earlier set.

**INTEXT QUESTIONS 8.2**

Mark the following statements True or False:

- | | |
|--|------------|
| (a) Problem solving takes places through stages. | True/False |
| (b) Mental set may hinder problem solving. | True/False |
| (c) Schema consists of one concept. | True/False |
| (d) Images make mental manipulation difficult. | True/False |

8.4 REASONING AND DECISION MAKING**Reasoning**

Reasoning is a mental process. Reasoning is involved in logical thinking, problem solving, and decision making. In reasoning, information from the environment and



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the stored information in the brain are used to arrive at some conclusion or goal. The individual follows certain rules in reasoning and decision making. We can classify reasoning into two main types **Deductive reasoning**, and **Inductive reasoning**. Let us consider these two types briefly.

(a) **Deductive Reasoning:** In deductive reasoning the person tries to deduce or draw conclusions from a set of initial assertions or **premises**. An example of deductive reasoning, known as **syllogism**, which contains two premises and a conclusion is drawn:

All A are B (premise)

All B are C (premise)

Therefore: All A are C

It is an example of a valid syllogism.

Let us consider an example of invalid syllogism

All A's are B (premise)

Some B's are C (premise)

Therefore: Some A are C

This is an example of invalid conclusion.

In deductive reasoning, we typically go from general to the particular. We apply the same general rule as all human being are mortal. Ramesh is human. Ramesh is mortal.

(b) **Inductive Reasoning:** In comparison to deduction reasoning, the process in inductive reasoning is reversed. In this case we go from available evidence to generate a conclusion about the likelihood of something. In inductive reasoning, we consider a number of different instances and try to determine (induce) what general rules cover all instances. Let us explain inductive reasoning with the help of an example.

Suppose you are not able to locate your scooter keys. You try to look at place where you generally keep your keys, you don't find them there. You use inductive reasoning to search your memory – "I took out the scooter keys and with another key I opened the entrance door and entered the house. Immediately, on entering I found the telephone bell was ringing. I proceeded to receive the call. I had to note down a message. I took out the pen from my pocket and noted down the telephone number on the telephone diary. I must have kept the keys near the telephone. "you proceed there to search the keys and find them there".

**Notes**

Most cases of scientific research involves inductive reasoning. Scientists and lay persons consider a number of instances and try to determine what general rule covers them all. For example a boy of 15 years age is moody, aggressive, impatient, hyperactive – he is a teenager. The general statement that “he is teenager” attempts to cover his behaviour in a more general statement.

Decision Making

In everyday life we often make personal, economic, social and political decisions, which could have far reaching consequences. When you decide to take up physics as a subject for specialization in your studies you are making a decision which could have far reaching consequences in your life. We often make decisions which are of routine nature, like what to eat in the breakfast or which movie to go. While making decisions we consider certain variables that are important in taking a decision. For example, someone closely related to you has been hospitalized and the doctor, after examining the patient, recommends surgery to save the life of the patient. Before you take a decision to go ahead with what the doctor has recommended, you will consider a number of alternatives. These alternatives could be : to have a second opinion, to consider alternative method of treatment, whether the patient can withstand surgery, doctor who will conduct the surgery, hospital where surgery is to be done, finances involved and so on. After considering the relevant points you will take a decision.

8.5 JUDGEMENT AND DECISION MAKING

Judgement and decision making are interrelated processes. Judgement involves evaluation of information about the world (objects, events, persons etc.) while decision requires choices. Let us make the distinction clear with the help of an example. The judge hears the arguments and examines the evidences provided by the lawyers and on hearing the arguments gives his judgement in the case. On the other hand, decision making is a kind of problem solving in which quite a few alternatives are available and one has to make a choice. For example, you have to go to airport and there are three routes available to you. You will consider the different good and bad points about each of the three routes and make a decision.



INTEXT QUESTIONS 8.3

Mark the statements True or False:

- | | |
|---|------------|
| (a) Reasoning helps to go beyond the available information. | True/False |
| (b) Induction moves from general to specific. | True/False |
| (c) Deduction moves from specific to general. | True/False |



Notes

8.6 LANGUAGE AND THOUGHT

Imagine what would have happened if we did not have language to express what ever we wanted to express. Without language it would not have been possible to express our feelings and communicate with others. The process of acquiring language is very interesting. The child by the age of six months first starts saying “ma..ma..ma” (babbling) and it is an enjoyable sound both for the child as well as the parents and others. Slowly, the child learns to say mama and papa and gradually other mono-syllables start appearing and later could starts comparing two or more words to communicate his/her needs etc.

Initially the child learns to communicate in the language being used at home, called mother tongue. Later, the child learns a formal language (say English) at school. The child may then learn two languages. The progress from uttering “ma. . .ma. . .ma” to the attainment of mastery over language is a fascinating journey. Some people become creative writers, poets and novelists. What sets us apart from non-human-beings is the use of language.

Use of Language

Children progress rapidly from two-word utterances to more complex sentences. By the time they are three, many children are constructing complex sentences like “I want this doll because she is big”. Thus, in the course of development infants start from cry, coo, and babble and gradually become linguistically socialized so that they become effective participants in conversation with others and are able to communicate well.

Language is a vehicle of thought and a tool for all kinds of social interaction. Language conveys intentions, feelings, motives, attitudes and beliefs, etc.

Language and Communication

We communicate information by using a system of symbols. Language is one such symbol system. It has two basic characteristics: the presence of **symbols** and **communication**. Symbols represent or stand for something else. For example, home, school, office, temple, etc. these are all buildings. However, these buildings represent something that has a meaning more than what the ‘building’ carries. Home is a place where a family lives and school is a building where education is imparted to the children. When these words (e.g., school, home) are associated with certain functions, they acquire meaning and we recognize those words and use them for communicating with others. So, when you say to another person that you are going to the temple, you are communicating that you are going to a place (building) for worship.

Language also helps us in describing abstract ideas or thoughts (e.g., beauty,



Notes

democracy) in addition to the concrete objects of everyday use and experience. Through language we are able to express our abstract thoughts.

We also communicate with others through the use of our body parts, called gestures and postures. Such type of communication is called non-verbal communication. It may be noted that a sign language is also a form of human language.

Language and Thinking

Often people have wondered whether language is essential for thinking. Is thinking possible without language? Most of our thinking does involve words. It is well established that language and thought are related. Watson called thinking as “inner speech”. If language is essential for thinking then an obvious question that arises is what happens to those in whom there is no language or the people whose language is not well developed (say young children). It has been argued that such people can use sign language and understand each other’s thoughts. For example, deaf people can think and communicate in sign language. One can say that language is an essential tool of thinking, but it can not be said that thinking is not possible without language.

Language is helpful in thinking and at the same time language works as a vehicle of thought. That is, whatever we think it is communicated through language.



WHAT HAVE YOU LEARNT

- Thinking is a mental or cognitive process that often starts with a problem situation.
- Thinking involves many types of mental structures such as concepts, schemas, and mental imaging.
- Concepts are class names based on categorization. Formation of concepts involves generalization and discrimination. Concepts can be concrete and abstract.
- Schema refers to a mental structure consisting of several concepts and imagery.
- Problem solving is an important aspect of thinking. It starts with a problem, moves with certain mental operation and finally reaches to a solution that terminates the problem.
- The mental set developed by a person may create rigidity and become an obstacle in problem solving.

MODULE -II

Key Psychological Processes



Notes

Going Beyond the Reality: Thinking and Reasoning

- Reasoning is a mental process for drawing inferences. There are two main types of reasoning i.e., deductive and inductive. Deductive reasoning moves from general premises to specific conclusions. In contrast, inductive reasoning consists of drawing general conclusions from specific information.
- Decision making is a common cognitive process relevant to every day life in which we take into account a variety of factors and make planning of a course of action. Judgement requires evaluation of information available.
- Language is a vehicle of thought. Language helps to communicate with the help of symbols. Language is of particular help in communicating abstract ideas and thoughts.
- While we do think through language, language is not essential for thinking. Deaf people do think, although they may not have language.



TERMINAL EXERCISE

- Define a concept and describe how concepts are formed.
- What are the main components of thought process?
- Describe the steps in problem solving and use an example to illustrate the same.
- What is the importance of language for thinking.



ANSWER TO INTEXT QUESTIONS

- 8.1** (a) cognitive (b) categorize (c) concrete, abstract
(d) discrimination, generalization (e) information processing.
- 8.2** (a) T (b) T (c) F (d) F
- 8.3** (a) T (b) F (c) F

HINTS TO TERMINAL EXERCISE

- Refer to section 8.1
- Refer to section 8.1
- Refer to section 8.2
- Refer to section 8.6



Notes

9

MOTIVATION

When you come from school, you feel hungry and want to eat something. You want to eat because there is a force which compels you to have food. Likewise if a question is asked why do you want to join a college? The answer can be given in various ways like you want to learn or you need a degree to get a good job. You may want to join college to have lot of friends. This basic question of the ‘why of behaviour’ or factors which compel us to do certain activities makes us study the psychological process called motivation. In this lesson you will study about the nature of motivation, types of motives, intrinsic and extrinsic types of motivation, conflict, and frustration. Understanding motivation helps us to have insights into the dynamics of action.



OBJECTIVES

After studying this lesson, you will be able to:

- explain the meaning of motivation;
- describe the types of motives;
- differentiate between intrinsic and extrinsic motivation;
- describe self efficacy, life goals and values as motivators; and
- describe conflict and frustration.



9.1 MEANING OF MOTIVATION

Motivation is one of the most frequently used words in psychology. It refers to the factors which move or activate the organism. We infer the presence of motivation when we see that people work toward certain goals. For example, we might observe that a student works hard at almost every task that comes to him/her; from this we infer that the person has motive to achieve.

All human behaviour appears to arise in response to some form of internal (physiological) or external (environmental) stimulation. The behaviours, however, are not random. They often involve some purpose or goal. It is often held that behaviours take place as a result of the arousal of certain motives. Thus motivation can be defined as the process of activating, maintaining and directing behaviour towards a particular goal. The process is usually terminated once the desired goal is attained by the person.

The process of initiating action is technically called 'motivation'. Directing behaviour towards certain goal is the essence of motivation. Motivation is not always directly observable. It is inferred and used to explain behaviour. When we ask "What motivates a person to do a particular task?" We usually mean why does she behave as she does. In other words, motivation, as popularly used, refers to the cause or why of behaviour.

Interestingly, we are not aware of all our motives. Behaviour can be governed by unconscious motives too. If our understanding of motives is correct, we have a powerful tool for explaining behaviour. We explain our everyday behaviour in terms of various motives.

Motives also help us make predictions about behaviour. We may tell what a person will do in future. Motives may not tell exactly what will happen but they give us an idea about the range of activities a person will do. Thus a person with a need to achieve in academics will work hard in school, an individual with a strong need to excel in sports will put in a lot of hard work in that field; similarly in business and in many other situations.



INTEXT QUESTIONS 9.1

(1) Fill in the blanks with correct alternative:

- The process of initiating _____ in the organism is called motivation.
- All intentional behaviours involve _____.

c) Motivation is _____ observable.

d) Motives help in predicting _____.

(2) Define motivation.

**Notes**

9.2 KEY CONCEPTS OF MOTIVATION

There are certain terms which you will commonly come across when you learn this lesson on motivation such as needs, goals, incentives etc. Let us understand some of these concepts.

(a) Needs and Motives

A need is a condition of lack or deficit of something required by the organism. In order to maintain homeostasis or balance the organism finds it necessary to satisfy the needs.

The needs are of different types. The need for food or water is a physiological need, which arises out of lack or deficit of food or water in the organism. The needs for excretion and urination are also physiological needs. They are due to the organism's necessity to eliminate waste matter from the body. The need for contact with other persons is a social need. The other social needs include need for prestige, status, affection, self-esteem, and so on. A person becomes more aware of his needs when they are not fulfilled. In other words, when you are hungry, you need food, and, when you are thirsty you need water. In these cases you are in a state of deprivation and your bodily system suffers from some kind of imbalance.

The needs may be broadly categorised as, **primary or physiological needs** and **secondary or social needs**. Needs for food, water, sex, sleep and rest, and elimination are primary needs. Needs for achievement, affiliation, power are examples of social needs.

The term 'motive' refers to goal directed behaviour and energising conditions within the organism that drive behaviour. It is generally used to refer to certain conditions which, besides arousing, predispose a person to respond, or behave in a way appropriate to that motive. Motives direct the activity of the individual towards person's goals.



Notes

(b) Goals

Thinking about the goal motivates a person to organize his or her action. If hunger is a need, eating food is a goal. Thus goal is related to the need state. However, in certain cases, behaviour is also guided by intrinsic goals. It means behaviour does not always need external goal. It may be satisfying and enjoyable in itself. Some people may like to sing, dance or play just for the sake of singing, dancing or playing. They like such activities. Thus goals can be intrinsic or extrinsic.

(c) Incentives

Incentives refers to the goal objects which satisfy the needs. Incentives vary in quality and quantity which make them less or more satisfying and attractive. Thus one can put in greater amount of effort to attain a more attractive incentive. As a matter of fact many incentives assume considerable significance in the lives of people and they do every thing possible to attain those incentives.

(d) Instincts

Instinct is an old concept in the field of motivation. It is defined as an innate biological force that predisposes the organism to act in a certain way. At one time all behaviours were supposed to be results of certain instincts. Some of the instincts identified by early psychologists are fight, repulsion, curiosity, self abasement, acquisition etc. It was thought that instincts were inherited and compelling sources of conduct, but can be modified by learning and experience. This term is no more used in relation to human behaviour. Animal behaviour is sometimes explained using this term. In current usage 'instinct' is reserved for innate response tendencies found among animals.

**INTEXT QUESTIONS 9.2**

Fill in the blanks with appropriate words:

- Need is a condition of _____ or _____.
- Goals are _____ representations of _____ states
- Incentives are _____ that satisfy needs.

9.3 TYPES OF NEEDS

It is difficult to classify needs into distinct categories because the behaviour displayed by an individual at a given time is not the outcome of a single need. Many needs or

**Notes**

motives contribute to it. But on the basis of information gained through the analysis of human behaviour, psychologists have attempted to classify human needs into two broad categories. As mentioned earlier these categories are as follows. (i) Primary or physiological needs, and (ii) Secondary or socio-psychogenic needs.

The primary needs are rooted in the physiological state of the body. They are innate and include bodily conditions such as hunger, thirst, sex, temperature regulation, sleep and pain. These needs are of recurring type because they can be satisfied for short periods only.

The secondary or socio-psychogenic needs are unique to human beings. Many of them are learned and they drive the individual toward special kinds of behaviours. Since these needs are learned, their strength differs greatly from one individual to another. Some of the important socio-psychogenic needs are power, affiliation, achievement and approval.

Psychologists have developed a number of standardized tests for the assessment of these needs. They may also be assessed through non testing procedures as well.

9.4 HIERARCHY OF NEEDS

Abraham Maslow, who was a humanistic psychologist, argued that needs are arranged in a ladder-like steps. He proposed a rising order of needs from the level of physiological to self transcendence. The order of needs starts from basic survival or lower order needs to higher order needs. As one level of need is satisfied another higher order need will emerge and assume importance in life. The hierarchy is shown in Fig. 9.1.

Physiological needs: The most potent and lowest level of all the needs are physiological needs. Thus the needs of hunger, thirst, sex, temperature regulation and rest occupy the lowest step in the ladder. According to Maslow, when these physiological needs are deprived for a long period, all other needs fail to appear

We must eat to live. The bio-chemical processes which sustain life get their energy and chemical substances from food. Food deprivation results in contractions in the stomach which are felt by the individual as hunger pangs. When this happens, the individual spends energy in trying to get food. Factors like habits and social customs also influence eating behaviour.

We can go without food for weeks but we cannot live without water for more than a few days. The brain directs the organism to obtain water. Sex need differs in many respects from hunger and thirst. Sex is not vital to the survival of the organism but is essential to the survival of the species



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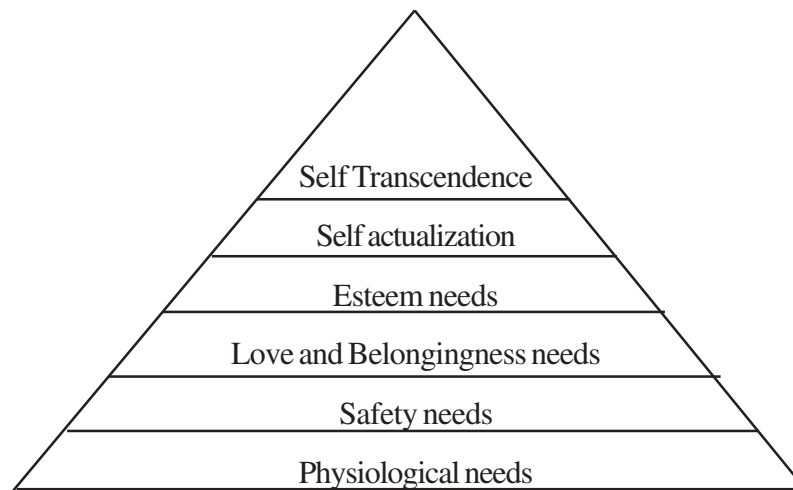


Fig. 9.1: Maslow's hierarchy of needs

Safety needs : When the physiological needs are satisfied safety needs become the dominant force in life. Safety needs are mainly concerned with maintaining order and security, to feel secure, safe and out of danger.

Love and Belongingness needs: These are the needs of making intimate relationship with other members of the society. People want to become an accepted member of an organised group, need a familiar environment such as family. These needs are dependent on the fulfilment and satisfaction of physiological and safety needs.

The Esteem needs: Esteem needs are divided into the following two categories:

- (a) Needs related to respect from others like reputation, status, social success and fame. The need of self evaluation occurs in those persons who are comfortably situated and satisfied with the fulfilment of lower order needs. For example, a competent professional who has established a high reputation and does not have to worry about getting a job, may become quite choosy about what type of work he/she would accept.
- (b) Self esteem, self respect and self regard.

The other type of esteem needs include need to achieve, to be competent, to gain approval and to get recognition. The need to feel superior to others also falls under this category. For fulfilling this, a person may buy good quality and costly clothes.

Self actualisation: Self actualisation refers to the desire to utilise one's personal capacities, to develop one's potentialities to the fullest and to engage in activities

**Notes**

for which one is well suited. One should realize and be satisfied that he or she has achieved what one is capable of.

Self actualization is possible only when the needs of a person are met to the degree that they neither distract nor consume all available energy. When the person succeeds in satisfying his/her lower order needs, only then he can act upon his/her higher order needs.

Self transcendence: This is the highest level of need where a person becomes conscious of broader reality. He transcends the boundaries of self and attends to the needs of collectivity and society. At this level one becomes aware of the entire humanity. At this level spiritual concerns become very important.

In this hierarchy it is assumed that the lower order needs dominate people's lives until that level is fairly satisfied; then comes the next one and so on. However, Maslow explains that every individual does not follow this hierarchy step by step; exceptions do arise. An individual sometimes risks his life to save someone or to save a valued object by defying his own safety needs. There are certain examples in Indian history when women sacrificed their lives to save their honour. There have been freedom fighters who starved themselves to death fighting for the cause of the freedom of the country. Here the higher order needs superceded the hunger and thirst needs. Sometimes individual rejects love, family, friends, etc. by committing suicide, thus defying the needs of love and sense of belongingness.

It may be noted that the hierarchy, however, does not imply that lower order needs become dormant once they are satisfied and the higher order needs become active.

9.5 ACHIEVEMENT MOTIVATION

One of the important needs present to some degree in all human beings is the "need for achievement" or the need to attain excellence and higher level of performance. People in whom the need for achievement is strong seek difficult work and improve their task performance. They are future oriented, aspire for higher goals and persist on the task chosen. They are task oriented and prefer to work on tasks that are challenging and on which their performance can be evaluated in some way. It may be by comparing it with other person's performance in terms of some standard. Achievement motivation can be seen in many areas of human endeavour such as job, school or sports competition.

The differences in early life experiences are found to be related to the strength of achievement motivation in later stage. The expectations parents have from their



children also play an important role in the development of achievement motivation. Parents who expect their children to work hard, encourage and praise them for their performance do so as to promote achievement oriented behaviour.

The degree of achievement oriented behaviour depends on many factors. One of these is “fear of failure”. It inhibits the expression of achievement behaviour. When some one is successful in school, sports and other activities, we say that achievement motivation is very strong in him or her.

9.6 INTRINSIC MOTIVATION AND EXTRINSIC MOTIVATION

While thinking about motivation we often try to locate its source whether it is internal to the person or external to him or her. Undertaking a given task may be motivated by promise of a prize or some other kind of gain which is external to the task. Thus, the task is instrumental in receiving or gaining access to the external reward. In all such situations the locus of control is external to the person who is asked to undertake the activity. Such situations characterize the kind of motivation which is extrinsic. On the other hand, we have situations in which the source of motivation lies inside the task. In such cases we work because the task itself is interesting and does not require any external source of motivation. Here, the task is not instrumental in obtaining any external reward. The locus of control is inside the person. Person’s involvement in the task is spontaneous and the task itself acts as its own reward. This situation represents intrinsic motivation such as a child’s play, reading an interesting novel, writing a poem or a story.

It has been found that intrinsic motivation leads to high quality of work, meeting challenges, and pursuit of excellence. Infact attachment with outcome often distracts the process or activity. This is why Indian thinkers realized the significance of non-attachment (**Anasakti**). It is the action which is important and on which we have control and therefore we need to focus more and more on the action without bothering much about the outcome of action. In the modern life extrinsic rewards are being emphasized more and more and everything is becoming contractual. The exchange relationships are becoming central. This situation is creating many problems in personal and social lives of the people. It is therefore important to plan activities and organize relationships in such a manner that the task remains in the center of interest.

**INTEXT QUESTIONS 9.3**

(1) Who has given the theory of hierarchy of needs? List the needs in hierarchy.

(2) What is intrinsic motivation? Give an example.

(3) What is extrinsic motivation? Give an example.

9.7 SELF EFFICACY

People hold beliefs about their competence to undertake some task and such beliefs influence the level of their performance. The self efficacy beliefs are the subjective standards held by the people that inform judgements about choosing specific goals. Introduced by Bandura, the concept of self efficacy has been used to motivate people in a variety of settings. By learning appropriate or realistic self efficacy beliefs one can plan behaviours and perform at a higher level. Self efficacy beliefs are found to play significant role in adjustment and physical health. It is what people believe they can do with their skills under certain conditions. Self efficacy beliefs develop over time. They reflect development of understanding that actions produce results and one can produce action that causes results. It may be noted that efficacy beliefs also operate at collective levels. Thus, collective efficacy involves a group's shared belief in its joint capabilities to organize and execute the courses of action required to produce the given level of attainment.

**Notes**



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9.8 VALUES

Values work as important motivators. They are considered as desirable and cherishable goals that serve as guiding principles in people's lives. Values help to make choices. Values prioritize needs. It is only because of values that people take purposeful long range actions. Pleasure and pain connected with specific behaviours have momentary effects.

In the analysis of values, moral values are given special significance. These values guide choices and actions. Moral values differentiate between good and bad. In a recent study based on data from several countries, some values have been noted which are given below:

Power : This includes social status and prestige, control and dominance over people and resources

Achievement: This includes personal success by demonstrating competence according to social standards.

Self-direction: This includes independent thought and action, choosing, creating, and exploring.

Universalism: This includes understanding, appreciation, tolerance and protection for the welfare of all people.

Benovelence: This includes preservation and enhancement of the welfare of people with whom one is in frequent personal contact.

Tradition: This includes respect, commitment and acceptance of the customs and ideas that are given importance in the traditional cultures or religions.

Conformity: This includes restraint of action, inclination, and impulses likely to upset or harm others and violate social expectations or norms.

Security: This includes safety, harmony and stability of society, of relationships and of self.

In the Indian context the framework of Dharma provides a set of values which are considered central to the sustenance of life. They include truth (**Satya**), non stealing (**asteya**), keeping tolerance (**driti**), intellect (**dhi**), knowledge (**vidya**), non-anger (**akrodh**), forgiveness (**kshama**), purity (**saucha**), control of sense organs (**indriya nigraha**) and self control (**dam**). These values provide basis for maintaining and promoting life at the individual and the social levels. It maintains a the view that holds entire universe into account.



Notes

9.9 FRUSTATION AND CONFLICT

You must be aware that it is not always easy to satisfy the needs. You must have a variety of needs at a time. We all face certain difficulties in our attempts to satisfy the needs. We sometimes meet with failures. Also many obstacles prevent us from reaching the goals. When our needs are not satisfied, we get frustrated.

Frustration is the feeling within an individual of being blocked in the attempts to satisfy needs which one considers significant. Frustration refers to the blocking of behaviour directed towards a goal. An individual displays some sort of disturbed behaviour when he or she is prevented from fulfilling the desired goals. If motives are frustrated or blocked, the person may feel anxious, depressed or angry. For example, if you want to go to a movie or want to play and your parents refuse permission, you may show some kind of disturbed behaviour such as anger and shouting. Frustration often leads to aggression directed towards to source of frustration.

Generally there are three main sources of frustration. These are as follows:

- (i) **Environmental Forces:** The environmental factors can frustrate the satisfaction of motives. The obstacle may be physical such as lack of money or a road block. They may be social. For instance, yours parents, teachers or classmates may prevent you from doing something what you want to do.
- (ii) **Personal Factors or Limitations:** They make goals unattainable and produce frustration. The personal inadequacy may be either physical or psychological. The personal characteristics of individual like personality or intelligence affect performance. The limitations of ability frustrate individuals because they do not let him or her to achieve very high goals. At times we have conflicting goals which create frustration.
- (iii) **Conflict :** A conflict is a situation in which an individual is required to act in two or more incompatible ways to achieve two or more exclusive goals. It occurs when an individual is unable to choose between two or more goals.

We all confront some degree of conflict in every stage of our life. We sometimes face a situation where we are supposed to choose between two or more alternatives. For example, we may have to decide whether to buy a book or go to a movie. On the one hand, you may like to play and get company of your friend, and on the other, if you study for the examination you may be successful in the exams. The motive to play and get the company of the friend is thus in conflict with the motive to be successful in examination.



Notes

Types of Conflicts: There are three kinds of conflict which are called “approach-approach conflict”, “avoidance – avoidance conflict” and “approach – avoidance conflict”.

An **approach-approach conflict** is a situation when one has to choose between two positive and equally attractive goals. It is caused when we have two pleasurable goals within our reach. We have to choose one out of these two. The example of this kind of conflict may be found in a situation when you are offered admission to two equally attractive courses of study for higher education and you have to decide between them.

The second type of conflict is **avoidance- avoidance conflict**. It occurs when we have to decide between two equally undesirable and negative goals. For example, such a conflict may arise when you have to choose between goals that are equally disliked by you.

In **approach-avoidance conflict**, we are both attracted and repelled by the same goal. It arises when there are both desirable and undesirable feelings associated with a single goal. For example, you want to marry a girl to whom you love because your parents are not agreeable. You cannot marry her as you do not hurt your parents as well. This kind of conflict is most difficult to resolve and brings emotional discomfort.



WHAT YOU HAVE LEARNT

- Motivation refers to the driving and pulling forces which result in persistent behaviour directed towards a goal. The primary needs such as hunger, thirst and sex, have their origin in the physiological state of the body. Hunger may be, initiated when blood sugar level falls below certain point. A decrease in the volume of blood due to water loss causes to thirst. Sexual motivation depends on sex hormones.
- Socio-psychogenic motives such as need for power, affiliation, achievement and approval are learnt motives and involve other people. The need for achievement is a motive to accomplish things and to be successful in performing tasks. Power motivation is a social motivation in which the goal is to influence, control, persuade, lead, charm others and enhance one’s own reputation in the eyes of others.
- Intrinsic motives are those activities for which there is no apparent reward but one gets enjoyment and satisfaction in doing these activities. Competence is an intrinsic motivation. Self efficacy, life goals, and values held by people also

work as sources of motivation. Motivation are often blocked or frustrated. The major sources of this frustration are environmental factors, personal factors and conflict. Three types of conflicts are a) approach-approach conflict b) avoidance – avoidance conflict and c) approach – avoidance conflict.

**TERMINAL EXERCISE**

- 1) Briefly explain the nature of motivation.
- 2) Explain the basic concepts of motivation.
- 3) What do you understand by primary needs? How are these different from socio-psychogenic needs?
- 4) What is self efficacy? Show its relationship with behaviour.
- 5) Define values and describe some important values.
- 6) What are the sources of frustration? Name the three kinds of conflict of motives.

**ANSWER TO INTEXT QUESTIONS****9.1**

1. a) Action
b) motivation
c) not
d) behaviour
2. Motivation is the process of activating, maintaining and directing behaviour towards a particular goal.

9.2

- a) lack deficit b) cognitive, and c) objects

9.3

- 1) Maslow . The hierarchy is:
 - (i) Physiological needs
 - (ii) Safety needs

**Notes**

**Notes**

- (iii) Love and belongingness needs
 - (iv) Esteem needs
 - (v) Self actualization
 - (vi) Self transcendence
- 2) Intrinsic motivation is when motivation arises from satisfaction due to own behaviour.
 - 3) Extrinsic motivation is when motivation arises because of external rewards.

HINTS TO TERMINAL EXERCISE

1. Refer to section 9.1
2. Refer to section 9.2
3. Refer to section 9.7
4. Refer to section 9.8
5. Refer to section 9.9

**Notes****10****EMOTIONS**

When we meet our friend after a long time we feel happy; when a baby clings to her mother she displays love, when we are praised by our parents or teachers we feel proud of ourselves. Similarly joy and sorrow, excitement and disappointment, love and fear and many more emotions are experienced by us in our daily lives. In this lesson you will study what is an emotion, how these emotions are expressed and how emotions direct our behaviour.

**OBJECTIVES**

After studying this lesson, you will be able to:

- describe what is an emotion;
- describe the relationship of emotion with cognition and motivation;
- describe the physiology of emotional experience; and
- describe various expressions of emotions.

10.1 NATURE OF EMOTION

The term 'emotion' is derived from the Latin word 'emovere' which means to stir up, agitate, excite or move. Emotions are generally referred to as a stirred up condition involving subjective experience and affective reactions. They may be pleasant or unpleasant. Pleasant emotions are the sources of joy whereas unpleasant emotions are related to disturbing mental states like aggression, fear, anxiety etc. Each emotion has three basic aspects.



Notes

- (i) **Cognitive aspect:** It involves thoughts, beliefs and expectations that are involved when we experience emotions. For example – your friend may find a novel rich in descriptions of people and places whereas you may find it unrealistic.
- (ii) **Physiological aspect:** It involves physiological activation. When you experience emotions such as fear or anger, you experience an increase in pulse rate, blood pressure and respiration. You may also perspire.
- (iii) **Behavioural aspect:** It includes various forms of emotional expressions. If you observe your father or mother during anger and happiness you will notice that facial expressions, bodily postures and tone of voice vary with anger, joy and other emotions.

List what you do when you are

Happy	Sad	Afraid
_____	_____	_____
_____	_____	_____
_____	_____	_____

10.2 THEORIES OF EMOTION

Psychologists have tried to explain the phenomenon of emotion in different ways. William James and Carl Lange stated that physiological changes give rise to emotional experience. According to them first you cry then you feel sad, first you run then you feel afraid. This sequence is presented in Figure 10.1.

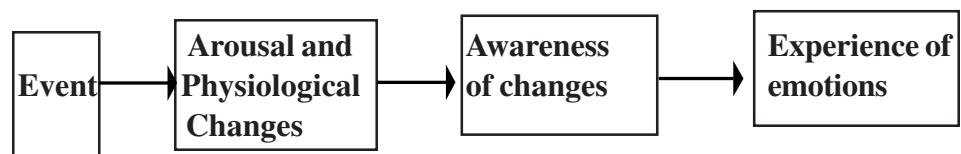


Fig. 10.1: James-Lange theory of emotion

Cannon and Bard said that when we face an event we feel physiological changes and perception of emotion together.

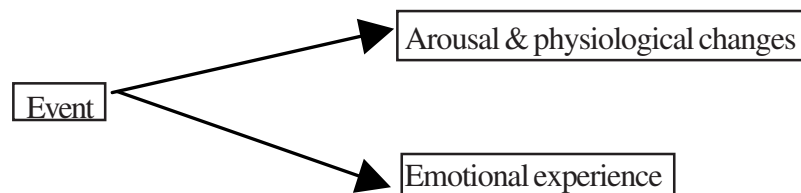


Fig. 10.2: Cannon-Bard Theory of Emotion experience



Notes

S. Schachter and J.E. Singer suggested that cognitive processes play a major role in the experience of emotion. According to them if you are aroused by an outside stimulus you will notice the arousal and look toward the environment to find out why the arousal has occurred. After that you will label which emotion you are experiencing. Like a man startled by a dog shall label his state as fear whereas a student excited by success in the examination labels his state as happiness.

When we are excited by an event or stimulus, it provides the basis for an emotional experience. This excitement is shaped into a specific emotion by an attribution process. Suppose your heart starts beating rapidly and fingers tremble. Is it fear, anger or joy or a touch of flu? If you have been insulted by your friend you will interpret these reactions as 'anger'. You will experience fear if you suddenly face a snake and start running very fast but when you are in a race you will attribute these feelings to excitement and will be motivated to run faster in order to win. Thus it is seen that in each case your body will be in an excited state and depending on the situation and attribution of causes the different emotions are experienced.

10.3 DIMENSIONS AND DEVELOPMENT OF EMOTIONS

Recent studies across different cultures have shown that emotions can be placed along two dimensions i.e., *Arousal* and *Valence*. Thus one can have high or low degree of arousal and positive or negative (e.g. pleasant vs. unpleasant) emotional experience.

Although the general ability to respond emotionally is present at birth, emotional development is due to maturation and learning. Infants show emotional responses like crying, smiling etc. With the growth of imagination and understanding a child is able to differentiate family members from strangers and the fear of strangers develops.

Children learn to express their emotions by imitating their parents, siblings and other family members. For example the expressions of anger and happiness are frequently observed in social interactions and a child starts expressing them. The role of learning in emotional development becomes clear if we notice emotional expressions peculiar to some cultures. For example in Indian culture, fathers don't show their affection openly to children because it's not welcomed in society whereas there are no such inhibitions in Western culture. Learning is responsible for conditioning of fear of darkness, lightning, certain animals or objects.



Notes

Activity

Ask your friend to observe you and then stick your tongue out towards him. How will your friend interpret it? Then you clap your hands and ask for his interpretation. Do you know that your friend's interpretation of these acts may be completely different from that of a Chinese. Chinese people clap their hands when they are worried but for us clapping is a sign of happiness. They stick out their tongue to show surprise but you may interpret it as teasing.

Certain Important Features of Emotions

- (i) You will experience an emotion when any of your basic needs are not satisfied or challenged. You also experience positive emotion on satisfaction of a need.
- (ii) Under the influence of an emotion you experience physiological changes such as facial expressions, gestures, change in the rhythm of the heartbeat, blood pressure, and breathing pattern.
- (iii) Your thinking, reasoning, memory and other psychological functions are affected by emotions.
- (iii) During an emotional state tremendous amount of energy is released which helps facing critical situations. For example if a dog runs after you, you run at a much higher speed than the normal speed.
- (iv) Both maturation and learning play an important role in development and expression of emotions.
- (v) When you have pleasant emotional experiences you will be in a happy, good or positive mood. In contrast, unpleasant emotional experiences would lead to sad or negative moods.
- (vi) The experience of emotion can first increase your performance to some extent but if heightened and prolonged it will decrease the level of performance.

10.4 RELATIONSHIP BETWEEN MOTIVATION AND EMOTION

You must have realized in the course of the preceding discussion that emotion and motivation are closely related. Motivation is present along with emotion in every day experience in our life. When you are afraid of a mad dog running after you, you cry for help. In this situation fear is an emotion which leads to goal directed behaviour (running) and therefore acts as a motive. The emotion of fear is also a



Notes

result of the need for safety. The dog threatens your safety and you become afraid and run. Thus motive leads to emotion and emotion further motivates to act consistent with the original motivation.

You are motivated to do things which give pleasant emotional experiences and avoid doing things which make you unhappy or sad. Emotions provide energy for motives. The stronger the emotion, the greater will be the level of motivation. The more you get angry the more you fight.



INTEXT QUESTIONS 10.1

1. Fill in the blanks with appropriate words:
 - (i) Emotion is _____ state of an individual.
 - (ii) The term emotion is derived from the Latin word _____.
 - (iii) _____, _____ and _____ are basic components of each emotion.
 - (iv) Emotions provide _____ for motives.
 - (v) _____ and _____ highlighted the importance of cognitive process in emotional experiences.
2. Mark the following statements as True and False
 - (a) Maturation and learning play an important role in the development of emotions.
 - (b) Emotions have no effect on our thinking and reasoning.
 - (c) Pleasant emotional experiences lead to good mood.
 - (d) Cannon and Bard stated that physiological changes and perception of emotion occur together.

10.5 EMOTION AND PHYSIOLOGY

During emotional experience a number of physiological systems are involved. The physiological activity is controlled largely by the autonomic nervous system's sympathetic (arousing) and parasympathetic (calming) divisions. You may refer to the lesson on biological basis of behaviour (Lesson 3) for details of the involvement of these systems.



Notes

Physiological changes that take place during emotional state are produced by the activities of all the internal organs and nervous system. However, the organs which are closely related with emotional experiences are hypothalamus, autonomic nervous system, and adrenal gland. Let us study more about them:

- (i) **Adrenal Glands :** These glands are located near the kidneys. They secrete a hormone called adrenalin. The various physiological changes that occur under emotional arousal are produced by the secretion of *adrenalin*. They include dialation of air passage of lungs, increase in heart beat and blood pressure and slowing down of digestive process. These glands play a significant role in preparing the organism for emergency reactions, when we are charged with emotions. These are stimulated by hypothalamus through sympathetic nervous system to release greater amount of adrenalin.
- (ii) **Autonomic Nervous System:** It consists of many nerves leading from the brain and spinal cord to various organs of the body. The Autonomic Nervous System has two parts as given below.

Sympathetic System: This system is active during aroused states and prepares the body for mobilisation of actions needed in various situations. It brings about the dilation of the pupil, increased sweating and heartbeat, dryness of mouth etc.

Parasympathetic System: This system is active when we are calm and relaxed. Activation of this system decreases the heart rate and blood pressure and increases digestive activity. All the changes caused by sympathetic system during emotional arousal are brought back to a normal state of functioning of this system.

- (iii) **Hypothalamus:** The physiological expressions during emotion are activated by hypothalamus. It sends impulses to muscles and glands. The individual whose hypothalamus is injured becomes incapable of experiencing any emotion.

Arousal: When we are emotional we often feel excited. This excited state is an aroused state. The degree of arousal is measured by heart rate, blood pressure, breathing pattern, pupil size and skin conductance.

A little arousal is good because it keeps us working and alert. When we become highly aroused (as in anger or fear) our performance decreases. Similarly very low level of arousal leads to poor level of performance.



INTEXT QUESTIONS 10.2

(1) Fill in the blanks with suitable words:

- i) The two parts of autonomic nervous system are _____ and _____.



Notes

ii) When we are _____ sympathetic system is active.

iii) A little arousal _____ the performance.

(2) What is an arousal? How can it be measured?

Activity

Try to agitate your friend by opposing his/her ideas and rejecting the suggestions. When s/he becomes angry observe closely. Do you notice any change in the facial expressions, voice, colour of the face?

Now you try to make him/her feel happy and again observe the change in expressions and voice etc. Was there a difference in these two situations?

Organism Functioning During Emotional Arousal

Physical Changes

Facial expressions change during emotional experience. When we are angry our face becomes reddish, nostrils and jaws stiffen, and our voice becomes loud high-pitched and hoarse. When we are afraid our eyelids are widely open and face turns pale, and knees may tremble.

Physiological Changes

When we experience an emotion there are changes in internal activities too. Increase in heartbeat and blood pressure occurs and some times slight stomach ache is also felt. When we are angry or afraid our digestive activity stops, our mouth becomes dry and pupils of the eye enlarge. Sweat glands become active. The conductivity of our skin to electrical current increases.

Psychological Changes

Under strong emotions such as anger or fear, our thinking and memory get affected adversely. We face difficulty in learning and concentration becomes poor. Our perception gets distorted and memory gets inhibited.



Notes

It may, however, be noted that all these changes (physical, physiological and psychological) differ from individual to individual.

10.6 EXPRESSION OF EMOTIONS

We reveal our felt emotions not only in bodily responses but also in expressive behaviours. Look at the faces give below. Try to identify the emotions displayed by these facial expressions.



Fig. 10.3: Facial expression showing irritated, happy and angry emotional states

Facial expressions are important for the communication that takes place non verbally. For instance we can communicate intimacy, submission and dominance by a gaze or an averted glance, or a stare. We are quite good at reading nonverbal cues to decipher various emotions. Some of us are more sensitive than others to such non-verbal cues.

The gestures are found to differ across cultures. However, researchers have shown certain universal facial language for basic emotions. In collectivist cultures like India where inter-dependence is valued, intense display of negative emotions is infrequent. The expressions made by people not only communicate but also intensify the felt emotion. They signal the body to respond accordingly. In this way emotions arise from an interplay of cognition, physiology and bodily expressions.



Notes

In India the expressions of emotions have been studied systematically by Sage Bharata some time during fifth century. In Natyashastra he has described eight major emotions which could be effectively translated into 'rasa' which means aesthetic relish. Some of them are depicted in the figure given at the end of this lesson. The figure shows various 'rasas' through facial expressions during Bharatnatyam Dance. Try to identify the 'rasa' and corresponding emotion portrayed by the dancer in those figures.

The key forms of emotional expression include the following:

- (i) **Startle Response:** Walk quietly upto your friend when he or she is deep in thought and yell "Boo!" You will notice rapid closing of eyes and widening of the mouth. The chin tilts up and the arms and legs are bent. This response is an inborn response.
- (ii) **Facial Expressions:** Each emotion has its characteristic facial expression. The eye, nose lips and forehead twist and twitch and take different shapes. The facial expressions show three dimensions of emotional expression.

Pleasantness-unpleasantness: The facial expressions represent feeling of pleasantness (e.g. smile and laughter) or unpleasantness (a sad look).

Attention-Rejection: Attention is expressed by wide open eyes and an open mouth. Rejection shows contraction of eyes, lips and nostrils.

Sleep-Tension: It refers to the level of relaxation and tenseness or excitement as found when you sleep and when you are angry and anxious.

- (iii) **Vocal Expressions :** People express emotions with the help of voice also. You must have noticed that your voice trembles and breaks when you are sad, you groan when you are in pain, your voice is loud and high pitched in anger.
- (iv) **Gestures and Postures :** The gestures and postures that you display during joy differ from those that happen during sorrow. In sorrow you slump your face down. In joy you hold your head high and take an upright posture. In fear you either run or are rooted to the spot. We learn gestures and postures from the people around us. Therefore societies may have different ways of expressing emotions.



INTEXT QUESTIONS 10.3

- (1) What are the important changes that occur in an emotional state?



(2) Fill in the blanks with appropriate words:

- (i) During sadness one's voice _____ and _____.
- (ii) Under strong emotions thinking and reasoning get affected _____.

(3) State whether the following are True or False

- (i) We learn gestures from our society and culture. True/False
- (ii) When you are sad your voice will become loud. True/False
- (iii) We learn gestures and postures from our society. True/False

10.7 MAJOR EMOTIONS

We develop a number of emotions while dealing with different persons and objects in the environment. They can be negative emotions like fear and anxiety or positive emotions like pleasure and love. Let us study these emotions in some detail.

- (i) **Fear :** Fear is caused by situations which are perceived as physically threatening. The situations that produce fear change with age. During early childhood we are afraid of strange objects and persons, loss of support, darkness and devils etc. During adolescence fears are mostly social in nature (e.g. fear of authority, parental criticism, peer rejection, fear of failure).

Maturation and personal experiences contribute to the development of fear. Children learn emotional reactions by imitating their parents, and other family members. That is why a one or two year old child would have no fear of snakes, whereas older children feel quite afraid. Fear can also be developed through conditioning. That is why each person's fear will be somewhat different from that of others. For example if during childhood somebody was lost in crowd he or she may develop a fear of crowd. You must have noticed other similar types of fear among your friends such as fear of lizards, darkness etc. When such fears become very strong, they are called phobias. They are unfounded fears. Usually people try to escape fearful situations by running away from them.

- (ii) **Anxiety:** Anxiety is a state of painful discomfort of mind. During anxiety a vague fear or apprehension occurs. You may feel anxious if you don't know the exact cause. The difference between fear and anxiety often refers to the



Notes

involvement of present situation. You can recognise the cause of fear in your present circumstances whereas anxiety may arise due to an anticipated or imaginary situation.

You will become anxious when you anticipate any harmful or threatening event. The sense of anxiety can be an unconscious memory of fear arousing stimulus. We may forget the particular unpleasant situation in which we learned a fear. When we face similar situation we feel anxious without knowing why do we feel so. High level of anxiety is destructive for our performance and health. In extreme cases anxiety may take the form of a mental disorder.

- (iii) **Pleasure:** Pleasure or happiness is a positive emotion which gives satisfaction to the person who experiences it. Pleasure is the reaction to the satisfaction of a need or attainment of a goal. When we are happy we smile and laugh and there is a clear expression of satisfaction on our faces. An infant expresses pleasure by babbling. They learn to express happiness in socially approved ways. People derive pleasure from different sources during different stages of life. The babies derive pleasure from physical well being, tickling etc. whereas adults experience pleasure by the experiences like being successful in different situations. Children whose home, school, and neighbourhood environments are pleasant have more happy experiences than those who must live, work and play in unpleasant environments.
- (iv) **Affection:** It is a pleasant emotional reaction directed towards a person, an animal or an object. It is built up as a result of pleasant experience. The most primitive basis of affection is associated with warmth of mother's body, and being fondled and cuddled. Learning plays an important role in determining the persons or objects to which child's affection becomes attached. Children indiscriminately show affection towards members of the family, pets and toys. As adolescence approaches, affection is diverted more towards people than pets. Affectionate responses are shown in an outgoing striving and approach behaviours. Affection is expressed by patting, hugging, verbal expression, protecting and helping the loved one.



INTEXT QUESTIONS 10.4

Fill in the blanks with suitable words:

- (i) The situation which produces fear changes with _____.
- (ii) Fear is _____ emotion whereas love is _____ emotion.



(iii) Anxiety arises due to _____ or _____ situation.

(iv) Cause of anxiety could be _____ memory of a fear arousing stimulus.

Emotional competence

In recent years the gap between cognition or rationality and emotions is being bridged. It is considered that emotional competence, emotional maturity and emotional intelligence are important for the growth of a person. Thus one needs to understand one's own and other's emotions and learn to express, control and manage emotions in social situations. Promotion of emotional competence has been found central to the overall competence of a person. In recent years researchers have taken interest in improving emotional intelligence.



WHAT YOU HAVE LEARNT

- Emotion is a stirred up state which directs human behaviour in important ways. Motivation and emotion are closely related. The autonomic nervous system and hypothalamus play an important role in experience and expression of emotions.
- There are subjective, physiological and psychological changes which accompany emotional states for example changes in heartbeat, breathing pattern etc.
- There are several theories to explain the phenomenon of emotion. The James-Lange theory suggested that emotion is the recognition of changes in some bodily states. The Cannon-Bard Theory suggests that a stimulus event gives rise to both physiological changes and perception of emotions. These events occur close in time. The Schacter-Singer theory proposes that a person is aroused by an external stimulus, evaluates the arousal state with respect to the environment and labels the emotion.
- The undifferentiated arousal is shaped into specific emotions by the attribution process. This then motivates people to act according to different emotions.
- The expressions of emotions can be understood by observing an individual's facial and vocal expressions, gestures and postures.
- Fear and anxiety are two important negative emotional patterns. Fear arises from a present situation, whereas anxiety comes from an imaginary situation. An intense persistent fear can lead to phobia. Anxiety, when low, can be good but when high can be destructive.

- Pleasure and affection are examples of positive emotions. Pleasure is a reaction to the satisfaction of a motive and is expressed by smiling and laughing. Affection is an emotional reaction of pleasant experiences directed towards a person, an animal or an object. It is expressed by taking care of the loved one, patting, hugging, protecting and verbal admiration.
- In order to live and grow in an effective manner, development of emotional competence is necessary. One must understand one's own and other's emotions and regulate them properly.

**TERMINAL EXERCISE**

- What is emotion? Give examples of positive and negative emotions?
- Briefly describe general characteristics of an emotion?
- Explain how emotion is related to motivation.
- Discuss the role of physiological processes in emotional behaviours.
- Describe facial and vocal expressions of emotion.
- What is emotional competence?

**ANSWER TO INTEXT QUESTIONS****10.1**

- Stirred up
 - emovere
 - cognitive, physiological and behavioural
 - pleasant
 - energy
- True
 - false
 - true
 - true

10.2

- sympathetic system, parasympathetic system
 - excited
 - increases
- The feeling of excitement in an emotional state is known as arousal. It can be measured through one's heart beat, blood pressure, breathing, pupil size and skin conductance.

**Notes**

**Notes****10.3**

- (1) The changes that occur in an emotional state are physical, physiological and psychological.
- (2) (i) trembles, breaks (ii) adversely
- (3) (i) True (ii) False (iii) True

10.4

- (i) age (ii) negative and positive
- (iii) imaginary or anticipated (iv) unconscious

HINTS TO TERMINAL EXERCISE

1. Refer to section 10.1
2. Refer to section 10.3
3. Refer to section 10.4
4. Refer to section 10.5
5. Refer to section 10.6
6. Refer to section 10.7



Notes

11**DEVELOPMENT: ITS NATURE**

*H*ave you ever thought why a child behaves in a different way as compared to an adult or why there is a difference in their physical appearance? We are usually not aware of the fact that we are constantly changing. Some noticeable changes take place when an infant slowly grows into a child and then gradually into an adult. But some changes like intensity in the expression of emotions, or the ability to think and reason better, formation of personal values or the capacity to do work independently, although not seen clearly, do bring about a change in the maturity level and competence of a person. This process of bringing about a series of orderly changes, leading towards maturity, is known as development. This lesson will help you to understand and answer many questions related to development.

**OBJECTIVES**

After studying this lesson, you will be able to:

- understand the concept and processes of development;
- identify and explain the principles of development and;
- gain an understanding of the main approaches to study development;
- differentiate between growth and development.

11.1 NATURE OF DEVELOPMENT

The two major aspects of development i.e. the meaning and processes of development are explained in this portion.

**Notes**

11.1.1 What is meant by development?

In simple words, development is a process by which an individual grows and changes throughout its life span. This change may be defined as: a progressive series of changes which are orderly and coherent and which lead towards the goal of maturity.

The term “progressive” signifies that the changes are directional, leading forward, and not backward.

The terms “orderly” and “coherent” suggest that there is a definite relationship between different stages in the developmental sequence. Each change is dependent upon what preceded it, and it, in turn, will determine what will come after.

Development can therefore be summed up as:

1. Consisting of progressive, coherent and orderly changes;
2. Changes which have a definite direction and leading forward;
3. Changes which are not haphazard but where there exists a definite relationship between what exists and what will come after (next stage).

It should be clear that the development results in new characteristics, and new abilities in an individual. There is a shift from lower stages of functioning to higher levels.

All changes which appear as a result of development, are not of the same kind. For example, changes in size (physical growth), changes in proportion (baby to adult), changes in features (disappearance of baby teeth) and acquiring new features are of different types. Such changes which are clearly definable or which can be identified specifically show growth. It is necessary here to differentiate between the terms growth and ‘development’. They are often used interchangeably, however, they are highly interrelated and there is a difference between them too. Growth refers to clearly measurable or specific change which is quantitative in nature such as “growing tall”, a girl’s hair becoming long and beautiful; and an old man growing a beard etc.

Development, on the other hand, refers to qualitative changes unfolding or increase in capacity. It is not as obvious as growth. Examples of development include remarks such as, “she has become a fine young woman”, “he has developed his talent in music very well”, “My father enjoys doing social work now because he has retired,” etc. All these illustrate changes in personality interests and abilities. Development thus is a broader term and includes ‘growth’ as one of its aspects.



Notes

11.2 HOW DEVELOPMENT OCCURS?

Development occurs through two main processes:

- i) maturation, **and**
- ii) learning.

- (1) Maturation refers to the unfolding or gradual opening-up of traits or potentials present in an individual because of genetic inheritance. It is the net result of what one possesses genetically.
- (2) Learning takes place as a result of a child's interaction with the environment which then brings about a change in his behaviour.

For example, when a baby begins to teeth or starts walking it is because of maturation. But, when a child acquires the skill of performing specific dance or singing a particular song, it is an act of learning.

Both maturation and learning occur side by side, each one influencing the other. Infact, environmental learning often promotes maturation. For example, the development of cognitive abilities in a person is dependent on the experience and opportunities provided by the environment as well as maturation.

It may be concluded that maturation provides the raw material for learning, i.e. no amount of effort on the part of the individual can bring desired results if the inherited trait has limited potentialities for development. Thus all persons cannot become international athletes by effort alone, unless the genes in the person contain the potential for outstanding physical abilities.

The main points may be summed up as:

- Maturation and learning are two processes through which development occurs.
- Maturation occurs due to the genetic raw material which an individual has.
- Learning or interactions with the environment in the form of doing various activities result in change in behaviour.
- Maturation and learning are complementary processes.

11.3 GROWTH CURVE

You have already learnt in the earlier section that 'growth' is measurable and can be represented quantitatively. Let us see what the pattern of growth is in the course of the human life span, that is, let us try to answer questions like:



Notes

- i) are there any stages of rapid growth?
- ii) when does maximum growth occur?
- iii) does the pattern of growth changes from stage to stage?

The growth curve helps us to answer all these questions. It basically shows the relationship between the percentage of growth and age in years.

The following diagram (Figure 11.1) will make the idea more clear.

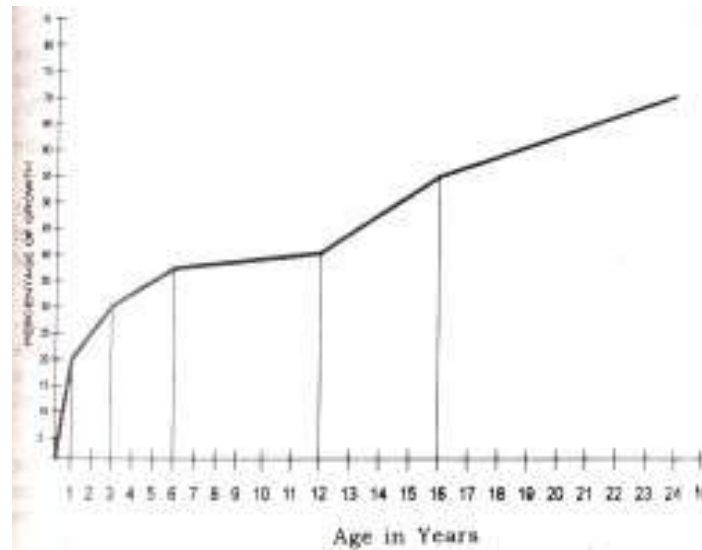


Fig. 11.1: Growth Curve

In this diagram, age in years is shown on the X axis and percentage of growth on the Y axis. The slope of the curve indicates the nature and level of growth.

It is clear from this diagram that growth is very rapid in the first three years and in the first year it is more rapid. Thereafter, from 5 years to approximately 12 years, the pace of growth slows down. This is called the plateau stage in which the child is probably assimilating and making sense of the growth experiences in the earlier years.

The period following this from 12 to 18 is once again a growth spurt stage in which rapid growth takes place. This is the stage of adolescence and all through continues to take place, but the pace is slow. The growth curve is also important in that it indicates that growth is a continuous process with no breaks or discontinuities and that there are no sudden changes. Secondly, it also shows that growth is an ongoing process throughout life.

From the growth curve you have thus identified the following descriptions of the different development stages:

**Notes**

Stage	Age	Rate of growth
Infancy	Birth to 1 year	Very rapid
Early Childhood	1-3 year	Rapid
Middle Childhood	3-5 year	Somewhat rapid
Late Childhood	5-12 year	Plateau Stage
Adolescence	12-18 year	Very rapid
Adulthood	18 and above	(growth spurt stage gradual increase in growth)

Infancy, Early Childhood and Adolescence are the three stages of maximum growth. This is evident from the nature of skills acquired during these stages.

In infancy and early childhood there is considerable psycho-motor development, language acquisition, and improvement in cognitive skills.

During adolescence, there are rapid body changes, the sex drive begins to operate, cognitive and social skills improve and there is gradual increase of all human capacities.

To sum up, it may be said that the growth curve helps us to understand and anticipate the changes which are likely to take place at different stages of development. We can thus adjust and adapt better to them.

**INTEXT QUESTIONS 11.1**

1. Write True/False against each statement:
 - (i) Maturation and learning are two separate processes and have no connection with each other.
 - (ii) Genes decide the upper-limit of attaining development.
 - (iii) All changes which occur as a result of development are of the same kind.
 - (iv) According to the growth curve, growth is an ongoing process.
 - (v) The two period of maximum growth are early childhood and adolescence.
 - (vi) Growth stops during the adult years.
2. Why is the growth curve important? Give two reasons



Notes

11.4 PRINCIPLES OF DEVELOPMENT

Although all individuals grow and develop in their own unique way and in their own contexts, there are some basic principles which underlie the process of development and can be observed in all human beings. These are called the principles of development. Let us now illustrate them.

1. Development follows a pattern

In human beings, development takes place in an organised, orderly and patterned fashion. Every species has a specific pattern which all its members follow. The sequence of development is also the same. For example, all babies learn to turn over, crawl, stand, and then walk. They may skip a particular stage, but the order or pattern will remain the same.

While studying grammar, nouns are always learnt before verbs. In some children they may be learnt simultaneously but verbs cannot be learnt without knowing nouns. Further development, at each stage is a result of the one which precedes it and the one which follows it. For example, a child first learns to stand, then walk and has baby teeth before permanent teeth appear.

Whether it is physical, behavioral or speech related aspect, development takes place in an orderly manner. For example, early development proceeds cephalocaudally, i.e. from the cephalic or head region to the caudal or tail region. A second principle is that growth proceeds from the centre axis of the body to the extremities or more distal regions. The general pattern is not altered by the speed or development; all children pass through the same fundamental forms at approximately the same time.

2. Development proceeds from general to specific (global to analytical)

The child's responses in all phases of development, whether motor or mental, are first of a general sort before they become specific or differentiated. For example, the new born first moves his whole body at one time then learns to move a specific part of it. Thus if a toy is kept near an infant he will use his entire body to move close to it, and catch it. An older child will merely stretch out his hand knowing that this specific movement will serve the purpose.

In speech the child takes out sounds called babbles first, before saying words. Similarly, all playthings are "toys" before specific names are learnt and a vocabulary is acquired. Observation of children in our daily lives will show that they do simpler things first and the more complex ones later.

**Notes**

3. Development leads to integration

Once the child learns specific or differentiated responses, then, as development continues, she can synthesise or integrate these specific responses to form a whole. For example, the young child learns to speak single, discrete words in the beginning. Later, he can join together these sentences in the form of language. Similarly, a young child may have a specific concept of a car. Later, as she grows, her concept expands as she is able to synthesise new aspects into it.

4. Development is continuous

No development whether physical, mental or speech, occurs suddenly. It takes place at a slow, regular pace. Growth starts from the time of conception of the baby and continues till maturity. Physical and mental traits continue to develop until they reach their maximum level of growth. Growth occurs at a continuous rate and does not take place in “jerks and stops”. It is the continuous nature of development which accounts for one stage of growth and development influencing the next. For example, if a child has not mastered a particular task at a specific age then this will affect his mastery over the developmental task of the next stage. The emotional tensions due to unhealthy environment in early childhood can affect the personality of a child in later years. Similarly, lack of proper nutrition in early childhood can result in physical and psychological damage which can impede development in later years.

5. Individuals differ with respect to the rate of development

Although all development is sequential and orderly, yet the pace at which development takes place may vary from person to person. For example, a 3 year old child may be able to recognise the English alphabets, whereas the another 5 year old may not be able to do so. This does however mean that the 3 year old is exceptionally bright or the 5 year old is backward. It just simply that the rate of acquisition or mastery of a skill may vary from child to child. In order to establish this fact, the concept of a ‘range of development’ has been introduced. The range for learning alphabets, for example, implies that children are expected to learn them anytime between 3 to 5½ years. All children falling within this limit are treated as normal. Differences in the rate of development can be seen in many areas-the acquisition of teeth, age at which the child sits, stands, walks, becomes pubescent, etc.

6. Development occurs at different rates for different parts of the body

Neither the growth of different parts of the body, nor the mental growth takes place at the same rate. The different aspects of physical or mental growth take place at different rates and reach maturity at different times. In some areas, the body growth maybe rapid, while in others relatively slow. Thus, the size of the

**Notes**

organs of the body keep changing from time to time and because of these inequalities in growth the body attains adult proportions.

Do you Know that

Height, weight, and development of different organs gain full maturity at different times. For example, research studies have shown that:

- the brain attains mature size around six to eight years of age;
- the feet, hands and nose reach their maximum development during early adolescence.
- the heart, liver, digestive system etc. grow during adolescence.

All areas of development are initially interrelated. A child whose intellectual development is above average is generally above average in size, sociability and special aptitudes. This shows that there is interrelatedness in the mental, physical, social and emotional development of the child. A shy child will not be able to participate in school activities. A physically handicapped child may have difficulties in making friends. These examples show how one aspect of development influences another.

After adolescence, any one area of development may take precedence over another and develop independently. In the case of scientists, for example, cognitive development takes precedence over other areas. In the case of an athlete physical development will take precedence over the other areas.

7. Development proceeds from ego-centricism to allocentricism

This means that initially a child is very self-centred and does not think of others. His needs and wishes are the only reality he knows. He is not receptive to what even his parents think or feel. For example, a two year old child will throw a tantrum and cry for a bar of chocolate at midnight if he wishes to eat one. He is unable to understand that his demand cannot be fulfilled as the market is closed at this time. As he grows older, however, this ego centricism gives way to allocentricism or being 'others oriented' or considerate to others. A ten year old child having the same desire as the two year old will thus not make this impossible demand since he will wish not to trouble his parents.

8. Development proceeds from heteronomy to autonomy

Heteronomy means dependence on others, while autonomy means self reliance. Young children are dependent on others for their care and welfare, but adolescents are capable of taking care of themselves. This shows the movement from heteronomy to autonomy.

**Notes**

A young child, when hungry, will wait for his mother to give him food. An adolescent, on the other hand, can serve a meal for herself/himself.

9. Development is Predictable

As was discussed in an earlier principle of development, the rate of development is fairly constant for each child. This shows that it is possible to predict the future level of development of the child and to what degree he will exhibit particularly so for height, weight, cognitive ability etc.

11.4.1 How is the knowledge of the principles of development important?

1. It helps us to know what to expect and when to expect it. This provides an accurate picture of the child's capability at a particular age.
2. It gives information on when to stimulate and when not to stimulate growth in the child i.e., provide opportunities or wait for maturation.
3. It helps parents, teachers and others who work with children, to prepare them before hand for the bodily changes. interests and behaviours that are to take place. It tells teachers what to teach, when to teach and how to teach.

The principles of development thus provide the base to understand the different stages of development which an individual grows through. However, the rate and pattern of development can be changed by certain conditions inside and outside the body. Certain factors like nutrition, sex, intelligence, injuries and diseases, race, culture etc. also contribute to these differences.



INTEXT QUESTIONS 11.2

Put a mark (T/F) and check your answer. In case of more than five wrong answers, revise the unit again and recheck.

1. Growth takes place in an erratic or whimsical manner.
2. A child with below average intellectual development has superior health, sociability and physical structures.
3. A child who is above average in one trait will be below average in others, because compensation is the general rule of development.
4. The sequence of development in a child is fairly constant.
5. Traits are age-specific and therefore develop accordingly.
6. Children show specific skills before they develop general ones

**Notes**

7. As children grow, they become more self reliant.
8. The basic difference between children and adults is that while the former are ego centric, the latter are allocentric.
9. The baby can see large objects before he can focus on small ones.
10. Because development is continuous, what happens at one stage carries over and influences the subsequent stages.
11. Every individual normally passes through each major stage of development.

11.5 APPROACHES TO STUDY DEVELOPMENT

After discussing the nature of development and the underlying principles, we will now examine some approaches which are employed by researchers to study the development of human beings. The two main approaches to the study of human development are discussed alongwith their limitations and strengths. These approaches may use a variety of tools like interview schedules, questionnaires, rating scales, anecdotal records, bio-graphic records, etc. The two main approaches to studying development are:-

- 1) Cross-sectional Approach.
- 2) Longitudinal Approach.

1) Cross-Sectional Approach

It implies studying several representative children of different ages at the same point of time. There is usually only one observation for each child and developmental changes are identified by including children of different ages in the study. For example, changes in intellectual ability may be investigated by comparing the performance of representative samples of one year, two-year, three-year olds, and so on. The advantages of this approach are:

- * It prevents the loss of sample strength which occurs in studies of long duration.
- * It is cost-effective, saves time and facilitates record keeping.
- * It is practicable

However certain disadvantages too accompany this approach. They are as follows:

- * The totality and the individuality of the person is lost.
- * There is a loss of developmental continuity in studying the persons in the sample.

**Notes**

2) Longitudinal Approach

It is a length-wise study of development, as the name suggests, in contrast to the earlier approach. This approach emphasizes on the study of the same person over a period of time noting the stability and changes taking place during that time span. Thus if a set of new born babies constitute the sample, they are seen through infancy, early childhood, late childhood, etc. To understand the process of development, several methods are used. Case-Study is an example of one such method used for the study of behaviour over a long period of time. Piaget's study of eye-hand coordination on his daughter is one famous example of the longitudinal approach.

In spite of the longitudinal approach being the best way to actually "see" how growth occurs, it has some disadvantages. These are:

- * Difficulties are encountered in keeping contact with a large sample over a long period of time.
- * It is time consuming and expensive.
- * Repeated testing makes the subjects test-wise which affects the scores.



INTEXT QUESTIONS 11.3

Read the problems given and mention the approach suitable for their study:

1. Will characteristics observed in infancy like aggression, and mistrust persist till childhood?
2. Do children at different ages show the same emotional response to viewing films on ghosts?
3. Do children of 5 years of age belonging to different cultures show the same intellectual ability?
4. At what age children should be observed to examine the pattern of eye-hand coordination.
5. Studying the effect of early parental deprivation on adjustment during pre-adolescence.
6. Study of children's social response from birth to five years of age

**Notes****WHAT YOU HAVE LEARNT**

- Development consists of progressive, coherent and orderly changes. The changes have a definite direction and lead forward. Changes which occur are not haphazard in nature.
- Development occurs through two main processes maturation and learning.
- The growth curve helps us to find changes in the course of development, the period of maximum growth, and change in the pattern of growth.
- The principles of development are:
 - it follows a pattern
 - proceeds from general to specific
 - development is continuous
- individuals differ with respect to the rate of development
- development leads to integration
- development occurs at different rates for different persons
- The approaches to the study of development are:
 - (i) cross sectional
 - (ii) longitudinal

**TERMINAL EXERCISE**

1. Explain the term development.
2. What are the two main processes which bring about development?
3. State briefly the main principles of development. Give examples to illustrate any three of them.
4. How does knowledge of the principles of development help?
5. Differentiate between the following:
 - (i) Maturation and Learning.
 - (ii) Longitudinal and Cross-sectional approach.
 - (iii) Ego centricism and allocentricism.
 - (iv) Heteronomy and autonomy



ANSWER TO INTEXT QUESTIONS

11.1

- (i) False (ii) True (iii) False (iv) True
(v) True (vi) False

11.2

1. False 2. False 3. False 4. True
5. True 6. False 7. True 8. True
9. True 10. True 11. True

11.3

1. Long 2. Cross 3. Cross 4. Cross
5. Long 6. Long

HINTS TO TERMINAL EXERCISE

1. Refer section 11.1.1
2. Refer section 11.1
3. Refer section 11.4
4. Refer section 11.4.1
5. i) Refer section 11.2
ii) Refer section 11.5
iii) Refer section 11.4. (5)
iv) Refer section 11.4 (7)



Notes



Notes

12

DOMAINS OF DEVELOPMENT

Whenever we see a child we often go back to our own childhood.

Can you remember the days and activities you did when you were a child?

Can you recall what all you did?

We all must have been playing and running a lot, whereas, now as grown ups, we mature in our activities and also behave in a different manner. In the family we can see that our parents behave differently because they are more mature than us. This is because we are in different periods of life which are called stages. Human life proceeds through different stages. In this lesson you will study and learn about development as it takes place in the various stages of human life.



OBJECTIVES

After studying this lesson, you will be able to:

- describe what is a developmental task;
- identify the development stages in the human life span;
- list the main characteristics of development at each stage;
- list the developmental tasks representing the different stages.
- explain the difference between boys and girls after attaining puberty.
- explain the critique of Freud's theory of psycho-sexual development.

12.1 DEVELOPMENTAL TASKS

Human life proceeds by stages. For example, childhood is a stage. After growing

**Notes**

up to some degree the child proceeds to the adolescent stage. Each stage is characterized by a dominant feature, a leading characteristic which gives the period its uniqueness. For example, a child is expected to go to school and study and an adult is expected to work and support family. Certain characteristics stand out more prominently than others in these periods and each period is called a stage. People learn certain behaviour patterns and certain skills more easily and successfully at certain stages and this becomes the social expectation. For example, a father is supposed to run the family and a child to study and go to school. Such social expectations of a particular age common to all persons are known as 'developmental tasks'.

Developmental tasks are social expectations of a particular age. Havighurst was the first developmental psychologist to identify the developmental tasks of different age groups. Developmental tasks at different stages are as follows:

Birth to 6 years	Developmental tasks from 6-12 years	Adolescent
1. learns to walk 2. takes solid food 3. talks 4. controls the elimination of body wastes 5. learns differences between genders 6. learns the differences between right and wrong.	1. learns physical skills for simple games 2. learns to get along with friends of his age 3. learns gender roles 4. develops basic skills in reading, writing and calculating 5. develops concepts necessary for everyday living 6. develops independence in daily activities 7. develops morality and a set of values	Developmental tasks of adolescent stage are given in chapter 15.

Try it yourself

Write down the names of the members of your family and identify the different stages they are in.

12.2 STAGES OF DEVELOPMENT

You have read that different periods during development are marked by various stages. All children progress in a definite order through these stages and they all follow similar basic patterns. These stages along with the corresponding ages of

**Notes**

the child have been identified by developmental psychologists as follows.

Stage	Time frame
prenatal	before birth
infancy	0 to 1 year
early childhood	1-3 years
preschool	3-6 years
school childhood	6-12 years
adolescence	12-20 years
young adulthood	20-30 years
adulthood	30-50 years
mature adult	50-65 years
aging adult	65+

1. Prenatal Period (before birth)

Life begins at the time of conception. When the child is in the mother's womb the particular period spent there is known as prenatal period. All important external and internal feelings start to develop at this stage.

2. Infancy (0 to 3 years)

From birth up to the third year of life, the stage is known as infancy. Babies grow very rapidly in size during their first three years. The acquisition of motor skills like holding things, crawling, walking proceeds from simple to complex.

3. Pre-school childhood (3-6 years)

The growth in height is not as rapid during this stage as it is in infancy. Children improve eye, hand and small muscle coordination. For example they can draw a circle, pour fluids into a bowl, button and unbutton clothes, and language development is rapid.

4. School childhood (6-12 years - Primary school years)

School children between the age of 6 to 12 years look much taller and thinner. Children exhibit rapid gains in strength and swiftness. They achieve new motor skills and their competence becomes more pronounced in all areas of development.



Notes

5. Adolescence (12-20 years)

It is the span of year between childhood and adulthood which begins at puberty. This is the period of rapid physiological growth. There are a number of psychological changes which also take place. Children jump rope, bicycle, ride horses, dance and indulge in all possible games. Cognitively they are more agile and social relationships become important. But the hallmark of this stage is the search for identity. A number of psychological changes also take place. Given sex-role-expectations, girls attach greater importance to good interpersonal relationships and the family while boys emphasize the importance of their own social prestige and career.

6. Adulthood (20-65+ years)

For better understanding, adulthood can be divided into three stages. These are:

- (a) Young adulthood (20-50 years)
- (b) Mature adulthood or the Middle years (50-65 years)
- (c) Aging adulthood (65+ years)

Strength and energy characterize this time of life from the middle twenties when most bodily functions are fully developed, until about the age of 50. Thereafter there is gradual decline in energy level. Details of this stage are dealt with separately in chapter 16.

Try it yourself

You have parents and other brothers and sisters at home. Find out their age and classify them according to the ages given above for each stage. List their characteristics. Talk to your parents to find out how they have changed over a period of time. This exercise will enable you to develop an insight into the characteristics which people show at different stages of life.



INTEXT QUESTIONS 12.1

Fill in the blanks with appropriate words:

1. Human life proceeds by
2. Social expectations are known as
3. Childhood is a
4. Rate of growth is most rapid during
5. There is a decline in energy after the age of



Notes

12.3 ASPECTS OR AREAS OF DEVELOPMENT

At each stage, development takes place in various areas or domain simultaneously. Development in the respective areas during different stages is discussed under the following aspects:

Physical : Physical development is about the physique, i.e. height and weight.

Motor : Motor development is about the muscular development and coordination.

Cognitive : Cognitive development is about mental growth and intellectual development.

Language : Language development is about the way children learn language, and the age at which they acquire different components of language.

Personality development: It is about the total development of personality.

Psychosocial : Psychosocial development is about the cultural and societal influences on personality.

Emotional : Emotional development is about different emotions at various stages and how they grow over a period of time.

Moral : It deals with what is right and what is wrong, the age at which this knowledge is acquired and with the rules of punishment and justice. Development of conscience and values also comes under the domain of moral development

Vocational- : It deals with choices about career and how they arise and are pursued in life.

Let us study about some of these:

a) Physical development

Babies grow very rapidly in size during their first three years: Even the proportions of their bodies change markedly. They gain twice as much in height during their first year of life as compared to the second year. Most children grow three times of their birth weight during the first year and then gain only about one-fourth of that during the second year. During the third year, increments in both height and weight are smaller. A baby's brain reaches about two-thirds of its adult size during the first year, and four-fifths by the end of the second year.

Preschool years: During the preschool years children's height no longer increases as rapidly as during infancy. It continues to grow at a steady 2 to 3 inches per year until they reach the growth spurt that occurs during puberty.

**Notes**

Middle/Late School childhood: School children between the age of 6 to 12 look very different from their preschool brothers and sisters. They are much taller and thinner. Girls generally retain more fatty tissue than boys and continue to do so throughout adulthood. Younger boys are generally slightly heavier and taller than younger girls. But girls reach their pubescent growth spurt before boys and now tend to be larger. Adolescence is the span of years between childhood and adulthood. It begins at the age of twelve and ends at the age of twenty. Its beginning is marked by pubescence. It is that stage of rapid physiological growth when reproductive functions and primary sex organs mature, and when the secondary sex characteristics appear. A sharp adolescent growth spurt occurs around this stage.

Strength and energy are at its peak during the age range 20-50 years and declines from this peak are so gradual that they are hardly noticed. After the age of 65, old age sets in that is marked by physical debilitation and loss of agility.

**INTEXT QUESTIONS 12.2**

1. Fill in the blanks with appropriate words:
 - (a) Children gainas much in height during their first year of life as during the second year.
 - (b) Most children grow times in their birth weight during the first year and then gain only about of that during the second year.
 - (c) Girls retain more during adolescence than boys.
 - (d) Different areas of development are
2. State whether the following statements are true or false:
 - (a) Children grow very rapidly in middle childhood. T/F
 - (b) Strength and energy are at their peak during 10-20 years. T/F
 - (c) A baby's brain reaches about two-thirds of its adult size during the first year, and four-fifths by the end of the second year/ T/F
 - (d) A sharp growth spurt occurs around adolescence. T/F

b) Motor Development

There is a definite order for acquiring motor skills, proceeding from the simple to the complex. The changes in body proportions have an effect on the child's



Notes

behaviour. When they change rapidly, they temporarily lose control over their body. Initially babies have a poor motor control. With increase in age, their motor development shows more control. Their control over body parts gets specific and differentiated as they grow. It proceeds from good control of their hands to good control of their fingers, e.g. if a small child picks up a biscuit, he moves his large joints like shoulders and the whole hand. As he grows older, he uses his fingers only to pick up those biscuits. His movements are differentiated and specific. After they have gained control over various differentiated movements and thus manage walking.

These skills are acquired at a particular age and are called milestones.

Some milestones of motor development-

Head control	1 month
Sitting without support	7 months
Rolling over	at about 5 months
Prewalking locomotion	at about 9 to 10 months (crawling)
Standing	stand alone at 13 or 14 months
Walking	with help at 9 to 11 months, walk alone at 15 months,
Climb	with help at 18 months
Jump	at 20 months
Manipulation	15 month old shows mature grasp.

Preschoolers: Three year old improves eye-hand and small-muscle coordination. They can draw a circle, pour into a bowl, button and unbutton, cut on a line, make designs and crude letters, and fold paper. At 5, they can string beads well, grasp and control a pencil appropriately, copy a square, etc.

School children keep getting stronger, faster, and attain better coordination as they achieve new motor skills. They are able to jump rope, bicycle, dance and indulge in all possible games. There are differences between abilities of boys and girls at this stage. Boys improve in performance from ages 5 to 17. Girls on the other hand improve through their early school years, reach a peak performance at about 13, and decline in certain abilities or stay the same as they are encouraged to put aside their “boyish” ways and conform to gender stereotypes of femininity.

From young adulthood through the middle years, biological changes do take place but are so slow that they are hardly noticed till the age of 50 or 55. At this stage

**Notes**

they feel they cannot work as much as they did earlier. There is also a slight loss in sensory abilities and in physical strength and coordination.

**INTEXT QUESTIONS 12.3**

1. What are milestones in development?
2. State whether the statements below are true or false.:
 - (a) Differentiation in development is followed by integration of movements into complex behaviour patterns. T/F
 - (b) Babies begin to sit independently at the age of 4 months. T/F
 - (c) Babies begin to walk at the age of 2 years. T/F
 - (d) The child can grasp and manipulate at the age of 28 weeks. T/F
 - (e) Motor skills are acquired in a definite order. T/F

c) Cognitive (mental) development

Cognitive development deals with studying how human beings think, reason and form concepts. In other words, it deals with the development of the mind. According to a leading psychologist, Piaget, the mind like the body also has structures. The basic unit or structure of mind is called 'schema'. A schema is an abstract representation of the original elements in an object. For example the infant's schema for a face is likely to emphasize an oval frame containing two horizontally placed circular shapes (the eyes). It is likely that a schema is not an exact copy of any particular object or event. This complex concept involves both mental organization (a child's conceptualization of a specific situation), and observable behaviour. A schema is known by the behaviour it involves, e.g., the schema of sucking implies that a baby recognizes the schema of hunger and therefore sucks. Here hunger is the schema and the effort to get food or sucking is the behaviour which is observable.

Schemata (plural of schema) are intellectual structures that organize events as they are perceived by the organism into groups according to common characteristics. For example, in the schema of face the child perceives common characteristics that are organized in a particular way in all human faces. They are repeatable psychological events in the sense that a child will repeatedly classify stimuli in a consistent manner.

Cognitive development is influenced throughout by two general principles: organization and adaptation.

**Notes**

Organization involves the integration of all processes into one overall system. Initially an infant's schema of looking and of grasping are quite different, resulting in faulty hand-eye coordination. Eventually the baby organizes these schemata in order to hold and look at the object at the same time.

Adaptation is a twofold process through which children create new structures to deal effectively with their surroundings. It involves both assimilation and accommodation, which are the essence of intelligent behaviour.

Assimilation is the taking in of a new object, experience or concept into an existing set of schemata. When children use them to respond to a new stimulus, they are assimilating. In this, the child interprets the meaning of an object in relation to an existing scheme. For example, a child of 8 or 9 months who sees a ball will probably try to put it in his mouth. In Piagetian terms, the child is assimilating the ball into his sucking schema.

In the process of accommodation, the child changes his schema so that his response is better tailored to the object. The process by which children change their actions to manage new objects and situations is called accommodation. The example of accommodation is imitation of others. In the process of imitation child suppresses his/her available schema and strives to establish new schema.

Assimilation and accommodation are necessary for cognitive growth and development and constantly work together to produce changes in a child's conceptualization of the world and reactions to it. The state of balance between assimilation and accommodation is called equilibrium.

**INTEXT QUESTIONS 12.4**

Fill in the blanks with appropriate words:

- (a)is a twofold process through which children create new structures to deal effectively with their surroundings.
- (b) is the taking in of a new object or experience or concept into an existing set of schemata.
- (c) The process by which children change their actions to manage new objects and situations is called
- (d) Adaptation involves bothand
- (e) The basic unit or structure of the mind is called.....
- (f)involves the integration of all processes into one overall system.

**Notes**

Stages of Mental Development

According to Piaget, cognitive development progresses through four major stages:

(i) Sensory motor (birth to 2 years): is characterized by reflex actions of the infants.

(ii) Preoperational (2 to 7 years)

(a) Preoperational (2-4)

(b) Intuitive (4-7)

Children during this period are egocentric and do not have the concept of object permanence.

(iii) Concrete operations (7 to 12 years)

Children of this age are able to differentiate themselves from the environment, learn about the object permanence, and do goal-directed behaviours. They can arrange things or objects in a sequence.

(iv) Formal operations (12+years)

During this period, children are able to do abstract reasoning and are able to think like adults.

d) Moral Development

Moral development deals with the development of ethics or ethical norms, values, the conscience and the ability to judge an act morally. Children cannot make moral judgments until they achieve a certain level of cognitive maturity. According to Piaget, children go through two stages in a rigid way, while the second stage is characterized by moral flexibility. Children's conception of rules, intentionality, punishment and justice move from rigid to flexible thinking. This change is a sign of cognitive development.

In stage 1

Child views an act as totally right or totally wrong and thinks everyone sees it the same way. He cannot put self in place of others.

Child tends to judge an act in terms of actual physical consequences and not the motive behind it.

Child obeys rules because they are sacred and not changeable.

Unilateral respect leads to feeling of obligation to conform to adult standards and obey adult rules.

**Notes**

Child favours severe punishment. He feels that punishment defines the wrongs of an act. An act is bad if it will elicit punishment.

Child confuses moral law with physical law and believes that any physical accident or misfortune that occurs after a misdeed is a punishment willed by God or some other supernatural force.

In Stage 2

Child can put self in place of others and see others' point of view.

Child judges act by intentions and not by consequences.

Child realizes that rules are made by people and can be changed. There is mutual respect for authority and peers.

Child favours milder punishment that leads to reform of the victim

Child does not confuse natural misfortune with punishment.

Not until adolescents have attained the Piagetian stage of abstract formal operations can they reach the most highly advanced stages of moral development. People have to be capable of abstract reasoning to understand universal, moral principles.

**INTEXT QUESTIONS 12.5**

State whether the following statements are true or false.

1. Children can not make moral judgments until they achieve a certain level of cognitive maturity. T/F
2. In the first stage a child deals with moral concepts in a rigid way, while the second stage is characterized by moral flexibility.
3. In Stage1, child views an act as totally right or totally wrong and thinks everyone sees it the same way. T/F
4. In Stage 2, child can put self in place of others and see others point of view. T/F

e) Language Development

Children learn to understand language before they can speak it. Only a few minutes after birth, infants can determine where sounds are coming from. Neonates can

**Notes**

also tell the difference between sounds, based on frequency, intensity, duration and tempo.

Towards the end of the first year, babies can distinguish among individual sounds of their language. They can tell the difference between pairs of words that differ only in initial sound (like cat and bat)

Infants follow stages of prelinguistic speech before the first real word which involves sequentially undifferentiated crying, differentiated crying, cooing, babbling, lallation or imperfect imitation, or imitation of the sounds of others, expressive jargon, etc.

However, real communication involves the ability to speak, and, the ability to understand what others say. Thus it entails four major developmental tasks-comprehension, pronouncing legibly, building expressive vocabulary and meaningful sentences.

When babies begin to utter meaningful speech, they again go through distinct stages as follows:

1. One-word sentence: One-year-old points to and says 'out'. Depending on the situation, he may mean, "I want to go out" or "mom went out".
2. Multiword sentence: At about two, he strings two or more words to make a sentence., e.g., 'Me go'. These words are only nouns and verbs. This telegraphic speech contains only words that carry meaning.
3. Grammatically correct verbal utterances: Three-year-old have an impressive command of language. They have a vocabulary of some 900 words; they speak in longer sentences that include all parts of speech; and they have a good grasp of grammatical principles. They make little allowance for exceptions to the principles e.g. we goed to the store.

Between 3 and 4 year of age, children use 3-4 "telegraphic" sentences that include only the most essential words. They ask many questions and can give and follow simple commands. Their vocabulary includes about 900 to 1200 words. Between the ages of 4 and 5, children's sentences average four to five words. They can now deal with such prepositions as over, under, in, on, and behind. They use verbs more than nouns, and have a vocabulary of 1500 to 2000 words.

Between ages 5 and 6, children begin to use sentences of six to eight words. They can define simple words, and they know some opposites. They use more conjunctions, prepositions, and articles in everyday speech. Speech is fairly grammatical although they still neglect the rules. Language becomes less egocentric and more socialized, and vocabulary ranges from 2000 to 2500 words.

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Between 6 and 7 years of age, children's speech becomes quite sophisticated. They now speak in compound, complex, and grammatically correct sentences. They use all parts of speech and they have a vocabulary of 3000 to 4000 words. Piaget characterized preschool speech as being either egocentric or socialized. Egocentric speech consists of repeating words and syllables for the pleasure of monologue (talking to oneself) and of collective monologue (two or more talking-at each other with no communication). Socialized speech involves two-way communication.

Six-year-olds use complex grammar and a vocabulary of some 2500 words but they still have not mastered syntactic niceties. From the age of 4, children speak in longer sentences and use more complicated grammar. During the early school years, they rarely use passive sentences, or verbs that include the form have, or conditional sentences (if you were to do this, I would do that). They develop increasingly sophisticated understanding of syntax up to and possibly after the age of 9. There is diminishing egocentricism during this stage.

**INTEXT QUESTIONS 12.6**

State if the following statements are true or false:

1. After birth infants cannot determine where sounds are coming from. T/F
2. Babies utter meaningful speech through distinct stages. T/F
3. A child can speak sentences at the age of 3 years.
4. Between three and four years of age, children use three- to four-word 'telegraphic' sentences.

f) Personality Development

Personality development deals with an individual's physique, temperament, traits, abilities, aspirations, interests, etc., which are representative of him and give him a distinct sense of identity.

One of the oldest and most significant theory of personality was given by Freud. According to him, the personality structure has three parts-the id, the ego and the superego. The ego develops when gratification is delayed; it operates on the reality principle and seeks an acceptable way to obtain gratification. The superego or conscience incorporates the morals of society, largely through identification with the parent of the same sex.

The id is present at birth. Infants are egocentric. It is only when gratification is

**Notes**

delayed and they have to wait for food that they develop their ego and begin to differentiate themselves from the surroundings. Thus the ego develops soon after birth. The superego does not develop until the age of 4 or 5. Freud viewed personality development as the organization and expression of basic sexual energy or libido. In Freudian thought, the human organism goes through several different stages of psychosexual development (oral, anal, phallic, latency and genital). Freud assumed that the events of infancy and early childhood are major determinants of adult personality. He saw the first three stages as particularly significant in their relation to adult behaviour. The experiences during these stages determine adjustment patterns and personality traits of people at adulthood. Individuals may be fixated at a particular stage if their needs are not met or if they are overindulged. Fixation implies an immature attachment that remains in a neurotic way and interferes with normal development.

In the oral stage (birth to 12-18 months) babies attain most of their gratification from sucking any thing that can go into mouth. During this stage, infants are concerned only with their own gratification. They are all id impulses as they operate on the pleasure principle. If a baby does not feel satisfied at this stage, it may become fixated. The adult personality of such a case may derive a disproportionate amount of satisfaction from the mouth kissing, smoking, nail biting, overeating, or overdrinking or an imperious demand for the loved object or over dependence like babies.

The anal stage (12-18 months to 3 years) : Greatest pleasure during this stage comes from moving their bowels and the way toilet training is handled. If there is concern with cleanliness, a person may become obsessively clean or defiantly messy, pedantic, obsessively precise and rigidly tied to schedules and routines. Problems at the anal stage may make people hoard their possessions or may cause them to identify love with the bestowal of material objects.

Phallic stage (early genital stage) : According to Freud, the primary zone of psychosexual pleasure changes at about the age of 3 or 4, when interest and pleasure become concentrated in the genital area. Preschoolers are fascinated by anatomical differences between girls and boys and adults and children. According to the theory of the Oedipus complex, a 3 to 6 year-old boy lavishes love and affection on his mother, thus competing with his father for the mother's love and affection. Unconsciously, the little boy wants to take his father's place, but he recognizes his father's power. The child is caught up by conflicting feeling- genuine affection for his father and also hostility, rivalry, and fear. Noticing that little girls are different, he wonders what happened to them, and his guilt over feelings for his mother, make him worry that he will be castrated by his father. Fearful, he represses his sexual strivings toward his mother, stops trying to rival his father, and begins to identify with him. Karen Horney (1924), although broadly in agreement with Freud's

**Notes**

theory of psycho-sexual development, dismissed the notion that young girls experience penis envy during the phallic stage. Instead she introduced the concept of womb envy, that boys may come to envy those parts of woman's anatomy which they lack. She suggested that young girls desire not the anatomical penis but the social penis - the power and identity that the phallus seems to ensure her male counterpart.

The Electra complex is similar to the Oedipus. A little girl desires her father, fears her mother, represses these feelings, and eventually identifies with the same-sex parent.

Development of the superego

By identifying with the parent of the same sex, children actually take the parent's personality into their own. In psychoanalytic terms this is called introjections. They introject their wishes, values and standards. The superego is comparable to conscience. At this stage a child's conscience is rigid.

By middle childhood, youngsters resolve their Oedipal conflicts, accept their sex roles, and can now turn their energies to acquiring facts, skills, and cultural attitudes.

The developing ego or self-concept of the school-aged child is threatened from all sides. To uphold its strength, children may develop defense mechanisms, many of which persist throughout adult life. You can read about some of them in lesson 17

**INTEXT QUESTIONS 12.7**

1. Fill in the blanks:

- (a)operates on the reality principle and seeks an acceptable way to obtain gratification.
- (b) The or conscience, incorporates the morals of society, largely through identification with the parent of the same sex.
- (c) In stage, their gratification..... from sucking any thing that can go in mouth.
- (d) In the stage, greatest pleasure comes from moving their bowels.
- (e) In Oedipus complex, children show love for the sex

**Notes**

2. State which of the statements below are true or false:

- (a) The id is present at birth. T/F
- (b) The ego develops soon after birth. T/F
- (c) The superego does not develop until the age of 14 or 15. T/F
- (d) Personality development is the organization and expression of basic sexual energy or libido. T/F
- (e) According to Freud, the events of infancy and early childhood have nothing to do with adult personality. T/F

g) Psychosocial development

Psycho-social development focuses on children's response to the social world. It includes perception of self, others and relationships with others. From 2-6 years, the child learns how to make social contacts and get along with people outside the house. He learns to adapt himself to others and co-operate in group play.

h) Emotional development

All emotions play an important role in adjustment an individual makes in life. The ability to respond emotionally is present in the newborn infant. The first sign of emotional behaviour is general excitement due to strong stimulation. In 1919 the psychologist claimed that infants are born with three major emotions-love, rage, and fear-which are natural responses to stimuli. After a decade it was suggested that emotional states are generalized in infants and not so specific as psychologists had believed. It is believed now that newborns show only one emotion, an undifferentiated excitement (also termed distress). The general excitement of the newborn becomes differentiated into simple reactions that suggest pleasures and displeasures. Even at the age of one year, the number of emotions has increased and the child shows joy, anger, fear, jealousy, happiness, anxiety, curiosity and envy. The emotions are present at birth and their development is due to maturation and learning.

Babies' emotions differentiate as they grow older, proceeding from general to specific. From the first week of life they cry because of hunger, cold, pain, being undressed, and having their sleep interrupted, when their feedings interrupted, when stimulated in a fussy state, and when left alone. A baby's smile is a basic means of communication that sets in motion a beautiful cycle. At about four months babies start to laugh aloud. They laugh loudly at all sorts things in an excited manner. In the emotional sphere, the adolescent is capable of directing his emotions



Notes

at abstract ideas and not just toward people. Many adolescents feel under constant scrutiny from everyone and think that others are as admiring or as critical of them as they are of themselves. They are continually constructing, or reacting to an imaginary audience. They spend hours before the mirror imagining how they look in the eyes of others.



INTEXT QUESTIONS 12.8

State whether the following statements are true or false.

1. Newborns show only one emotion-an undifferentiated excitement. T/F
2. Babies' emotions differentiate as they grow older, proceeding from general to specific. T/F
3. In the emotional sphere, the adolescent is capable of directing his emotions at abstract ideas and not just toward people. T/F
4. Emotions are present at birth and their development is due to maturation and learning.



WHAT YOU HAVE LEARNT

- Development takes place in various stages of life:-

(i) Prenatal	-	before birth
(ii) Infancy	-	0-3 years.
(iii) Preschool	-	3-6 years
(iv) School childhood	-	6-12 years
(v) Adolescence	-	12-20 years
(vi) Adulthood	-	young adult 20-50 years
		adult 50-65 years
		aging adult 65 + years
- Social expectations of a particular age are known as developmental tasks.
- Milestones are ages at which particular skills are acquired.
- Development takes place in different areas ... Characteristics in each are as given on pages 45-46.

**TERMINAL EXERCISE**

1. Discuss various stages of development and the age groups corresponding to these.
2. What is a developmental task.?
3. What are the main areas of development?
4. Discuss the differences in the outlook of infants and pre-school children.
5. Write short notes on;
 - a) cognitive development
 - b) moral development
 - c) Personality development

**ANSWER TO INTEXT QUESTIONS****12.1**

1. Stages
2. Developmental tasks
3. Stage
4. First three years
5. 50

12.2

1. a) twice b) three; one- fourth c) fatty tissue,
d) physical, motor, mental, language, personality,
psychosocial, emotional, moral, vocational
2. a) F b) F c) T d) T
3. a) T b) T c) F d) T

12.3

1. Milestones are ages at which particular skills are acquired.
2. a) T b) F c) F d) F e) T

12.4

1. a) Adaptation b) Assimilation c) Accommodation
d) Assimilation; accommodation e) Schema
f) Schemata

**Notes**



Notes

12.5

- 1) T 2) T 3) T 4) T

12.6

- 1) F 2) T 3) T 4) T

12.7

1. a) ego b) super ego c) oral d) anal e) oppoite
2. a) True b) True c) True d) True e) False

12.8

1. T 2. T 3. T 4. T

HINTS TO TERMINAL EXERCISES

1. Refer section 12.2
2. Refer section 12.1
3. Refer section 12.3
4. Refer section 12.3 (a)
5. a) Refer section 12.3 (c)
6. b) Refer section 12.3 (d)
 1. c) Refer section 12.3 (f)



Notes

13

ADOLESCENCE

*E*ach one of us passes through a particular stage in life when we are caught unaware by the sudden changes in our body or when our elders do not let off go a single change to say that you're grown up but not grown enough to take decisions. This statement must be quite familiar to you. The period of growing up to an adult from a child is known as adolescence.

Adolescence is one of the important stages in the life span of a human being. It is the phase when very rapid changes take place both physically as well as psychologically. The literal meaning of adolescence is to 'grow up'. This means accomplishing a number of developmental tasks. An adolescent has to adjust to the changes taking place in his/her body and behaviour. He/She realizes that he/she is no longer a child but has not become an adult. What does the growing adolescents experience and feel? How does he/she cope with the bodily changes? Why does she/he behave the way she/he does? What are some of the psychological characteristics of adolescents? These are some of the questions this lesson will help you to understand.



OBJECTIVES

After studying this lesson, you will be able to:

- describe the importance of adolescence;
- explain the psychological characteristics of adolescents;
- describe physical and psychological changes during adolescence;
- enumerate secondary sex characteristics of boys and girls;



- list the developmental tasks faced by adolescents; and
- enumerate the problems faced by adolescents related to body and self
- indicate the relationship between risk taking characteristics of adolescents and substance abuse, STD, HIV/AIDS and premarital pregnancy.

13.1 WHAT IS ADOLESCENCE?

The stage of adolescence is one of the significant stages of development in human beings which helps in the transition from childhood to adulthood. It starts from about twelve years of age and continues through eighteen years. This period is marked by rapid and significant physical and psychological transformation of the child like maturation of the sex organs and increase in the height and weight. Let us study about them.

Physical changes during adolescence: Puberty and Transition

During adolescence significant increment is noted in the following five areas of physical growth:

- i) Height
- ii) Weight
- iii) Shoulder width
- iv) Hip width
- v) Muscle strength

The changes during puberty are dramatic. Within a few years the school going child is transformed into a full grown adult. These changes can be classified as.

- (1) Harmonal changes
- (2) Changes in body size and proportions
- (3) Muscle fat make up and other internal changes
- (4) Sexual maturation

Increase in height and weight is associated with redistribution of fat in the body and an increase in the proportion of bone and muscle tissues. The growth spurt in boys generally begins about two years later than it does in girls, but, continues for a longer period. There are also changes in body proportion. Girls generally broaden in the hips and the boys mostly in the shoulders. The waist line proportionately drops.

There are also major changes in the secretion of hormones by the endocrine glands in the body. The gonads, or the sex gland, begins to function bringing about sexual

**Notes**

development. Both boys and girls develop sex characteristics, which are broadly classified as

- (i) Primary and
- (ii) Secondary

Primary sex characteristics in boys refer to the growth of the male sex organs which include the penis, scrotum and testes. For girls the primary sex characteristics refer to the growth of sex organs like uterus, fallopian tube and breasts. Ovulation and menstruation among the girls and production of semen among the boys are primary sexual developments directly related to reproductive capacity. There are many secondary changes associated with the development of primary sexual characteristics. Development of breasts among the girls, beard among the boys and growth of pubic and underarm hair and changes in voice are some secondary sex characteristics. These sex characteristics are acquired over a span of time. The period of sexual maturity and reproductive capacity is called puberty.

13.2 DEVELOPMENTAL TASKS DURING ADOLESCENCE

The adolescent has to attain particular attitudes, habits and skills if he or she has to function effectively as an adult. These are called the developmental tasks of adolescents.

During infancy and childhood, for example, the developmental tasks consist of learning to take solid food, to achieve physiological stability, and to form simple concepts of social and physical reality. During middle childhood, the tasks are to learn physical skills necessary for games and to learn appropriate sex roles. You have already read about these developmental demands in the previous lessons.

A developmental task is a task which pertains to a certain period in the life of the individual. Successful performance of the developmental tasks leads to happiness and success in later tasks, while failure leads to unhappiness in the individual, disapproval by the society and difficulty in handling later tasks.

The main developmental tasks for adolescents are listed below.

- Accepting one's physique as it is and using the body effectively.
- Achieving new and more mature relationship with agemates of both sexes.
- Achieving a masculine or feminine social role.
- Achieving emotional independence from parents and other adults.



- Preparing oneself to have economic independence through an enjoyable and productive career.
- Preparing for marriage and family life.
- Desiring and achieving socially responsible behaviour.
- Acquiring a set of values and ethical system and developing an ideology as a guide to behaviour.

Thus an adolescent has to develop and acquire a wide range of skills and abilities. These relate to all aspects of development: physical, emotional, social, moral and cognitive. A supportive environment at home and school can greatly facilitate the accomplishment of these developmental tasks.

13.3 PSYCHOLOGICAL CHARACTERISTICS OF ADOLESCENTS

In the previous section, you learnt about the physical (bodily) changes which take place during adolescence. In this section you will learn about the psychological changes that take place among adolescents. These psychological changes appear in the areas of emotional, social, cognitive, and moral development. Let us now examine them in detail.

13.3.1 Emotional Development

During adolescence, the individual faces a wide range and variety of emotions. These include both positive as well as negative emotions. Happiness is experienced as joy, exuberance, exhilaration, etc. and sadness is experienced as depression, unhappiness, anxiety, fear, etc. In addition, feelings of anger, rebellion and protest also emerge. Interestingly, emotions of loyalty, patriotism and sacrifice for the nation also develop during adolescence.

Each of the above emotions is felt very intensely. In fact the strength and intensity of adolescent emotions is one of their prominent characteristics. Adolescents tend to express everything in an exaggerated form. It is common to hear adolescents who express their liking for food as love-such as “I love Ice-cream”, “I love cakes”, etc. Similarly, dislike is expressed as ‘hatred – “I hate that person” or “I hate eating fruits” etc.

Mood swings also occur quite frequently. This is another prominent feature among the adolescents. Sometimes they are happy, sometimes sad. Sometimes they have a high degree of patriotic zeal, but a few minutes later they become disillusioned or

**Notes**

angry. This makes their behaviour somewhat unpredictable. Sex related emotional experiences like ‘crushes’ and ‘infatuation’ also begin to surface during this period.

13.3.2 Social Development

In the social sphere, adolescents undergo a lot of changes in their interpersonal relationships and they also begin to understand society and its diverse influences. The dependence on parents noted during childhood gets transformed into dependence on friends and peers. In fact, friendship becomes very important for the adolescents and most of them like to spend more time with their friends than with family. Being recognized as a popular member of a peer group is an important adolescent need. The adolescents often get into argument with their parents and elders since they want to break away from their control.

Attraction towards members of the opposite sex is another prominent characteristic of the adolescent. This is natural and occurs mainly because of the sexual maturity taking place among the adolescents.

The adolescents also begin to acquire beliefs, opinions, attitudes and stereotypes about society based upon their own understanding. Media becomes a very powerful source of influence in this stage, especially music and television. These provide adolescents with role models like film heroes, great athletes, etc., whom they try to emulate. Such models help the adolescents realize their fantasies and dreams.

Body image becomes a very important concern for the adolescents. Having an appropriate figure in fact, is almost a teenage obsession. In addition, fashion and glamour reflected in the style of dressing, sporting, make-up, having the right hairstyle etc. become very important in their lives. These are associated with the social roles that the adolescents want to develop and to experiment with.

13.3.3 Cognitive Development

The thinking and reasoning skills of adolescents expand substantially. They become more competent especially compared to the earlier stage of late childhood. The adolescents enter the stage of Piaget’s “formal operations” which means that they can now understand abstract concepts and think in terms of probabilities as well.

They develop the capacity to think both inductively and deductively. They can also reflect, analyse, judge, hypothesize and discuss various points of views. Adolescents' own opinion about an issue becomes very important to them. This often gets the adolescents into hot arguments with parents, teachers and friends.



Notes

Adolescents begin to question every thing like an experimenter. They draw conclusions only when they are convinced. They also tend to defend their point of view very rigidly. There is a noticeable increment in their vocabulary. Adolescents can attend to several intellectual tasks simultaneously making this a very promising stage of intellectual development.

13.3.4 Moral Development

In the moral sphere, too, the adolescents, undergo very significant changes. They now develop a firm ethical sense or an understanding of what is right and wrong. The ideas are based not only on what the parents and elders have taught but on adolescents' own experience. They begin to question the social and moral codes prevalent in society and accept only those which they are convinced of.

The eagerness to be a nice-boy/nice girl and to please others ceases to be important now. It gets replaced by a questioning mind and conviction about adolescents own stand on the issues.

During this stage, adolescence begin to understand the importance of law in maintaining order in the society. Further, they begin to evolve a set of personal values which become guiding principles in life. According to Gilligan (1982), Kohlberg's formulation of morality emphasized justice, while ignoring or underplaying the role of feeling and care in moral decision-making. Gilligan herself, and other theorists, argue that moral choices are more flexible and complex than kohlberg's work implies, and that morality may be simultaneously guided by several sets of considerations.

To sum up, it may be said that adolescence is the stage of identity crisis, when the individual is neither a child nor an adult. With the bodily changes and corresponding psychological changes which take place, the individual is forced to reflect on the question, "who am I?". The answer to this question is not easy to find and it often remains a pre-occupation throughout adolescence. Towards the end of adolescence, however, the person emerges with a sense of identity.



INTEXT QUESTION 13.1

a. Fill in the blanks with appropriate words:

1. During adolescence emotions are felt very _____.

2. During adolescence there is movement away from parents towards _____.



Notes

3. The adolescent is cognitively in Piaget's stage of _____.

4. Frequent _____, _____ lead to the unpredictability of adolescent emotions.

5. In the area of moral development adolescents begin to develop a set of _____.

b. Name the area in which psychological changes appear?

13.4 ADJUSTMENT AND COPING WITH ADOLESCENT PROBLEMS

The physical and psychological characteristics of adolescents and the nature of the developmental tasks which they are expected to face often lead to crisis in development. Basically adolescents face problems related to their home, school and society. Table 13.1 lists some common problems faced by adolescents relating to their own self, family, school and society.

Table 13.1: *Common Adolescent Problem*

Problems related to body and self	Problems related to family	Problems related to school	Problems related to society
Body image	Authoritative parenting	Strict Teachers	Gender bias
Pimples	Poor rapport with parents	Partial treatment	Caste related
Complexion	Lack of communication	Closed school	problems
Eating disorders	Low socio-economic	Atmosphere	Generation gap
Body changes	background	Not acceptable by	Orthodox
Moodiness	Non conducive atmosphere	Classmates	practices
Touchiness	Space constraint	Poor marks	Repressive
Anger	Comparison with others	Too much home-	Over expectation
Hypersensitivity		work	Lack of friends
Feelings of rebel		No co-curricular	
Crushes		participation	
Infatuation		Long school hours	
Day dreams			



The problems listed above represent only some common examples. Each individual adolescent may have specific combination of similar and other problems. The more serious problems include drug addiction, alcoholism, smoking, truancy, sexual obsessions, etc. These problems may not appear in all the individuals.

13.5 SOME CONTEMPORARY PROBLEMS FACED BY ADOLESCENTS

By now, we know that the experiences of adolescents are products of both biological and social factors. The biological changes are universal. The social expectations from children about the way of behaving, developing new interpersonal relationships often give rise to moments of uncertainty and self doubt.

Up till now you have studied about how adolescence is a major transition period for an individual. Adolescence is a phase which makes a person enter into the adult world. Growing up into adulthood makes one experience problems in various domains of life including personal, social and educational.

Stereotypes and misconceptions related to adolescence period has given rise to various problems among the adolescents. Some of the critical issues include substance abuse, teenage pregnancy and sexually transmitted disease and AIDS. Let us try to understand these issues in detail.

- a) **Substance Abuse :** Teenage substance abuse often has lifelong consequences. Dependence on alcohol and hard drugs to deal with daily stresses reduce their responsible decision making skills. They also increase serious adjustment problems including depression and antisocial behaviour. To avoid this problem proper guidance and creating conducive environment to channelize energy of adolescents are needed so that they can cope up with stress.
- b) **Sexually Transmitted Disease :** Another widespread problem, recently observed throughout the world is Sexually Transmitted Disease (STD). Teenagers are in greatest danger of getting affected by STD. They are the ones who engage in irresponsible sexual behaviour. Adolescents should be helped in removing their false beliefs about sex which put them at higher risk. The adolescents should be provided proper sex education in an effective manner.
- c) **Teenage Pregnancy:** Becoming a responsible parent is a challenging and stressful experience. It is especially difficult for adolescents. Child rearing imposes lasting hardships on both the mother and the child. It also builds stress. After going through so many problems of adolescents let us see the

**Notes**

reasons related to these problems are: Lack of proper guidance from teachers and parents, inappropriate effect of media, wrong association in peer groups, and nervousness towards physical changes, faulty perceptions towards sex instincts and mood swings. The society and family can provide young people with good reasons to postpone early childbearing by expanding their educational, vocational and employment opportunities. Society and family should provide proper guidance to adolescents regarding teenage pregnancy and its problems.

Through guidance and counseling process, adolescents can be helped to solve these problems. In particular, career counseling and vocational guidance can make them aware of various career opportunities and educational choices. Personal and social counselling can help adolescents in solving their problems. The family also plays a crucial role in solving these problems. Parents, elders and peers can come as useful help for the growing adolescents.

**WHAT YOU HAVE LEARNT**

- Adolescence is an important stage in human development. It is a period of transition from childhood to adulthood.
- This period is marked by rapid physical and psychological transformation.
- Major changes in body functioning are introduced by the secretion of hormones by the various glands. Reproductive capacity and sex characteristics also develop during this phase.
- The period during which the bodily changes occur to bring about sexual maturity is called puberty. The puberty can be divided into three stages — prepubescent, pubescent, post pubescent.
- Some of the developmental tasks of adolescents are achieving new and mature relations with classmates, achieving appropriate masculine/feminine social role and achieving emotional independence etc.
- Other than the physical changes, some psychological changes like emotional development, cognitive and moral development, also take place.
- Some common problem of adolescents occur in relation to adjustment in respect of home and family, self, school and society.
- Development of several life skills and guidance and counseling can help the adolescents for a smooth transition to adulthood.

**Notes****TERMINAL EXERCISE**

1. How do adolescents express their emotions? Give illustrative examples.
2. What are the prominent social characteristics shown by the adolescents.
3. How do adolescents differ from children in their cognition?
4. List some developmental tasks of the adolescents?

**ANSWER TO INTEXT QUESTIONS****13.1**

- a.
 - 1.intensely
 2. peers
 3. formal operations
 4. mood swings
 5. personal values
- b. The area of psychological changes are emotional, social cognitive and moral.

HINTS TO TERMINAL EXERCISE

1. Refer section 13.3.1
2. Refer section 13.3.2
3. Refer section 13.3.3
4. Refer section 13.2



Notes

14

ADULTHOOD AND AGING

‘What will you do when you grow up?’

‘What do you want from life?’

‘What have you planned for your old age?’

These and many more questions come to our mind everyday. Our lives are becoming more complex day by day. We now have several options to choose from along the way. At every stage of life, there are several changes coming up in the lifestyle of the people. Adulthood is the most stable period of the life span. Adults achieve stability by making adjustment with the world outside as well as within one’s own self. For example, a person who loses job, makes a desperate attempt to find a new one and tries to adjust himself/ herself with it.

The present lesson starts by describing some of the important features of adulthood. It then brings out the physical and psychological changes taking place during adulthood. The later section of the lesson deals with problems of coping and adjustment during this period. Some of the psychological interventions for the aged are also given briefly.



OBJECTIVES

After studying this lesson, you will be able to:

- describe some of the important developmental tasks to be performed during adulthood;
- explain the important features of adulthood; and
- enumerate the problems of adjustment in old age.



Notes

14.1 PSYCHOLOGICAL PERSPECTIVE ON ADULTHOOD

It is believed that most of the development ends with adolescence. Only wisdom continues to grow during adulthood. However, there are many specific development tasks during adulthood and old age requiring the grown up to engage in specific development and make special adjustments in life. In this respect the perspectives given by Havighurst and Levison are quite relevant.

Box 14.1: Havighurst's Development Tasks

Early Adulthood:

Selecting a mate, Learning to live with a married partner, Starting a family, Rearing children, Managing a home, Getting started in an occupation, Taking on civic responsibility and Finding a congenial social group

Middle Age:

Achieving adult civic and social responsibility, Establishing and maintaining an economic standard of living, Assisting teenage children to become responsible and happy adults, Developing adult leisure-time activities, Relating to one's spouse as a person, Accepting and adjusting to the physiological changes of middle age and Adjusting to aging parents

Old Age:

Adjusting to decreasing strength and health, Adjusting to retirement and reduced income, Adjusting to death of spouse, Establishing an explicit affiliation with members of one's own age group, Meeting social and civic obligations and Establishing satisfactory physical living arrangements.

Havighurst's developmental tasks are based on life situations. Another psychological perspective is that of Daniel Levinson who derived his data from clinical studies of men only. Levinson's stages are described in Box 14.2.



Notes

Box 14.2: Levinson's Stages

Leaving the family (20-24): A transitional period from adolescence to early adulthood that involves moving out of the family home and establishing psychological distance from the family, analogous to Erikson's stage of identity versus role diffusion.

Getting into the adult world (early 20s to 27-29): A time of exploration and provisional commitment to adult roles in occupational and interpersonal areas and of fashioning an initial "life structure".

Settling down (early 30s to early 40s): A period of deeper commitment, sometimes involving the expansion motif of Jung and Kuhlén.

Becoming one's own man (35-39): The high point to early adulthood.

The midlife transition (early 40s): A developmental transition involving a sense of bodily decline and a vivid recognition of one's mortality, as well as an integration of the feminine aspects of the self as postulated by Jung.

Restabilization and the beginning of middle adulthood (middle 40s): A period in which some men make new creative strides but others lose their vitality.

If you look at the developmental tasks and also Levinson's analysis of stages of adult development, you can realize that the specific development tasks are related to the different social demands on a person at different stages of life. The need to take up an occupation or to enter into a marital relationship during early adulthood, for example, may be seen as leading to developmental tasks and challenges of seeking and succeeding in an occupational role or selecting a life partner in marriage. The social demands of different stages of life and hence, the developmental tasks depend on the nature of the society and the cultural norms. In Indian joint family system, for example, the nature of marriage and mate selection are different and, therefore, the nature of developmental tasks are also different from what has been observed by Levinson or by Havighurst. Similarly, moving out from the family home is a common feature of western societies or modern urban industrial economies. As such, the processes and problems of development during adulthood and old age are specific to the social context of the grown ups.



Notes

14.2 THE PERIOD OF ADULTHOOD

Young adulthood: The period of young adulthood begins from the age of twenty years onward. The major concerns of young adults in 20s are to establish themselves in life, job, and family. The young adult wants to seek social and economic security in preparing for a role of greater independence and responsibility in society.

Middle Age: From the period of his twenties and thirties, the individual arrives at middle age in the forties and fifties. Middle age is characterized by competence, maturity, responsibility and stability. These are the important characteristics for middle-aged adults. This is the time when one wants to enjoy the success of job, satisfaction derived from family and social life. The individual looks forward to the successes of children. Attention gets more focussed on health, the fate of children, aging parents, use of leisure time and plans for old age. For women, menopause occurs between the age of forty-five and fifty. Menopause is sometimes accompanied by some distressing physical and psychological symptoms in women. Men during this period show greater amount of concern towards their health, strength, power, and sexual potency.

Old Age: The period of old age begins at the age of sixty. At this age most individuals retire from their jobs formally. They begin to develop some concern and occasional anxiety over their physical and psychological health. In our society, the elderly are typically perceived as not so active, deteriorating intellectually, narrow-minded and attaching new significance to religion. Many of the old people lose their spouses and because of which they may suffer from emotional insecurity.

‘Nobody has ever died of old age’, is a true statement. Since old age is close to the end point of life, death has been associated with old age. Death is actually caused by disease, pollution, stress, and other factors acting on the body. In the biological sense, some organs and systems of the body may start deteriorating. In the psychological sense, there may be measurable changes in the cognitive and perceptual abilities. There are also changes in the way a person feels about him/herself.

You must have come across old people who are very active in life and socially very participative. Such persons seem to be productive and stable and happy. Mental or physical decline does not necessarily have to occur. Persons can remain vigorous, active, and dignified until their eighties or even nineties. In fact, the older persons have vast reservoir of knowledge, experience, and wisdom on which the community can draw. In view of increase in life expectancy increasingly greater proportion of society is joining the group of aged people. Hence they need greater attention in national planning and making them feel as an integral part of society.



Notes

14.3 PHYSICAL AND COGNITIVE CHANGES DURING ADULTHOOD AND AGING

Normally people see old age as a period of decline in physical and mental health. This section deals with physical and psychological aspects of aging. With advancing age, there are certain inevitable and universal changes such as chemical changes in cells, or gradual loss of adaptive reserve capacity. There are also certain cognitive changes taking place from middle adulthood onwards. These changes are slow and gradual. They become more prominent among the elderly people.

(a) Physical Changes

It has been found that the organ system of most persons show a 0.8 to 1 percent decline per year in functional ability after the age of 30. Some of this decline is normal, some is disease related and some are caused by factors such as stress, occupational status, nutritional status and various environmental factors.

Major physical changes with ageing are described as

- (1) external changes
- (2) internal changes, and
- (3) changes in sensory capacities.

1. External Changes

External changes refer to the outward symptoms of growing old. The more observable changes are those associated with the skin, hair, teeth, and general posture.

There are changes in the skin. The most pronounced change is wrinkling. Wrinkling process begins during middle years. Skin also becomes thick, hard and less elastic. It becomes brittle and dry.

With advancing age, the hair of the person continues to turn white and loses its luster. It continues to thin. By the age of fifty-five, about 65 percent of men become bald.

It is estimated that at age 65, fifty percent people have lost all their teeth. For many, dentures become a way of life. Over the time, the production of saliva is diminished. This increases the risk of tooth decay.

Physical strength begins to decline from age 30 to age 80 and above. Most weakening occurs in the back and leg muscles, less in the arm muscles. There is a progressive decline in energy production. Bones become increasingly brittle and tend to break easily. Calcium deposits and disease of the joints increase with age.



Notes

Muscle tissue decreases in size and strength. Muscle tone becomes increasingly difficult to maintain with age because of an increase in fatty substance within the muscle fibres. This is often caused by the relative inactive role thrust on the elderly in our society. Exercise can help maintain power and sometimes even restore strength to the unused muscles. Changes in the general posture become more evident in old age.

The loss of teeth, balding and greying of the hair, wrinkling of the skin, and lack of physical strength all have a potentially negative effect on an individual's self-concept and confidence.

2. Internal Changes

Internal changes refer to the symptoms of growing old that are not visible or obvious. We shall examine some of the changes taking place with increasing age in the respiratory system, gastrointestinal system, cardiovascular system, and central nervous system.

The Respiratory System: With increasing age, there is reduction in breathing efficiency. The lungs of an old person do not expand to take in as much air as the lungs of a young person. Decreased oxygen supply makes the old person less active, less aware and less strong. This decline seems to be part of normal aging process.

The Gastrointestinal System : With increasing age there is decreased capacity for biting and chewing, decrease in the production of digestive enzymes, decreased gastric and intestinal mobility and lack of appetite.

The Cardiovascular System: Cardiovascular system which includes the heart and the blood vessels show the effects of normal aging rather slowly. With the aging process there is a decrease in the elasticity of blood vessels and blood cell production also. Increase-in time required for heart to return to rest and arterial resistance to the passage of blood is also found. Many old individuals are found to be suffering from high blood pressure. However, healthy old individuals are found to have blood pressure similar to those of young healthy individuals.

The Central Nervous System (CNS) : The CNS shows certain universal changes as a function of age. There is decreasing rate of arterial and venous flow. Beginning at about age 60, there is a reduction of cerebral blood flow. There is also a decline in oxygen and glucose consumption. Number of cells and cell endings are found to be decreasing. The most definite change is the slowing down of responses.

3. Changes in Sensory Capacities

With advancing age, there is gradual slow down in the sensory abilities. We communicate with the outer world through our senses. Losses in any senses can have profound psychological consequences.

**Notes**

Vision: Increasing age brings in several problems in vision. The lens continues to lose elasticity. The pupils become smaller, irregular in shape. The eyelids have a tendency to sag. Colour vision becomes less efficient. Cataract and glaucoma are commonly found among the elderly. People with cataracts have blurred vision. This also interferes with normal vision.

Hearing: Hearing seems to be at best around the age 20. From then onwards there is a gradual decline. Most hearing loss is not noticed. However, in the case of hearing problem, it can be improved by a hearing aid.

Other senses: The senses of taste and smell decline with old age. This decline affects appetite and nutritional requirements of the elderly. You must have noticed that many old persons demand food that is overly sweet or spicy. This is because the four basic tastes, sweet, bitter, sour, and salty, all generally diminish in sensitivity. Sensitivity to touch appears to increase from birth to about 45 and then decreases sharply.

14.4 COGNITIVE CHANGES DURING ADULTHOOD AND AGING

The term ‘Cognition’ refers to the processes by which information is acquired, stored, and used. In this section, four major aspect of cognition-memory, learning, attention and intelligence will be discussed in relation to adulthood and aging.

a) Memory

Memory is one of the most central aspects of cognition. Memory has been defined as ‘the mental processes of retaining information for later use and retrieving such information’.

No significant age differences may be found in short-term memory task like forward digit span or word span. Older subjects do not perform as well on the tasks that demand repeating numbers in reverse order. Old persons are found to perform poorer than young ones on long-term memory tasks which require processing of information and organization of material.

b) Memory of the Elderly

Memory performance with advanced age is affected by several factors. Some of the important factors are given below.

(i) Beliefs about Memory

Old persons’ beliefs and attitudes about their memory ability affect their memory performance. Research shows the role of beliefs, perceptions, attitudes, and

**Notes**

knowledge in memory abilities. Questionnaires typically ask respondents how frequently they forget names and events, how anxious they are about forgetting, what they know about how to improve memory and what strategies they employ in remembering. Older adults have been found to have more difficulties with their memory than do younger adults. The common expression among elderly has been 'I am getting old'. Elderly persons are often found to be complaining about their memory failures.

(ii) Use of Memory Strategies

Memory requires the use of strategies. Memory performance would be better for those who can use effective memory strategies. An example of memory strategy is repeating to yourself over and over again the items you want to buy is connected with something that is familiar. For example, if you want to remember the name of somebody, you may associate that person with some popular figure. You can also use memory aids such as a diary or writing out a list of items you want to buy at the grocery store. Most of us use some such strategies every now and then but we are not aware of using them. In their everyday lives, the elderly persons are more likely to use diaries, making lists of things to buy, etc. than using rehearsal or association strategy.

(iii) Life Styles of Elderly

The type of daily activities in which elderly persons engage determines their memory performance. The elderly persons who engage in daily activities like playing chess or bridge, their performance on some of the memory and reasoning tasks is found to be better than elderly non-players. Another aspect of lifestyle determining cognitive performance is regularity in the structure of daily life. Regularity of sleep patterns, daily exercise, following regular schedule of every day activities helps to maintain everyday cognitive functioning.

c. Learning

Learning involves formation of new association. It means acquisition of general rules and knowledge about the world. It is believed that learning performance tends to be poorer during late than early adulthood. Can older people acquire new information and skills? Can they try new careers? Such questions are difficult to answer. We must note that the ability to learn may be relatively unchanged in old persons. Factors such as poor motivation, lack of confidence, test anxiety, etc. may lower performance on learning tasks.

Old persons' learning performance maybe very close to that of young persons if older persons are allowed more time or can self-pace the tests. They were found to perform better when there is no time pressure and the material is presented very distinctly and in a simplified manner.



Notes

d. Attention

The term attention refers to the manner in which we focus on what we are doing. People vary in how wide their attention span is. If attention span is too narrow, one loses a lot of information. Old people may not differ from young people in terms of their attention span as such. However, they get easily distracted by any kind of interference. With training, attention can be improved.

e. Intelligence

As has been pointed out earlier many of our impressions of old age originate from inaccurate knowledge or misconceptions. How do elderly persons perform on intelligence test? Most of the intelligence tests require speed of performance. We have already discussed that old persons are slower on reaction time. Thus lower performance on intelligence tests may be due to slower reaction time than due to a decline in intellectual functions. General knowledge does not decline with age. Among the elderly, we often find reduced abilities for complex decision making and slowing of performance. Hardly any losses in verbal comprehension, social awareness and the application of experience may be noticed among the older people.

Intelligence in adulthood and aging may be viewed as enabling the individual to cope with a variety of demanding everyday tasks and events. Everyday intelligence of the elderly may be determined by their ability in reading road maps, understanding labels, filling out forms, understanding charts, conversations, TV programmes, doing shopping, driving during rush hours, and performing many other daily jobs.

You may remember that we have already discussed that elderly work best when they are away from pressure and can set their own pace. Moreover, the factor of general health is very important to be considered. Healthy individuals and those who lead happy and active life generally show no or little loss of intellectual abilities during old age.

**INTEXT QUESTIONS 14.1**

1. List the factors in memory performance of the elderly.

2. How can be everyday intelligence of the elderly be judged?



Notes

14.5 PROBLEMS OF ADJUSTMENT IN OLD AGE

How does one adjust to the aging process? Different people adopt different coping strategies to adjust with their current life situations. Some aged people try to remain very active by engaging themselves in social roles, enjoy interpersonal relationships and happily participate in some type of occupational activities while others tend to remain socially isolated and withdrawn. The level of activity and nature of engagement is determined by health status, socioeconomic status and family status of the elderly. Let us study about some of the related problems.

A. Poor Image Problems faced by Older People

Older people in general do not like themselves as much as younger people. Older men are generally found to have lower self-esteem than older women. This may be due to the fact that men's self-esteem is related to their occupational achievement while women tend to derive their feelings of self-worth from family circumstances. Thus when men retire in old age or lose their occupational status, their self-esteem goes down. Women, on the other hand, continue to derive self-satisfaction by their family involvements.

B. Happiness

When asked "Is your life exciting?" majority of elderly men and women report that they hardly had any feeling of excitement in their lives and that their life is very dull with nothing to look forward to. However, before we conclude that life gets duller as one goes along, we need to consider many factors towards one's own self as an old person and kind of expectations from life.

C. Economical Problems

Self-employed elderly persons or those having their family business continue to work until they die or become disabled. Those who work for others retire after a certain age. Individual's personal attitude toward retirement varies as a function of a number of factors such as income, educational level, and occupational level.

Adjustment to retirement is often difficult for individuals. Retirement requires adjustment to a new life-style characterized by decreased income, lesser activity level, and increased free time. Retirement causes extreme stress in males because in our society a significant part of men's identity depends on their jobs. Loss of job thus results in loss of self-esteem and self-worth. Retired people find it difficult to adjust to retirement because of financial problems, illness, and feelings of loneliness. Retired individuals have to make several adjustments in their roles, personal and social associations, and in their sense of accomplishment and productivity. However,

**Notes**

it does not necessarily mean that retirement results in negative consequences for every body. In case of some, it may not have any adverse effects on their self-esteem and life satisfaction. Health may even improve for some after retirement. Retired individuals may find more time for social and hobby-related activities especially if they have adequate economic resources and are healthy to engage in these activities.

D. Death

Elderly persons are not afraid of death per se. They do, however, fear to a great extent the dying process — the process of dying in pain or dying alone. Their feelings related to death may be due to specific occurrences in their lives such as being moved from home to nursing home, failing health, or the loss of one's spouse. Thus fear about death must be understood in light of current life circumstances, the individual's own value system, and what death personally means to a person.

E. Depression

Older persons often show two major symptoms of depression : depressive mood (sadness, guilt, hopelessness, helplessness) and reduced behaviour (giving up, apathy). Many elderly persons also represent their depression somatically by complaints (such as loss of appetite, sleep disturbances). Both biological factors (biochemical disturbances) and social/cultural factors (cultural views regarding the worth of the aged person, isolation, retirement, institutionalization) can contribute to depression in aged persons. Other factors such as perceived loss of sexuality, material possessions, and failures also contribute to depression.

14.6 COPING WITH THE PROBLEMS

How does one cope with increasing age? Different people adopt different coping strategies to meet their life challenges. Some of the effective coping strategies may be summarized as follows:

- (1) The elderly need to develop an attitude of flexibility so that they may adapt to life's pressures and problems of old age.
- (2) They need to recognize that they have to explore new ways of coping with their life events.
- (3) The elderly need to make greater use of information seeking and of problem solving rather than withdrawing or isolating.
- (4) Increasing one's self-confidence, self reliance, developing healthy attitude about one's strengths and weaknesses, learning and maintaining effective coping skills

**Notes**

and adopting an active approach toward the environment are some of the important ways of making healthy adjustments in old age.

- (5) Enlarging social networks is another way of coping with life problems. Participating in various group activities such as joining clubs and certain organizations for informal social interaction is very helpful for the aged. Building a social network of people of their own age group in the neighbourhood or elsewhere provides them with greater opportunity to share their life circumstances and find emotional expression to their existing problems. Through such social networks, one can get an unconditional expression of approval, share secrets, provide new experiences to each other, and develop trusting relationships.
- (6) Involvement in grand parenting helps elderly satisfy many of their personal and emotional needs. Grandparents can serve as important role models. Old people find these roles emotionally self fulfilling and tend to derive self-satisfaction through achievement of their grandchildren.

14.7 PSYCHOLOGICAL INTERVENTIONS FOR THE AGED

All of us need to turn to others (friends, relatives, professionals) for help in times of severe stress. In this section we will examine what kinds of psychological interventions can be used for dealing with difficulties of elderly and enabling them to cope with life on a daily basis.

Our chief concern with elderly can be improving their quality of life. The attempt needs to be in the direction of building adaptive resources. The most important goals of psychological interventions are:

1. Insight into one's behaviour
2. Anxiety or depression relief
3. Adaptation to a present situation
4. Improving self-care skills
5. Encouraging activity
6. Facilitating independence
7. Accepting one's weakness and difficulties
8. Improving interpersonal relationships

There are several psychological interventions which are needed for the aged and have proved to be very useful. Some of the important ones are described below:

**Notes****A. Seeking Help through Mental Health Services**

Old persons can be provided help from professionals or from family, friends or neighbours to solve their personal or social problems. Many of their problems may be solved by joint family members. Depending on their resources, elderly need to seek professional help for their personal and family matters. Counselling psychologists can help people prepare for and cope with potentially stressful life events like retirement, death of spouse and financial insecurity. They can be motivated to have an active orientation toward oneself and the world and to keep their options open.

B. Cognitive Behavioural Interventions

Elderly persons seem to be lacking realistic feedback about themselves from others, and thus make 'thinking errors'. Feelings of inadequacy about one self can lead to fear, anger, frustration and depression. Cognitive therapy is very effective in substituting irrational thoughts with rational thoughts. Relaxation training helps reducing anxiety and tension. Cognitive-behavioural interventions have been found to be useful in treating depression, anxiety, memory loss, and response speed in the aged.

C. Behavioural Interventions

Behavioural interventions are based on positive and negative reinforcing stimuli. Elderly persons for example can be given positive reinforcement such as verbal or material reward for the desired self-care behaviour and negative reinforcement (depriving of reward) for the undesirable aggressive behaviour. It is relatively brief and economical. However, it requires a great deal of expertise to use effectively.

D. Family Therapy

Family therapy aids in adjustment to various life problems such as retirement, family care giving role, grandparenthood, family conflicts between young and the aged, coping with illness of elderly, and family decision about institutionalization of the elderly people. If properly handled, family therapy can strengthen the feelings of love, closeness and interdependence.

E. Societal Intervention

In addition to changing the individual, we might like to change the environment or the context in which a person functions. Attention needs to be paid to home environment, activity programmes, as well as to neighbourhood and community in which the person lives. Societal intervention would involve altering attitudes towards the aged and increasing the older person's reliance on the community, family, and friends.



Notes



INTEXT QUESTIONS 14.2

1. What factors cause depression in old age?

2. Name three psychological interventions.



WHAT YOU HAVE LEARNT

- Age is one of the basic categories in which people are classified. At each sub stage of adulthood, there are certain special needs and demands which need to be fulfilled for healthy adjustment. During young age, need for an appropriate job and family security is very important. During middle-age, one is trying to derive satisfaction from a successful job and family life. In old age, concern is more towards physical and psychological health, and emotional and financial security.
- The patterns of physiological aging in the brain and the body are as varied as the individuals who age. Factors such as diet, smoking, excessive drinking, stress all affect the status of health. Many of our society's myths about aging are based on misinformation or prejudice. Though there is a systematic decrement and loss of reserve, it does not necessarily create physical or psychological incompetence and invalidism. Also, early studies on human aging were conducted on hospital or mental patients. Few studies were conducted on normally functioning elderly persons who led active lives. It is important to establish which physiological changes are due to the aging process itself and which are due to environmental factors like disease, diet, lack of activity or exercise. Most of the aged people have more than enough systematic capacities to meet the demands of everyday life. It is a matter of developing positive attitude towards their own health care from adulthood onwards.
- Sensory capacities decline with age. Because of decreased sensory efficiency, old persons are less able to participate in many social activities. As a result, they seem to be gradually losing interest in their personal hobbies and tend to experience loneliness.
- With advancing age, there may be decline in some of the mental functions, such as reaction time, complex decision making and difficulty in retrieving

**Notes**

stored material. Intelligence remains fairly constant. If allowed more time and self-paced task performance, elderly can perform much better as compared to time controlled conditions.

- Self-esteem, or how much one likes oneself, depends on one's concept of what one should be like.
- Women tend to derive their self-worth from family circumstances and men from job circumstances.
- Happiness or excitement seems to decrease with age. However, factors such as health, attitude towards one's self, life circumstances are important determiners of happiness.
- For most individuals, retirement is a difficult and stressful event. For some, retirement can be perceived positively as they can devote more time to their hobbies and leisure activities.
- In bereavement, elderly persons suffer from depression, loss of social support and physical problems. Loneliness is a chief problem for all bereaved.
- Aged persons tend to suffer from depression due to biochemical disturbances, personal inabilities, and social/cultural factors. They may represent their depression somatically.
- With increasing age, people seem to gradually build up a repertoire of coping skills which give them survival power during old age. Older people can endure greater stress than young ones.
- Psychological interventions at multilevels — individual, family and societal, prove to be effective in enabling the elderly cope with daily life events. They help the elderly in their personal growth and improving their quality of life. Elderly can deal more effectively with their stresses, conflicts, anxiety, depression and health-related problems of themselves and of the family members. Psychological interventions should be geared to the needs, interests, capabilities and life goals of the elderly.

**TERMINAL EXERCISE**

1. What are the major developmental tasks for the middle aged people?
2. Describe some of the external changes taking place with advancing age.
3. What happens to the cardiovascular system during old age?
4. What are the economical problems in old age?
5. What are the chief goals of psychological interventions?
6. Write short notes on
 - (i) Bereavement

**Notes**

- (ii) Societal interventions for the aged
- (iii) Depression in old age
- (iv) CNS changes with age
- (v) Family therapy

**ANSWER TO INTEXT QUESTIONS****14.1**

1. a) Belief about memory b) Use of memory strategies
c) Life styles of elderly
2. It can be judged through their ability in reading road maps, understanding labels, filling out forms, understanding conversations, doing shipping and performing daily jobs.

14.2

1. Biological factors like the biochemical disturbances and socio cultural factors (like retirement, isolations etc. cause depression in old age).
2. (i) Seeking help through mental health service
(ii) Family therapy (iii) Societal intervention

HINTS TO TERMINAL EXERCISE

1. Refer Section 14.1 & 14.2
2. Refer Section 14.3
3. Refer Section 14.3
4. Refer Section 14.6
5. Refer Section 14.8
6. (i) Refer Section 14.6
(ii) Refer Section 14.8
(iii) Refer Section 14.6
(iv) Refer Section 14.5
(v) Refer Section 14.8



Notes

15**UNDERSTANDING INDIVIDUAL
DIFFERENCES: THE CASE OF
INTELLIGENCE**

*T*hink about any characteristic of people around you and you will immediately notice that they differ from each other. They differ not only in bodily features like height, skin colour, weight, vision and hearing ability etc. but also in the psychological attributes. In our everyday experience we find that people differ in their motivation, approach to problems, interest and ability to learn. The study of these individual differences forms an important field of psychology. Assessing intelligence, personality, interest, creativity and other attributes with the help of psychological tests has become an established practice. In selecting people for jobs, diagnosing of mental handicap and monitoring psychological development have provided impetus to develop a variety of tests to suit different groups of people (e.g. children, adults, educated, illiterate). The term IQ has now become a common word and people often want to know their IQ and personality. This lesson will help you to learn about the basic features of psychological assessment and understand the nature and assessment of intellectual ability.

**OBJECTIVES**

After studying this lesson, you will be able to:

- understand the meaning of psychological assessment;
- describe basic features of psychological tests used in assessment;
- explain the concept of intelligence;
- describe some of the tests of intelligence; and
- suggest various uses of psychological tests.



Notes

15.1 NATURE OF PSYCHOLOGICAL ASSESSMENT

Psychological assessment refers to the use of specific procedures employed in evaluating the personal qualities, behaviours and abilities of individuals. These procedures describe people by specifying how they are different from or similar to other individuals. Such assessments are frequently done by most of us when we make judgments such as 'nice' 'good' 'bad' 'attractive', 'ugly', 'genius' and 'idiot'. Needless to say that such judgments are quite often found erroneous on many occasions. Scientific psychology tries to systematize these procedures so that assessment can be made with a minimum error and maximum accuracy. Psychologists often call these procedures as 'tests'. **A psychological test is a structured technique used to generate a carefully selected sample of behaviour.**

In order to be useful for the purpose of drawing inferences about the person being tested or examined it is necessary that the test should be **reliable, valid and standardized**. Let us understand the meaning of these terms. **A test is reliable if it measures something consistently.** For instance if you assess something the scores obtained on separate occasions should be same. If a scale tells two different values while assessing the same object on two occasions, it will be called unreliable. A test of intelligence can be called reliable only when a person scores high on both the occasions.

The validity of a test is the degree to which it measures what it intends to measure. A valid test of personality gives a measure of a person's personality and predicts behaviour in situations where that aspect of personality is found important.

In order to be useful an assessment tool should be standardized. **Standardization involves establishing the procedure of administration of a test to all persons in the same way under the same condition.** It also involves establishing norms so that an individual's score can be interpreted. **Norms involve comparison of a score of a person with those of others in a defined group.** Standardization ensures uniformity and objectivity in the process and conditions of administration. It makes the results of a test interpretable.

Psychologists have developed a variety of tests to measure different human characteristics. In schools we use *achievement tests* which measure what pupils have learned. Psychologists frequently use *tests of ability* and *personality*. The tests of ability to tell what an individual can do when they are at his/her best. These tests measure capacity as potential rather than achievement. Tests of intelligence and aptitude come under this category. Aptitude refers to the ability of a person to learn a particular kind of skill required in a specific situation. Admission tests of

IIT or PMT is an aptitude test. Personality tests measure the characteristic ways of thinking, feeling and behaving.

15.2 THE CONCEPT OF INTELLIGENCE

There are very few things which are so obvious and illusive as ‘intelligence.’ The differences in intellectual achievement are expressed in performance. For instance if we take the marks in school examination of 10th grade students it will yield a distribution in which most people show moderate level of performance and very few are on the extremes showing extremely high (excellent) or extremely low (very poor) level of performance. The same is true about intelligence. Fig. 15.1 presents such a distribution. We can see that the Intelligence Quotient (IQ), which has been used as an index of intelligence varies in degrees and very few people have extraordinary level of intelligence. Similarly, very few people come in the categories of profound and severe retardation.

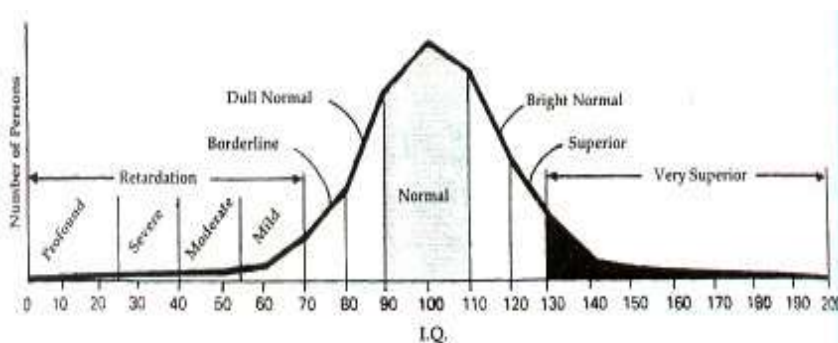


Fig. 15.1: Distribution of IQ scores as expected in a large sample

However, when we try to define and measure intelligence it proves to be a knotty problem. Intelligence is abstract in nature. Therefore our access to it is guided by our own theoretical view point. We can not approach and have access to it independent of our theoretical or conceptual models. At present psychologists have many such models which provide diverse views of intelligence. The diversity in defining intelligence is so perplexing that many psychologists have come to define it in terms of “what an intelligence test measures”. This complexity is partly due to the fact that many of the intelligence tests were developed before defining of what is being tested. In this connection one may recall the story of the first published intelligence test. Binet and Simon in 1905 were asked by the French Minister of Public Instruction to help in teaching mentally retarded children. These psychologists considered it necessary to measure intelligence for identifying these mentally retarded children. They tested children with the help of a test and compared their scores with the average score obtained by normal children at each age level. Children who were two mental-age years behind their chronological age were considered as “retarded.”



Notes



Notes

Subsequent to the publication of Binet's first test of intelligence voluminous research on intelligence has been undertaken across the globe. This has resulted in several theoretical views. Before we proceed towards presenting some of these view points it may be mentioned that most researchers relate intelligence to the following broad classes of abilities:

- (a) adapting to new situations and changing task demands,
- (b) learning or profiting optimally from experience or training, and
- (c) thinking abstractly using symbols and concepts.

Here it should be made clear that the term 'ability' refers to the currently available power to perform something. The various view points about intelligence may be put into two broad categories namely psychometric or factor theories and process oriented views. Factor theories try to identify the factor (s) constituting intelligence, and process theories describe intelligence in terms of the specific tasks, processes or operations involved in intellectual functioning. Let us examine some of the major view points on intelligence.

15.3 FACTORIAL VIEW POINT ON INTELLIGENCE

The composition of intelligence whether it is unitary or multi componential has been a matter of curiosity. Using a correlational technique named factor analysis several researchers have tried to uncover the structure of intelligence.

Intelligence as a General (G) Factor

Spearman proposed that we possess one general intelligence factor (g) and many specific factors (s) which are specific to particular abilities. The g factor runs across all types of abilities. It is expressed in the ability to understand abstract relations. This view is depicted in Fig. 15.2.

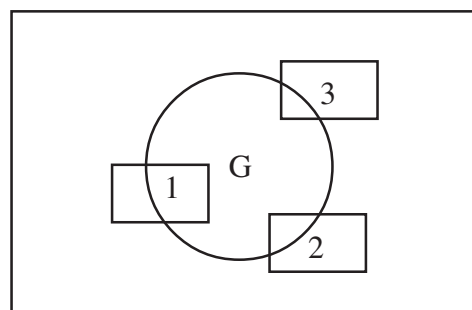


Fig. 15.2: *Spearman's model of intelligence*



Notes

Multiple Factors of Intelligence

Thurstone proposed that intelligence consists of 7 factors namely, *verbal comprehension*, *word fluency*, *number*, *space*, *associative memory*, *perceptual speed* and *induction* (or general reasoning). He developed a test of perceptual speed and induction (or general reasoning). He developed a test of Primary Mental Abilities (PMA) to measure these factors.

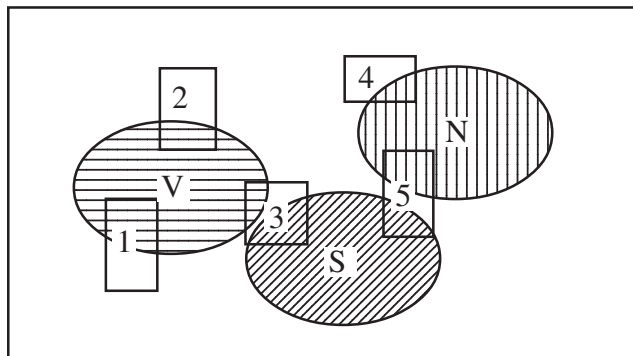


Fig. 15.3: Thurstone's model of intelligence

15.4 THE STRUCTURE OF INTELLECT

With a view to provide a comprehensive measure of intelligence Guilford has proposed another view point. He terms it as the structure-of-intellect (SI) model. This model classifies intellectual traits along main three dimensions.

Operations: What a person does? Operations include *cognition*, *memory*, *divergent production* (creativity), *convergent production*, and *evaluation*.

Contents: This refers to the nature of the materials or information on which operations are performed. These include *visual*, *auditory*, *symbolic* (e.g., letters, numbers), *semantic* (e.g., words) and *behavioural* and *Figural* (information about person's behaviour, attitudes, needs etc.)

Products: This refers to the form in which information is processed by a person. Products are classified into *units*, *classes*, *relations*, *system transformations* and *implications*.

Thus it is clear that the factorial viewpoint presents a view of intelligence in terms of *trait organisation*. The variety of traits thus identified is perplexing. Here, the readers should remember that the traits identified through the technique of factor



analysis are simply an expression of the degree of relationship among behavioural measures. They are descriptive categories. The trait organisation is influenced by the experiential background of the people who are performing the task. The differences found across groups, socio-economic levels and types of school curricula in trait organisation lend support to this view. Looking at the plethora of research using factor analysis Anastasi has rightly concluded that human intelligence consists of *“that combination of cognitive skills and knowledge demanded, fostered, and rewarded by the experiential context within which the individual functions.”*

15.5 INTELLIGENCE AS A PROCESS

This view point is related to cognitive science tradition. In particular the information processing model is very relevant to it. It traces the processes of acquisition, representation and use of information in undertaking intellectual activities. Let us learn about some of the models emphasising the process view of intelligence.

Triarchic Theory

After rejecting the factorial or psychometric approach **Robert Sternberg** analysed intelligence in three aspects i.e. componential, experiential and contextual. The componential aspect includes those processes which are employed by a person taking a test in responding to the items of standardised intelligence tests. Its constituents include meta component or higher order control processes, performance component, acquisition component and transfer component. The second aspect namely experiential one refers to the way people's mental world and the outer or external world are related to each other. It adds creativity to the notion of intelligence. In reality a person's intelligence shapes his or her experiences. Also, the experience which one has influences intelligence. The third aspect of intelligence is contextual. It refers to the way individuals share their environments, adapt to them and try to get maximum from the available resources. It is also called practical intelligence.

Theory of Multiple Intelligences

Haward Gardner has argued that there are multiple intelligences. He says that intelligence is not a single entity, rather there are multiple intelligences each distinct from others. He has so far identified eight types of intelligence: linguistic, logical, mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal and natural. The value of these is determined by their relevance to culture in which people live. Different cultures assign different degrees of importance to each of these intelligences.



INTEXT QUESTIONS 15.1

Choose the correct alternative:

- (i) Scores of a large group of persons on intelligence test will show distribution in which majority will get:
 - a) low scores
 - b) moderate scores
 - c) high scores
 - d) extremely high scores
- (ii) The first test of intelligence is associated with:
 - a) Binet
 - b) Spearman
 - c) Terman
 - d) Raven
- (iii) Who has stated that intelligence consists of multiple factors?
 - a) Thurstone
 - b) Guilford
 - c) Vernon
 - d) Sternberg
- (iv) The view which conceptualizes intelligence in terms of operations, contents and products is known as:
 - a) systems model
 - b) structure of intellect
 - c) hierarchical model
 - d) G factor model



Notes

15.6 INTELLIGENCE IN THE NON-COGNITIVE DOMAINS

As can be seen from the preceding analysis the major concern of studying intelligence has been with the rational and cognitive domain. In recent years many



other aspects have been explored. It would be interesting to briefly refer to some of them. One such concept is of **wisdom**. It comprises a unique blend of cognitive, interpersonal, social and personality attributes. It is achieved as a result of successfully negotiating the conflict between integrity and despair or as a result of transcendence of preoccupation with one's self. It is knowledge that effectively integrates emotional and cognitive components. Another related concept is that of prudence of "practical wisdom". It emphasizes on the practical achievement of personal goals, plans and intentions. It is characterized by a flexible and applied concern for the practical contingencies, specially in the face of uncertainty.

Social intelligence has also received attention by the researchers. It represents the efforts of an individual to solve the problems of daily life and work toward the desired goals. Finally, the most recent notion is that of **emotional intelligence**. It is defined as the ability to monitor one's own and other's feelings and emotions, to discriminate among them and to use this information to guide one's thinking and action. People high on emotional intelligence show greater degree of emotional self awareness, manage emotions well, harness emotions productively, have empathy and handle relationships effectively. It has been observed that success in jobs and in the different walks of life depends more on emotional intelligence than IQ. While childhood is a critical time for its development, emotional intelligence is not something fixed at birth. It can be nurtured and enhanced throughout adulthood.

15.7 INTELLIGENCE TESTS

Let us familiarise with some intelligence tests. These tests may be classified into verbal and non-verbal (performance) and individual and group tests. The performance tests are used for the assessment in case of illiterates and people with certain types of physical handicap. Individual tests are those which can be administered on one person at a time and group tests can be administered simultaneously on several persons. Some information about certain important intelligence tests is presented below.

1. Stanford-Binet Intelligence Scale

The test developed by Binet and Simon for the children in French schools was adopted and revised by Terman and his associates at Stanford University and was published in 1916. Since then this individual test has been revised several times. Now we have the fourth edition of Stanford-Binet (S-B IV) scale. It has 15 tests selected to represent four major cognitive areas: verbal reasoning, abstract/visual reasoning, quantitative reasoning, and short-term memory. The tests are administered in a mixed sequence. The age range covered is 2 Years to 18+. Its administration involves two stages. In the first stage the examiner gives the vocabulary test which helps in determining entry level for all the remaining tests. In

**Notes**

the second stage the examiner establishes a basal level and a ceiling level for each test in terms of actual performance. The basal level is reached when four items on two consecutive levels are passed. If this does not occur at the entry level, testing continues downward until a basal level is reached. The ceiling level is reached when three out of four or all four items on two consecutive levels, are failed. This is where testing with that particular test is discontinued for the individual.

In earlier edition of this test the scores were interpreted in terms of intelligence Quotient (IQ) as per the following formula:

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

Here MA stands for mental age and CA stands for chronological age. The concept of IQ has been very popular as an index of intelligence. But in recent years it is being criticised. Now there is a move to develop and use other indices of intelligence.

In the recent version of the test Standard Age Scores (SAS) are given for all the 15 tests. The record booklet of the test provides a chart for plotting a profile of the test taker's SAS performance on each test administered. The use of the term IQ has now been completely abandoned. The test allows examiners to assess separate abilities appropriate for specific testing purposes.

2. The Wechsler Scales

These scales developed originally by David Wechsler deal with the groups of adults, school-age children and pre-schoolers. They are used as measures of general intelligence as well as a possible aid in psychiatric diagnosis. The current version of the test includes Wechsler Adult Intelligence Scale Revised (WAIS-R), which covers the age span of 16 to 74 years; the Wechsler intelligence Scale for children-Third Edition (WISC-III) intended for children aged 6 years to 16 years and 11 months, and the Wechsler Pre-school and Primary Scale of Intelligence-Revised (WPPSI) which covers the range of 3 years to 7 years and 3 months. Out of the 17 different kinds of sub tests 8 are common to all three scales (5 verbal and 3 performance sub tests). The information sub test is the first verbal sub test to be administered in all three scales. The performance subtests of these scales typically require manipulation of various objects, such as puzzles and blocks, or the visual scanning of printed materials like pictures or symbols. Some researchers have proposed short forms of these scales, the raw scores on each of the subtests are transformed into standard scores with means of 10 and an SD of 3. All the subset scores are thus expressed in comparable units. An examinee's performance is evaluated in terms of the appropriate age norms.



3. Raven's Progressive Matrices (RPM)

This is a performance test designed to measure g factor or general intelligence. The items consist of a set of matrices, or arrangement of design elements into rows and columns from each of which a part has been removed. The task is to choose the missing insert from given alternatives.

The easier items require accuracy of discrimination; the more difficult items involve analogies, permutations and alternations of patterns, and other logical relations. It is available in three forms differing in the level of difficulty:

- (i) The Standard Progressive Matrices (SPM) is suitable for the ages of 6 and 80 years
- (ii) The Coloured Progressive Matrices (CPM) is for younger children and for special groups.
- (iii) The Advanced Progressive Matrices (APM) is for adolescents and adults,

4. Draw-A-Man Test

Developed initially by *Goodenough*, this nonverbal test requires the test taker to draw or make a picture of a man. Credit is given for the inclusion of individual body parts, clothing details, proportion, perspective, and similar features. Moderate reliability and validity have been reported for this test. In India Pramila Phatak has developed norms for this test.

15.8 USES OF INTELLIGENCE TESTS

Since tests are used as a tool in vital decision making about jobs, promotions, school or college admissions there emerge many problems of ethical and procedural kind which require that the use of tests should be controlled. It is recommended that the test is given or administered by a qualified examiner. Also, the scores should be properly used. The general familiarity with the test content should be prevented. This may invalidate the test results. The examiners are required to make advance preparations to maintain uniformity in the procedure. Testing conditions should be proper. The examiners are required to arouse the test takers' interest in the test, elicit their co-operation, and encourage them to respond in an appropriate manner.

At present, intelligence tests are used in many settings to help in a number of activities like selection of people for various jobs, diagnosis of mental handicap, guidance and counselling, and research in the area of intellectual development. A brief description of these uses is as follows.

**Notes****Personnel Selection**

It's a matter of common experience that people differ in the degree of competencies, abilities and interests. Success in a job depends on the fact whether the person applying for a job possesses the qualities required in undertaking a particular job. In this way the process of selection becomes one of matching the characteristics of the applicants with job requirements. Intelligence is considered as something basic to success in all kinds of jobs. As a result in most of the procedures of personnel selection assessment of intelligence constitutes an important component. With the help of intelligence tests applicants' intelligence level is assessed and the results are used by the employer in the process of decision making about the applicants.

Diagnosis of mental Handicap

People differ in their intellectual abilities, Those who have a very low level of intelligence are known as mentally handicapped. Such persons experience difficulty in adjusting with the demands of their external environment. They need special care and training. Infact many of them can not communicate or express their needs and have difficulty even in taking care of themselves. Intelligence test along with certain other indicators is commonly used to estimate the degree of mental handicap.

Guidance and Counseling

Career of vocational guidance is assuming an important role in the context of education. With the expansion and diversification in our country's educational scenario, selection of a course and career is becoming a tough task for the students, teachers and parents. In this context, psychologists use intelligence tests to assess the capability of the people and use this information in deciding about the choice of career options.

15.9 EXPLAINING DIFFERENCES IN HUMAN

While differences in intelligence are obvious the reasons of there differences are till matters of debate. In particular researchers have tried to examine the contributions of genetic or hereditary and environmental factors toward variation in IQ. Studies indicate that the scores of more closely related people are quite similar. In particular the evidence from the studies of adopted children and of identical twins separated early in life and raised in different homes show this trend. The studies of environmental deprivation and enrichment have indicated the effects of environmental factors on IQ. Interestingly females are found to score higher

**Notes**

than males with respect to verbal abilities while males tend to score higher in visual-spatial abilities. Such differences may reflect the evolutionary history of human species.

Another important issue about the group differences relates to the cultural bias of intelligence tests. It has been argued that many of the tests have been developed in western cultural context. As a result children familiar with western cultural context score higher than those who are not familiar with it.

This is why some efforts have been made to develop culture fair test like Cattell's Culture Fair Test of Intelligence.



Choose the correct alternative:

- (i) Which one of the following does not deal with non-cognitive aspect of intelligence:
 - a) practical intelligence
 - b) social intelligence
 - c) emotional intelligence
 - d) process model of intelligence
- (ii) Intelligence Quotient (IQ) is derived using the following formula:
 - a) $MA/CA + 100$
 - b) $MA/CA \times 100$
 - c) $CA/MA \times 100$
 - d) $CA/MA + 100$
- (iii) Wechsler test provides a measure of:
 - a) specific abilities
 - b) verbal ability
 - c) processes of intelligence
 - d) general ability
- (iv) An intelligence test must have the following
 - a) norms

**Notes**

- b) validity
- c) reliability
- d) all of the above

(v) Intelligence tests do not help in:

- a) guidance
- b) personal selection
- c) measurement of learning
- d) measurement of problem solving ability.



- Psychological characteristics are normally distributed in the population. Thus majority of the people are found moderately intelligent and a limited number is found to have very low or very high level of intelligence.
- The study of individual differences is practically important. Intelligence is viewed in many ways depending on the theoretical view point adopted. Some psychologists view it as a trait while others view it as a process.
- The trait approach has also yielded different views. Thus we have single (general) factor, multiple factors, and hierarchical views. On the whole, intelligence appears to be a combination of cognitive skills and knowledge.
- The process view of intelligence considers it in terms of various cognitive processes. Also, there is realization that intelligence is of multiple kinds. The notion of social and emotional intelligence have opened new areas of research.
- Intelligence is assessed with the help of psychological tests which are reliable and valid measures of a sample of behaviour. The first test of intelligence was developed by Binet which was subsequently standardized at Stanford University. The tests may be verbal or performance and can be administered individually or on a group.
- Special tests have been developed for children and the handicapped people. These tests are often used in personnel selection, guidance, diagnosis of mental retardation and research.
- The Indian psychologists have adapted several tests are often used in personnel selection, guidance, diagnosis of mental retardation and research. The Indian psychologists have adapted several tests but much is still desired.
- Psychologists have also developed tests to assess achievement, aptitude and



Notes



1. Show your acquaintance with the different ways in which the concept of intelligence is used by psychologists.



2. Describe the properties of a psychological test used in assessing intelligence.

its possible uses.

15.1

- i) B ii) A iii) A iv) B

15.2

- i) D ii) B iii) D iv) D
v) C

HINTS TO TERMINAL EXERCISE

1. Refer section 15.3
2. Refer section 15.4
3. Refer section 15.4 and 15.5

**Notes****16****WHAT IS SELF?**

Self is focus of our everyday behaviour and all of us do have a set of perceptions and beliefs about ourselves. This kind of self concept plays important role in motivating us and organizing our behaviours. It starts evolving early in life. A sense of self awareness grows among us when we grow. In fact, all of us engage in experiences which enhance our sense of self. As Rogers said we want positive regard from others. In other words we have a strong need of being loved and valued by other people. The study of self and its functioning is a fascinating topic. In this lesson you are going to learn about the way self is conceptualized and the different aspects of self are related to human behaviour.

**OBJECTIVES**

After studying this lesson, you will be able to:

- explain the concept of self;
- explain the different levels of self as conceived in Indian thought;
- describe the different aspect of self;
- appreciate the value of self awareness;
- describe the relationship of self with other processes.

16.1 CONCEPT OF SELF

If some one asks: who are you? We often describe that physical features, traits, goals, motives etc. The self concept is a collection of diverse information. It



constitutes a central aspect of psychological functioning. However, its definition has been approached from many angles. A close scrutiny of these views indicates that **self is subject as well as object**. The self as a subject includes the person's experience of self as thinker, feeler and actor. Thus, when I feel anger or think about the idea of freedom, it is "I" – the self as subject. On the other hand, the self as object is the other person's view of the self or "me". In recent years researchers have tried to understand the representations or mental models of self.

The experience of self is very common but complex phenomenon. Its structure and contents are shaped by the society and culture in which people live. Based on the cultural context people divide the world into the categories of "self" and "non self". In the individualistic cultures people prefer **independent self construal** while people in collectivist cultures prefer an **interdependent mode of self construal**. The independent self construal considers self in terms of a bounded, separate and individual entity which is central to all the activities of a person. In contrast, the interdependent self construal emphasizes on connectivity, interdependence and sharing. In this case the boundaries between self and non self are overlapping. It may, however, be noted that the two modes of self construal are broad trends and within a given culture people may display both kinds of self construal in different degrees.

Some researchers think that the idea of self emerges and shaped in social interaction. In particular when a child is addressed by some one s/he starts thinking about self. Thus, self originates in social experience. Gradually people internalize a particular view of self which becomes a powerful source that influences behaviour. Some part of our self is private to us and only we know about that. Another part is public which is known to others. Also, there is a part of self which comes from our membership of a group. This kind of self is called collective self or social identity.

16.2 LEVELS OF SELF

Self is experienced at different levels, William James, who started serious study of Self talked about **material self**, **social self** and **spiritual self**. More recently Neisser has talked about **ecological self**. Let us try to learn more about these types. The ecological self refers to the self in the embodied form that can be physically identified in time and space. The **inter personal self** involves the self which exists in the social relations when we interact with others. The **extended self is the self which is in our memory**. It is personal and private. Finally, there is **conceptual self** which is the idea of self that a person holds. All of us have acquired a set of ideas about what can be included within the category of self. This kind of conceptualization is nurtured in each culture in a given way. It is a comprehensive network of ideas about self. In order to illustrate this point we may



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consider the concept of **Panch Koshas** as developed in the Indian thought. Here the term Kosh means layers or sheath like the sheath of an onion. The Jiva consists of five such Koshas and self should be considered in terms of a multi layered structure of hierarchically organized sheaths. A brief description of these sheaths is as follows:

1. **Annamaya Kosh:** This involves the gross physical body. This is the outermost layer of existence. It is called **annamaya** because it is grounded in the food that we eat and consume.
2. **Pranamaya Kosha:** This layer deals with life (Prana) and represents the functions of breathing and metabolic processes. The five effectors are also included in it.
3. **Manomaya Kosha:** It consists of sense organs. It is the seat of ego and leads to personal involvements which bind people with the desires and activities.
4. **Vigyanamaya Kosha:** It consists of five sense organs and intellect. It regulates the worldly life. The **feeling of “I-ness” present in it relates Jiva to past actions**. Also, the feelings of pride take place.
5. **Anandmaya Kosha:** It is the joyous sheath. The experience of bliss is has spiritual basis also, the pleasure that one gets from obtaining the desired objects is part of it.



INTEXT QUESTIONS 16.1

Fill in the blanks with suitable words:

1. In individualistic culture people prefer _____ while in collectivist culture they prefer _____.
2. _____ has talked about material self, social self and spiritual self.
3. According to theory of Panch Koshas, as described in Indian thought, Annamaya Kosh involves the _____.

16.3 ASPECTS OF SELF

In the psychological studies of self the researchers have explored many aspects of self. They show that self is multi-faceted. As you will find in the following description



our ideas about self, its evaluation, its presentation and its monitoring vary among the people and shape behaviour in important ways. In fact the ideas held by the people about self shape and organize our personal lives and allow participation in group life.

Self Esteem

It is the evaluative component of self concept. It basically deals with internalized social judgments and ideas about how worthwhile a personal quality is. Self esteem is an important factor in one's psychological health. People who feel good about themselves or have high self esteem are found to be more active, motivated, persistent, and happy than the people with low self esteem. It has been noted that unhappiness, and despair are related to low self esteem. Thus our affective evaluation of ourselves, positive and negative both, have important consequences for the way we are going to conduct ourselves in future. Research has shown that low self esteem is related to depression, and self doubt.

Self Efficacy

Self efficacy refers to our belief about what we are capable of achieving. In other words it refers to perceived competencies of a person. They determine how we interact with our environment and other people. High self efficacy children solve problems more quickly than those who had low self efficacy beliefs. According to Bandura self efficacy beliefs have power of four major influences as given below:

- (a) **Cognitive:** It refers to the effect on thought patterns. Self efficacy influences evaluation of capability and preparation to make an attempt.
- (b) **Motivational:** It influences how long we will keep trying.
- (c) **Affective:** It deals with stress, anxiety, and feeling of control.
- (d) **Selection:** It includes choosing challenging activities.

Self Presentation

This deals with the behavioural expression of self. We are often concerned with the images we present to others. The growing importance of cosmetic and fashion industry clearly shows the degree to which we are preoccupied with our physical appearance. We are often quite concerned with the impression what we convey in public. The term self-presentation technically means the strategies people use to shape what others think of them. If life is viewed as theater, we act out certain lines as they are taken out from a script. Researchers have tried to study the process through which we attempt to shape what others think about us. The process of self-presentation can take many forms. It can be conscious or unconscious, accurate or misleading, and intended for real audience or for ourselves. In general two main



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motives have been identified for self-presentation. They include strategic self-presentation and self-verification. The strategic self presentation is our effort to shape other's impression to gain power, influence or sympathy. Ingratiation and self promotion often make us liked and respected by others. The goal of self – verification help people to affirm their existing self concept.

Self Monitoring

Self monitoring means the extent to which external situation and the reactions of others help one to regulate behaviour. Thus politicians, sales persons and artists are high self monitoring persons. The people who are low self monitors regulate their behaviours on the basis of internal factors such as beliefs, attitudes and interests. It has been found that high self monitors pay attention to others and low self monitors pay attention to themselves. Also, the high self monitors select a companion on the basis of how well the others perform and low self monitors choose a companion on the basis of liking. People who are high on self monitoring seem to have a repertoire of selves from which to draw. They are quite sensitive to the concerns of strategic self-presentation.

Self Consciousness

If we examine our daily life we find ourselves busy with many activities. During these activities we are often away from ourselves. We think very little about ourselves. In other words we are not always self-focused. However, certain events do compel us to turn to our own selves. Thus when we glance into a mirror, talk to ourselves, stand before an audience or a camera or occupy an important position in a group we become self aware. When we become self aware we start comparing our behaviour with internal standards. Such a comparison reveals negative discrepancy. Under these conditions our self esteem decreases. In order to deal with this situation we may attempt to reduce self discrepancy or withdraw from the state of self awareness. It has been found that some people have tendency to introspect the inner thoughts and feelings (private self consciousness) while others have tendency to be aware of outer public image (public self consciousness).

16.6 AWARENESS OF SELF: HOW ACCURATE ARE WE IN SELF APPRAISAL?

It is often taken for granted that we know ourselves very well. However, in reality this is not true. Studies show that there are many aspects of our self concept which are known to us and others also know about that. In other words it is public. But there are three other possibilities as given below:

1. there are attributes of self that are known to the person but unknown to others.



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2. there are attributes of self that are not known to the person but known to others.
3. there are attributes of self that are neither known to the person nor known to others.

You can easily imagine the situations where there is discrepancy of any kind in terms of the attributes known to the person and known or not known to others. In order to live a healthy life proper appreciation of one's attributes is necessary. Also, it must be a realistic appraisal. It is on the basis of an impartial knowledge and understanding of the strengths and weaknesses of oneself that proper course of action can be planned.

While discussing self it should be pointed out that people often show self serving bias. This implies that they try to defend themselves and view things in a way that positive attributes of self are enhanced. For instance people explain success on any task to their ability and effort and attribute failure to external factors like chance or luck. Also, every body likes positive appreciation from others, whether it is correct or incorrect. This may lead to building false self images and a number of related problems.



INTEXT QUESTIONS 16.2

Match the terms of column A with the appropriate description given in the column B.

Column A

Column B

- | | |
|------------------------|--|
| (a) Self esteem | (i) behavioural expression of self |
| (b) Self efficacy | (ii) the extent to which external situation and the reactions of others help one to regulate behaviour |
| (c) Self presentation | (iii) evaluative component of self concept |
| (d) Self monitoring | (iv) thinking about oneself |
| (e) Self consciousness | (v) belief about one's competency |

16.5 RELATIONSHIP OF SELF WITH OTHER PROCESSES

A moment's reflection will make it clear that self is involved in almost all kinds of psychological processes. Our learning, perception, motivation, memory, all are shaped by the nature and state of self. One must recognize the fact that these and other psychological processes are not mechanical. They are activities or functions of self. For instance, when some one finds self at stake, he or she may put in



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maximum efforts. Similarly, we attend and perceive objects and people in a manner which is compatible with one's self.

In recent years researchers have become interested in relating self construal or one's idea about self with various psychological processes. In this connection attention has been paid to the cultural differences in self construal and its implications for various processes. In an earlier section it was pointed out that these are two main types of self construal i.e., independent and interdependent. Let us examine how these two types of construal are related to cognition, motivation and emotion.

Self and Cognition : The effects of self construal on cognition are found in a variety of ways. It has been found that people with independent self construal emphasize on their internal attributes as important features. In contrast, the people with interdependent self think more about relationships and contexts. Similarly while explaining behaviours of other persons, people with interdependent self recognize the significance of situational factors. Research has shown that situational and context dependent explanations are used more frequently by the Indian people as compared with Americans.

Self and Emotion: Some emotions emphasize inner attributes. For example, pride or feelings of superiority are often found when some one has accomplished something. Similarly frustration occurs when the personal goals or desires (internal attributes) are blocked. In these situations the emotional experience tends to separate or disengage the self from one's social relationships. On the other hand, there are certain positive emotions like friendly feelings or feelings of gratitude and respect. Such emotions occur when one is in close or congenial relationship with others. Experiencing such emotions promotes an interpersonal bond. The same is true in case of negative emotions such as feelings of indebtedness or guilt. They occur because of failure in maintaining relationship with others. This set of emotions reflects **socially engaged emotions**. It has been found that persons with interdependent self construal tend to experience socially engaged emotions more frequently than the people with independent self.

Self and Motivation: It has generally been thought that the issue of motivation deals with internal processes pertaining to a person. The ideas of needs and motives deal with these processes. This view is very close to the independent self construal. All of them refer to the motivation related to the person or "me". In case of interdependent self, it is noted that behaviours are directed or guided by the expectations of significant others (e.g., parents, teachers, other family members), obligations and duties toward others. In this context studies of achievement motive provide a useful illustration.

Achievement motivation deals with the "desire to excel". This desire is present in all cultures. However, it is conceptualized in different ways in different cultures. In



cultures where independent self is predominant this need is personally based while in the cultures emphasizing interdependent self, this need is interpersonally and socially structured. In the Indian context where collectivism and interdependent self dominate social concern emerges to be an important aspect of thinking about achievement.



TERMINAL EXERCISE

1. Describe the concept of self.
2. Name five koshas discussed in the Indian thought.
3. Describe the possible ways of self appraisal.
4. Discuss the relationship of self construal with emotion and motivation.



ANSWER TO INTEXT QUESTIONS

16.1

- (1) Independent, interdependent.
- (2) William James
- (3) Gross physical body

16.2

- | | | | |
|-----|-------|----------|---------|
| (a) | (iii) | (b) (v) | (c) (i) |
| (d) | (ii) | (e) (iv) | |

HINTS TO TERMINAL EXERCISE

- (1) Refer to section 16.1
- (2) Refer to section 16.2
- (3) Refer to section 16.4
- (4) Refer to section 16.5



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17**SELF AND PSYCHOLOGICAL
PROCESSES**

As people grow they develop their own concept of self which determine how they relate to others and perform the various activities. Our self concept, however, does not remain constant, rather it changes during the different stages of life. We perceive others as persons, relate to them and develop friendship and other kinds of close relationships. Also, we develop self control and grow morally. In this way, self does not remain one's attribute related to personal functioning only. It goes beyond that and relates to the social world that we inhabit. Infact, self relates to the social world in a reciprocal manner. It influences our interactions with the social world and is influenced by it. In this process self also gets influenced by the social world. In this lesson you are going to learn about self in action and see how we perceive and interact with others.

**OBJECTIVES**

After studying this lesson, you will be able to:

- explain development of self across the life span;
- understand the meaning of self control;
- explain the stages of moral development; and
- describe stages of the development of pro-social behaviour.



17.1 SELF IN A LIFE SPAN PERSPECTIVE

Most of us tend to agree that human beings have a self. It is treated as a distinct entity with its own qualities and functions. It is often considered as a natural aspect of our lived experiences. However, this assumption does not hold ground when we try to understand the lives of children. The studies suggest that some crude idea of self recognition is noted by the middle of the first year. It is during this period that children start processing the voices and facial images of infants other than themselves. This is often interpreted as an indication of the **beginning of self-other distinction**.

Infancy: While using mirrors it has been found that children of different age groups respond differently to the images they see. The infants are found to have a visual self concept between 15 and 24 months of age. Using videotapes of children it was found that 3 year olds do not have clear self awareness. The 4 and 5 year olds do have better representations of themselves. The toddlers start categorizing other children on the basis of age and gender. During childhood the categories remain concrete (e.g., possessions, appearance, things they can do)

Childhood and Adolescence: During early childhood children start defining themselves on the basis of psychological attributes. They start thinking about attitudes. During adolescence representations of the self become much more subtle. They realize that they are not the same kind of person with everyone and in every situation. Identity is the key issue of development during adolescence. **Identity provides a stable sense of who a person is and what one's values and ideals are.** Many adolescents experience **identity crisis**. They fail to have a coherent and enduring sense of self. They have difficulty in committing to roles, values and occupational choices. Some adolescents establish their identities after considerable soul-searching and introspection. Others commit early without much exploration. This forecloses identity development.

Early Adulthood: This stage of development confronts the challenge of *intimacy vs. isolation*. Intimacy refers to the establishment of a committed relationship which is enduring. It includes both romantic as well as friendly relationship. In the course of development one needs to redefine his or her role as father/mother, uncle/aunt.

Middle Age: During this stage people become concerned with relating to the next generation and one's contribution to society. During this period a person faces the crisis of **generativity vs. stagnation**. People are expected to engage in more and more generative activities. In fact 'midlife crisis' has become a popular phrase. It brings an interruption in the normal rhythm of life. For some, the changes are gradual and for others they are drastic in nature.



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Old Age: With increase in life expectancy, the population of elderly people is increasing. The main challenge faced by the aged people is that of *integrity vs. despair*. Poor physical health, lack of support and physical illness make the life of older people difficult. In view of social mobility and disintegration of traditional family ties, many aged people suffer from poor self concept. However, those who look back upon their lives with a sense of satisfaction that they have lived it well, experience a sense of integrity. Others may have regret and despair.

Thus we find that the notion of self assumes different forms and undergoes important changes during the life course. It reflects the changes in the experiential world of the people. However, the view of self held by people is not merely a representation of the expectations of others. It also works as a powerful force which directs behaviours and shapes interactions in social situation. Self undergoes transformation and many elements are included and excluded in one's self structure. People often strive for an ideal self. They are expected to contribute to the healthy development of society to which they belong.

People like Mahatma Gandhi, and Mother Teresa, who have immensely contributed to society, were psychologically very strong. One of the notable characteristics that they had is a well developed conscience. Their ideas, words and actions went together. Mahatma Gandhi thought that truth would always triumph; so he spoke only the truth. Also, he carried out what he spoke. Like-wise, Mother Teresa was concerned for the poor and the sick. She spoke for their welfare and dedicated her entire life to that cause. Like-wise many famous people all over the world, have contributed to the welfare of society. All of them are known for their integrity. Well-integrated people contribute not only to their personal growth but also to the growth and development of society.

To achieve this integrity, each individual should develop all the skills which he/she is capable of, and in the long run, these individuals become psychologically and socially competent and lead a healthy life. By gaining social competence and contributing to society at large, they command respect of the people.

17.2 SELF-CONTROL AND ITS DEVELOPMENT

Self control is a process of learning to regulate one's own behaviour in a manner maximally rewarding or satisfying. To this end, people use a number of self control strategies. For instance, an obese person is taught to use self-control methods to lose weight, a chain smoker to decrease smoking and an extremely tense person to reduce tension.

Steps in Self control: Following are the major steps in developing self- control.



- (1) **Performing a task :** This refers to the action taken to solve a specific problem.
- (2) **Self-monitoring of performance and outcome :** It means actual observation and recording of the action taken.
- (3) **Self-evaluation:** This involves revising one's beliefs about his or her competence.
- (4) **Self reinforcement:** This means recognizing and approving of the accomplishment that may lead to a tangible reward or a positive self-statement.

Following is an example where a child is taught to remain calm and to take control of a difficult situation and not get provoked to react.

- (1) **Prepare for provocation:** Teach the child to anticipate difficult situations and tell her not to get provoked.
- (2) **Confront the difficulty:** Through imagination, play-acting or rehearsal, the child is taught to confront the provocation but at the same time be in control so that a desirable response follows.
- (3) **Cope with the provocation:** The child is made aware of the physical response to confrontation like tightening of the muscles and rising fear or anger and that this will be followed by teaching simple coping skills.
- (4) **Reflect on the consequences:** The child is taught to think about the outcome of handling the provocation, whether positive or negative. The child is also encouraged to become more reflective about herself, others' responses and other consequences by keeping a diary, talking to friends, parents and generally becoming more aware of the possibilities.

Self Instructional Training (SIT): This kind of instruction focuses on the development of major skill areas emphasizing "self-talking" responses. The steps of self instruction are as follows:

- (1) Teaching problem identification.
- (2) Teaching self interrogation skills.
- (3) Teaching attention – focusing and appropriate responding skills.
- (4) Teaching self-reinforcement skills so that the youngster evaluates his own responses and rewards the adaptive ones.
- (5) Self correction and coping options enable the youngster continuously to monitor his behaviour, evaluate alternatives and arrive at optional solutions.



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Box 17.1: Application of Self Instructional: An Example

- (1) **Problem Identification :** You cannot sit to read for a considerable length of time.
- (2) **Interrogation Skills :** Since when have you had this difficulty? At what times of the day does this happen to you? Is it related to any subject?
- (3) **Attention :** (i) Sit for only 30 mins at a time; (ii) take rest for five minutes by going away from the books and doing what you like (e.g; chatting with your mother, listening to the radio, etc.), (iii) return to reading and voluntarily draw your wandering attention to the reading.
- (4) **Self Reinforcement :** (i) Reward yourself when you have achieved undistracted reading for some time with “I could do this for ten minutes. I can do it for twenty minutes now” or reward yourself with what you like to do most when you achieve the goal after a few days. On the other hand, if you get distracted even after your efforts, punish yourself by denying what you like doing most (e.g., watching your favorite TV serial).
- (5) **Self correction and coping option :** Correct yourself when you do what is not desired. In this case, when you get distracted, attempt focusing back on your work. Cope with the distractions by perhaps changing your place of reading e.g. go to a quieter place like library.

Thus, self-control procedures can be used for self improvement.

**INTEXT QUESTIONS 17.1**

1. What do you mean by self control?
2. Describe briefly any two conditions in which self control will be effective?

17.3 MORAL DEVELOPMENT

Development of the notions of “right” and “wrong” is an important aspect of social development. These notions help a person to balance the self interest and well being of others. In other words acquiring such rules facilitates morality or the normative standards that are helpful in organizing social lives of the people.



Development of morality occurs through stages. The development of the **idea of other persons** and **perspective taking** play important role in its development. During infancy children start recognizing social interaction as a reciprocal process. It's a great achievement to realize that people's actions depend on one's own. Initially children, up to the age of 8 years children focus on simple and concrete attributes of others and have difficulty in appreciating others. They only gradually learn to understand other's point of view. This ability starts during childhood and continues during adolescence.

Researchers trying to explain the pattern of cognitive development have tried to see how moral reasoning develops. Piaget found that younger children up to 9-10 years of age show **morality of constraint**.

During this stage children think in terms of conformity to social rules. Such rules focus on one aspect of the event and ignore others. For example, if child is asked to decide who needs to be punished, a child who went to kitchen to get her favourite dish by stealing and broke cups while reaching the jar in which the dish was kept or another child who did not know and accidentally opened the door and broke five cups which were kept near the door.

The younger children tend to recommend greater punishment for the second child who broke 5 cups than for the first one. Older children follow a different type of reasoning. They think about the intentions and do not consider rules as unchangeable. The moral rules can be changed if there is need. This is known as **morality of cooperation**. If we compare the reasoning of children we notice that young children's morality is autonomous.

In the process of socialization, the ethical beliefs are internalized and provide the foundation for moral development. Moral concepts start developing in a child from an early age. The first stage of morality is based on consequences, that is, before the age of about seven, the child tends to view or categorize acts which yield positive outcomes as "good" and those which yield negative outcomes as "bad". This pattern is called **objective moral orientation**. After the age of seven years, we focus our attention on the intentions behind various actions. This is called **subjective moral orientation** and generally it develops when a child is around ten years old.

Moral reasoning passes through three different levels, namely pre-conventional stage, conventional stage and post-conventional stage .

In the pre-conventional stages, the reasoning is somewhat self-centred and focusses on the personal consequences of individual's behaviours. Then in the conventional stage, reasoning focusses on what is considered as acceptable moral rules. Later



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during adolescence, the individuals enter the post conventional stage in which they rely on abstract principles. A brief description of the stages of moral development as envisaged by Kohlberg.

Preconventional Level

Stage One : Moral judgement is based on obedience and punishment. Actions which demonstrate obedience to authority and allow the individual to avoid punishment are viewed as “good”.

Stage Two : Actions which satisfy the individual’s needs are viewed as “good” while those which do not, are viewed as “bad”.

Conventional Level

Stage Three : Actions which are approved of by others are viewed as “good” and those which are disapproved of are labeled as “bad”.

Stage Four : Actions through which an individual “does his or duty” or which shows respect for law and authority are viewed as “good”. Actions which violate this sense of duty are viewed as “bad”.

Postconventional Level

Stage Five : Actions which are consistent with the community’s well fare are viewed as “good”. Actions which do not abide by the laws of the community are viewed as “bad”.

Stage Six : Actions which are consistent with an individual’s self-chosen standards of justice are viewed as “good. Actions which are not consistent with such standards are viewed as “bad”.



INTEXT QUESTIONS 17.2

1. Trace the developmental nature of moral orientation.

2. How many levels does moral reasoning pass through according to Kohlberg?



Box 17.2:

Try it yourself

Check whether you experienced changes in your attitude towards morality during late childhood and adolescence in morality. From when did you start noticing that certain things are forbidden because they are bad, whereas right things are to be repeated? List out the persons responsible for your moral development.

Kohlberg used certain situations in which a moral dilemma is presented and the task of person is to solve the dilemma. The solution arrived at indicates the stage of moral reasoning being used by the person. In general it is thought that acting in a moral way demands a higher stage of moral reasoning. However, the studies indicate that other factors like perception of risk, self interest and social conventions also play important role. Studies have indicated that moral behaviour of children does vary from situation to situation. For example, cheating may be reported in one situation (home) but not in school. It has been indicated that situational factors play important role.

17.4 ROLE OF FAMILY

In recent years the studies have demonstrated the role of family in moral development. The various domestic exchanges regarding rights and wrongs and parental expressions of regulations contribute to the development of morality. The idea of 'proper behaviour' develops in initial form as early as two years of age. The actions and emphases on acceptable behaviour by parents play an important role in moral development. The early experiences outside the family (e.g., preschool, peers, neighbourhood) also contribute to the development of morality.

Gilligan has proposed that while male children are socialized to be independent and achievement oriented, female children are socialized to be nurturant and maintain a sense of responsibility. Womenhood or femininity is often linked with self sacrifice and care of others.

It is also important to note that questions of morality are dealt with in different ways in different cultures. For instance, the views prevalent in Western society may not be appropriate in the non-western cultures. For instance, in the Indian context the non relative objective values are important. Such values are based on human and spiritual dignity.

17.5 PRO AND ANTI SOCIAL BEHAVIOUR

Prosocial behaviours are behaviours which benefit another person. They include cooperation, sharing and helping when others are in distress. Children pass through four predictable stages in the development of empathy which makes prosocial behaviours possible.



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In the first stage infants have difficulty in differentiating self from others. They cry when others cry and they laugh when others laugh. After one year they gradually develop a **sense of self** as different from others and at that point they enter the second stage characterized by **egocentric thinking**. They “help” the other person in ways that they themselves would want to be helped. Then comes the third stage during which children show situation—specific empathy. Finally when they reach the fourth stage they come to relate their expression of distress to others when others are also in distress. Infact in the fourth stage, only appropriate exhibition of empathy is demonstrated, that is, others get emotional support from those who show appropriate empathic reaction.

Children can learn helping behaviour by imitating other known people. Opportunities for responsibility taking, role playing, reinforcing desirable behaviour as and when it occurs will strengthen the development of prosocial behaviour.

Anti social behaviours are characterized by truancy, delinquency, theft, vandalism and other forms of violation of the accepted social rules and convention. In some cases of antisocial behaviour the causal factors may be more personal than environmental, whereas in other cases it is vice versa. However, there is always a mixture of both personal and environmental influences, in varying proportion, that leads to delinquent behaviours.

Psychological management of antisocial behaviour would include counseling and guidance for learning socially constructive behaviours, assertiveness training or social skills training which will enable them to shed aggressive behaviour or channelize the aggressive behaviour into something constructive. This would enable the growing child to benefit himself as well as the society.



INTEXT QUESTIONS 17.3

1. Give two example of pro-social behaviour.

2. Mention any two techniques with the help of which pro-social behaviours can be strengthened.

3. Give any three examples of antisocial behaviour.



WHAT YOU HAVE LEARNT

- Self control is a process by which an individual learns to regulate one’s own behaviour in a manner that is maximally rewarding or satisfying.



- Chain smoking, over eating, compulsive behaviour are some of the responses which can be modified by self control.
- Self Instruction Training (SIT) is one of the methods of self control. It emphasizes the importance of self talking.
- The foundation for moral development is laid when ethical beliefs are internalized. Jean Piaget and Kohlberg are well known theorists who put forth their views on moral development.
- Prosocial behaviour is a response which benefits fellow members of a society in their development which in turn enables society to grow and develop in the positive direction. Antisocial behaviour is an act which hinders the well being and development of society.



TERMINAL EXERCISE

1. How will you apply the procedure of self control to any problem condition? Illustrate with an example.
2. How does morality develop?



ANSWER TO INTEXT QUESTIONS

17.1

1. Self control is a process of learning to regulate one's own behaviour in such a way that it maximally rewards or satisfies the individual concerned.
2. Discuss the stages of moral development.

17.2

1. Resolution of inner conflicts
2. Three main levels

17.3

1. Cooperation
2. Role playing and modeling.
3. Stealing, promiscuity, delinquency.

HINTS TO TERMINAL EXERCISE

1. Refer to section 17.2
2. Refer to section 17.3



Notes

18

PERSONALITY THEORIES

*E*very one of us shares many things with others. However, apart from commonalities we also find that people are different in the way they appear and behave. The study of personality deals with the issue of human individuality. It has attracted the attention of common man as well as academic psychologists.

As a human being each one of us shows certain specific patterns of thinking, feeling and acting. They represent who we are and provide the basis of our interaction with other individuals. In everyday life we often find people who are called “aggressive”, “jolly”, “happy” and so on. These are impressions of people which we carry with us and use while interacting with them. It is in this sense that we frequently employ the word ‘personality’. The study of personality has also attracted the attention of psychologists and they have developed various theories of personality. Also, they have developed certain tools to assess people’s personality. The personality related information is used in selecting people for various jobs, giving guidance to people in the need of psychological help, and mapping their potential. Thus the study of personality contributes to different areas of human behaviour. This chapter will help you learn about different aspects of personality.



OBJECTIVES

After studying this lesson, you will be able to:

- Describe the concept of personality;
- Explain psycho-analytic, trait, social-cognitive, and humanistic theories of personality;
- Explain the concept of three gunas and familiarize with the ways of assessing personality; and
- Describe the factors influencing personality development.



Notes

18.1 CONCEPT OF PERSONALITY

The term personality is used in a number of ways including the apparent features of a person. However, psychologists use it to refer to the **characteristic pattern of thinking, feeling and acting**. By characteristic pattern we mean the **consistent and distinctive ways our ideas, feelings and actions are organized**. When we talk about personality we usually refer to the totality or whole of the person. Thus, the enduring pattern expressed by the person in various situations is the hall mark of personality. Interestingly the theories of personality go beyond the literal meaning of “personality” which stands for large masks used by actors in ancient Greek drama. Contrary to this the personality theorists view ‘personality’ as the essence of the person. It is a person’s “true” inner nature. The unique impression that a person makes on others is equally important in understanding personality. However the concept of personality has been defined by psychologists in many ways and it is the theoretical perspective or position which directs our attention to particular aspects of personality.

Understanding personality has proved to be a difficult and challenging task. It’s so complex that no single theory is able to cover the total personality. The different theories approach the structure and functioning of personality from different positions. There are many theories of personality each provides different answers about the way they treat the issues about personality functioning. In particular, they provide different explanations about the role of conscious/unconscious factors, determinism/freedom in functioning, role of early experience, role of genetic factors, uniqueness/universality etc. In the present lesson you will learn about four major theoretical perspectives of personality. They include psychoanalytic, trait, humanistic and social-cognitive perspectives.

18.2 THE PSYCHOANALYTIC PERSPECTIVE

Founded by Sigmund Freud, this theory emphasizes the influence of the unconscious, the importance of sexual and aggressive instincts, and early childhood experience on a person. This theory has been very influential not only in psychology but also in literary circles, art, psychiatry and films. Many of Freud’s ideas have become part and parcel of every day usage. Freud started his career as a neurologist. His theory developed in the course of his observations of his patients, as well as, self analysis. He used free association to help his patients recover forgotten memories.

Freud discovered that mind is like an iceberg and we have limited conscious awareness.



Notes

Freud proposed that psychological forces operate at three levels of awareness:

Conscious level: The thoughts, feelings, and sensations that one is aware of at the present moment.

Preconscious level: It contains information of which one is not currently aware, however, they can easily enter conscious mind.

Unconscious level: It consists of thought, feelings, wishes, drives etc. of which we are not aware. It, however, influences our conscious level of activity.

Freud thought that unconscious material often seeks to push through to the conscious level in a disguised manner. It may be in a distorted manner and or it may take a symbolic form. Interpretation of dreams and free association were used for analysis of the three levels of awareness.

Personality Structure

Freud believed that human personality emerges due to a conflict between our aggressive and pleasure seeking biological impulses and the internalized social restraints against them. Thus, personality arises in the course of our effort to resolve the conflicts. To this end he proposed three structures which interact with each other: Id, Ego and Super Ego. Let us learn about these structures:

Id: It is the unconscious, irrational part of personality. It is the primitive part immune to morality and demands of the external world. It operates on the pleasure principle. It seeks immediate satisfaction.

Ego: It is involved with the workings of the real world. It operates on the **reality principle**. It is the conscious, and rational part of personality that regulates thoughts and behaviors. It teaches the person to balance demands of external world and needs of the person.

Super Ego: It is the internal representation of parental and societal values. It works as the voice of conscience, that compels the ego to consider not only the real but also the ideal. It judges one's behaviors as right or wrong, good or bad. Failing up to moral ideals bring about the shame, guilt, inferiority and anxiety in the person.

Personality Development

On the basis of case-history of patients, Freud reached at a conclusion that personality development occurs through a sequence of psychosexual stages. In these stages the Id's pleasure seeking tendency focuses on different areas of body. Table 18.1 shows these stages.



Notes

Table18.1: *Stages of Psychosexual Development*

Stages	Focus of activity
Oral (0-18 months)	Pleasure centers in the mouth and leads to activities of sucking and biting etc.
Anal (18-36 months)	Pleasure centers on bowel and bladder elimination
Phallic (4 to 6 years)	Pleasure centre is genitals Touching and fondling of genitals give pleasure
Latency (7 to 11 years)	Children repress their sexual impulses and channelize them into socially acceptable activities such as sports, arts.
Genital (From the onset of puberty)	Pleasure zone is the genital. Maturation of sexual interests

Defense Mechanisms

The Ego has to perform a difficult duty of mediating between the instinctual demands of Id and moral position of Super Ego. The Ego tries to solve the problem and if a realistic solution or compromise is not possible it indulges in distorting thoughts or perception of reality through certain processes called defense mechanisms. To defend or safeguard ourselves, we use technique called defense mechanism. These are also called Adjustment Mechanisms. Some of the key mechanisms are given below:

Mechanism	Description
Denial	Failure to recognize or acknowledge the existence of unpleasant event/information as I do not know, I have not seen etc.
Displacement	Emotional impulses are redirected toward one other i.e. substitute person/object
Projection	Attributing own unacceptable urges to others
Rationalization	Justifying our actions or feelings through socially acceptable explanations
Reaction formation	Thinking or acting in a way that is the extreme opposite of unacceptable urges
Regression	Retreating to behaviour characteristic of an earlier stage of development
Repression	Exclusion of anxiety producing thoughts, feelings or impulses from consciousness
Sublimation	Sexual urges are channelized into productive, nonsexual activities



Notes

Freud's ideas have been controversial. The neo-Freudians differed from Freud on a number of issues. Some of the key theorists who are included in this category are listed below.

Carl Jung: Collective Unconscious

Jung was opposed to the central role of sex and aggression in human life. Instead he proposed that people are motivated by more general psychological energy. He proposed that the deepest part of one's psyche comprises the collective unconscious. It is a set of influences inherited from our family and the human race. The collective unconscious contains archetypes which are the mental images of a particular person, object or experience. Hero, powerful father, innocent child, nurturant mother are example of archetypes.

Karen Horney: Basic Anxiety

Horney emphasized on the importance of social relationships in personality development. Basic anxiety refers to the feeling of a child of being isolated and helpless in a potentially hostile world.

Alfred Adler: Feelings of Inferiority and Superiority

Adler proposed that the central human motive is that of striving for superiority. It arises from feelings of inferiority that are experienced during infancy and childhood. During this period the child is helpless and depends on others for help and support.

The psychoanalytic ideas have been criticized on the ground that there is inadequate evidence to support the theory.



INTEXT QUESTIONS 18.1

Fill in the blank with suitable words:

1. Freud has likened mind with an _____.
2. In Psychoanalytic theory personality has three structures, namely _____, _____ and _____.
3. Children repress their sexual impulses during _____ stage.

18.3 THE TRAIT PERSPECTIVE

Traits are characteristic behaviours and conscious motives. They represent a



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relatively stable and enduring predisposition to behave in a given way. Traits are frequently used in describing people. The focus of trait approach is very common and involves enumerating list of personal characteristics. Trait theories of personality identify, describe and measure individual differences. The apparent traits are called surface traits (e.g. happy, cordial). Contrary to this there are certain source traits. Raymond Cattell developed a trait theory which has 16 source traits. He called them personality factors. Some of them are: Reserved-Outgoing, Serious-Happy-go-lucky, Practical-Imaginative and Relaxed-Tense.

Eysenck proposed a theory which classifies people in four types: introverted-neurotic, introverted- stable, extraverted- neurotic and extraverted- stable. In subsequent work Eysenck proposed psychoticism as another dimension of personality.

Recently McCrae and Costa have proposed a five factor model, comprising of neuroticism, extraversion, openness to experience, agreeableness and conscientiousness. Traits are used to describe behaviour and make prediction. However, human behaviour is an outcome of interaction between traits and situations. Hence, the situations chosen and consistency in responding to situations indicate the value of traits.

It is said that the trait theories do not explain the personality of a person. They tell us little about the causes of individual difference, and the dynamic processes are neglected.

10.4 THE SOCIAL COGNITIVE PERSPECTIVE

This perspective was developed by Albert Bandura. It views behaviour as influenced by the interaction between persons and the social context. It is proposed that our thoughts and actions originate in the social world but it is essential to note that human beings have capacity for self-regulation and engage in active cognitive processes. Their interrelationships are shown in Fig. 18.1

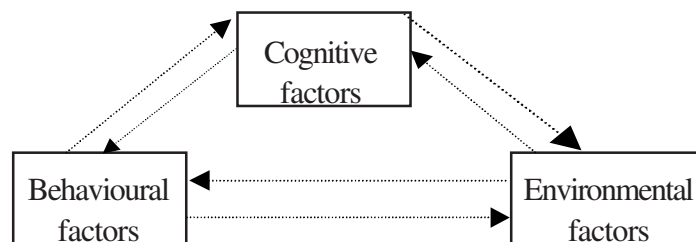


Fig. 18.1 *Reciprocal determinism of Behaviours, Cognition and Environment*

Bandura developed the concept of self efficacy which incorporates a person's



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cognitive skills, abilities and attitudes as represented in one's self-system. Self-efficacy indicates the degree to which one is convinced of the abilities and effectiveness in meeting the demands of a particular situation. The theory is based on laboratory research. However, the theory ignores the unconscious factors which may influence behaviour. The theory also emphasizes the rational side of life while ignoring the emotional side.

The cognitive-social theory brings into focus the role of thought and memory in personality. We often find that the expectations and skills learned by people are very important in determining behaviours.



INTEXT QUESTION 18.2

Match the names given in column A with the concept given in column B:

Column A

- (a) Freud
- (b) Jung
- (c) Eysenck
- (d) Bandura
- (e) Maslow

Column B

- (i) introverted – stable
- (ii) Need hierarchy
- (iii) Sublimation
- (iv) Collective unconscious
- (v) self efficacy

18.5 THE HUMANISTIC PERSPECTIVE

These theories propose that within each individual is an active creative force, often called “self”. This force seeks expression. It develops and grows. This perspective, also known as the third force, emphasizes on human potential and characteristics like self-awareness and free will. It views human beings as innately good. The conscious and subjective perception of self is considered very important. Carl Rogers and Abraham Maslow are the main proponents of the humanistic perspective.

Abraham Maslow proposed the idea of self actualized people. He proposed that human motives are arranged in a hierarchy of needs. As shown in figure 18.2 human needs are organized from physiological needs to self transcendence.

Maslow notes that the self actualized people have realistic perception, are spontaneous, easily accept self and others, are creative, and enjoy and appreciate positive aspects of life, like privacy and independence.



Notes

Carl Rogers thinks that the basic human motive is actualizing tendency. It is the innate drive to maintain and enhance the human organism. Rogers observed that people are motivated to act in accordance with their self concept. They deny or distort the experiences that are contrary to their self-concept. The ideal condition for development is unconditional positive regard. His notion of a fully functioning individual is that the self-concept is flexible and evolving. It holds an optimistic view of human beings.

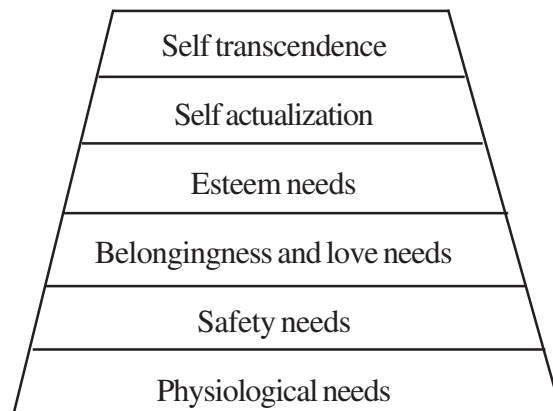


Fig. 18.2 Maslow's hierarchy of needs

18.6 CONCEPT OF GUNAS

The Indian approach to personality emphasizes on the combination of three qualities namely, Sattava, Rajas and Tamas. These qualities or Gunas have been discussed in detail in the Samkhya Theory. Bhagvadgita has provided an account of these gunas. These gunas are present in different degrees and at any point of time one or the other may dominate. The behaviour of a person depends on the guna that is dominating a person at any point of time. A brief description of these gunas is given below.

Sattva Guna: The main attributes which characterize Sattva guna are truth, gravity, duty, discipline, detachment, cleanliness, mental balance, sense of control, determination and sharp intelligence.

Rajas Guna: A person dominated by Rajas guna has attributes that include vigorous activity, desire for sense gratification, dissatisfaction, envy and materialistic point of view.

Tamas Guna: It involves anger, arrogance, mental imbalance, depression, laziness, procrastination and a feeling of helplessness. Bhagvadgita views the three gunas in



Notes

a prototypical form and describes that the food which we eat, mentality (Budhi), Charity (Dan) etc. can also be categorized in the three types of gunas or qualities.

18.7 ASSESSING HUMAN PERSONALITY

In view of the fact that the knowledge about personality is useful in many settings researchers have developed a variety of tools for its assessment. These tools can be categorized into three types namely observational, self-report and projective.

The observational tools include interview, rating of a person in one or many situations.

Projective tests are a special kind of test in which ambiguous material is used and the person whose personality is being tested has to give his or her own meaning or interpretation. Thus, it is expected that the personality of the examinee will be projected in the response given by him or her. Two of the famous projective tests are Rorschach Ink Blot Test and Thematic Apperception Test (TAT). In the Ink Blot test a person is shown a set of 10 symmetrical ink blots and asked to say what he or she sees in each of them. The response given is interpreted by the psychologist. In the TAT certain photographs are shown and the person has to develop a story describing the situation with regard to its past, present and future. The story narrated by the person is coded and analyzed by the psychologist.

It must be noted that the use and interpretation of various personality tests requires professional training.



INTEXT QUESTION 18.3

State whether the following statements are True or False:

- (1) Projection is failure to acknowledge the existence of unpleasant event information. True/False
- (2) Sublimation is canalization of sexual urge into productive, non sexual activities. True/False
- (3) Cattell has proposed 16 core traits of personality. True/False
- (4) Rogers has developed the concept of self efficacy True/False
- (5) Humanistic perspective is also called third force in psychology. True/False



Notes

18.8 FACTORS INFLUENCING PERSONALITY DEVELOPMENT

The development of personality of an individual takes place in a socio-cultural context. The particular potentialities with which a child is born may develop or become stunted depending on the way maturation takes place and the kind of experiences encountered by the person. In the process of growth and development people develop unique configuration of traits which lead to individual differences. In this way one finds that personality formation is a complex process depending upon common and unique experiences on the one hand, and, genetic factors on the other. It has been indicated that there are stable ways in which specific situation trigger specific patterns of thought, feeling and behaviour.

- (1) **Genetic factors:** Almost all theorists consider heredity as a major determinant of personality. Some like Freud, view personality as purely biological. However, others recognize the value of social and cultural factors. In fact it would be wrong to view the question in either or manner and give more emphasis to heredity or environment. Studies of behaviour genetics suggest that most personality variables are 15 to 50 percent inheritable.
- (2) **Early experience:** Most of the theorists of personality think that personality development is a continuous process. The early years play very important role in the shaping of personality. However, the immediate environment and experiences are also found to be of immense value.
- (3) **Primary groups:** While explaining personality development family is found to play a critical role. The early relationships with members of family are particularly important. Freud thought that many of the problems during adult life are due to problematic child rearing practices leading to emotional disturbances. The sense of identity and relevance of appropriate modeling has been emphasized.
- (4) **Culture:** People living in one culture often share similar practices, beliefs and values. The child is expected to learn to behave in the manner expected by the culture. For instance boys and girls are expected to show different sets of personality characteristics. The various occupational roles are also shaped by culture. However, the effect of culture may not be uniform for everyone belonging to that culture because they are transmitted through different ways and persons and people also have certain unique experiences.



INTEXT QUESTIONS 18.4

1. Name the guans mentioned in the Indian approach to personality.
2. Name the three categories of personality assessment.
3. Name two important projective tests of personality.
4. What are the factors that influence personality?



Notes



TERMINAL EXERCISE

1. Describe the concept of personality.
2. What are main four perspectives to understand personality?
3. What is the difference between conscious and pre conscious mind?
4. Name various stages of psychosexual development.
5. What is meant by need hierarchy? List all these needs.



ANSWER TO INTEXT QUESTIONS

18.1

1. iceberg
2. id, ego, superego
3. latency

18.2

Column A	Column B
(a)	(iii)
(b)	(iv)
(c)	(i)
(d)	(v)
(e)	(ii)



Notes

18.3

- | | | |
|----------|---------|---------|
| 1. False | 2. True | 3. True |
| 4. False | 5. True | |

18.4

1. Satva, Rajas, Tamas
2. (a) observational, (b) self report, (c) projective
3. Rorschach; TAT
4. Genetic factors, Early experience, Primary groups, culture.

HINTS TO TERMINAL EXERCISE

1. Refer to section 18.1
2. Refer to section 18.2, 18.3, 18.4 and 18.5
3. Refer to section 18.2
4. Refer to section 18.2
5. Refer to section 18.5



Notes

19**PERSONALITY ASSESSMENT**

*I*n the previous lesson, you learnt about different theories of personality. These were the psychoanalytic, trait, social-cognitive, humanistic and the Indian approach to personality, based on gunas. If we wish to determine aspects of a person's personality based on a particular theory, there are specific techniques for assessing those. For example, if you wish to know about the dominant traits in a person, e.g., whether he is an extrovert or introvert, there are specific ways developed by psychologists, to get this information. Similarly, if we wish to know about the unconscious aspects of a person's personality, we will have to use psychoanalytic ways of assessing the same. In this lesson you will learn about the different ways of personality assessment.

**OBJECTIVES**

After studying this lesson, you will be able to:

- assess personality based on different theoretical approaches.

19.1 ASSESSING PERSONALITY TRAITS

There are two ways of assessing personality traits. One method consists of asking a set of questions which a person has to answer about his/her opinions, feelings and actions. For this purpose, a personality inventory is used. In the second approach, some other person makes assessments about a person's traits, based on prior knowledge about that person, or by direct observation of the person. This is called the rating-scale approach.



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Personality inventories are questionnaires where a person has to answer many questions about the way she/he reacts to different situations. A personality inventory may be designed to assess a single trait like extroversion-introversion, or it may assess a number of traits. For example, if a person answers “Yes” to the question “Do you stay in the background in social situations?” this is an indication of introversion. Of course, the assessment will be based on a number of questions relating to different types of situations, not just one question. The Sixteen Factor Personality Questionnaire (16 PF) and the Minnesota Multiphasic Personality Inventory (MMPI) are two very well known inventories which are useful for obtaining information about a person’s traits.

Inventories are very useful, but when a person has to report about his/her reactions, sometimes we can be biased about our own characteristics. To overcome this problem, another way of assessing personality traits has been developed based on rating scales. For example a person may be asked to describe the self-confidence level of another person, using of 7 point scale ranging from very low “(1) to very high”(7).

There are certain conditions which the raters must fulfil, for the rating to be useful and valid. The raters must (a) be able to understand the scale, (b) know the person well about whom the rating has to be made, and, (c) not get biased in his/her judgment, about the person, and rate in favourable or unfavourable way.

19.2 ASSESSMENT IN PSYCHOANALYTIC APPROACH

As you will recall from the previous lesson, the psychoanalytic approach focuses on a person’s unconscious conflicts and motives. But the unconscious part of person’s personality, (the major part in this view), is hidden from one’s self-awareness. Psychoanalysts, therefore, have to use indirect symbolic information and interpret this to uncover the unconscious conflicts and motives. This approach is called projective technique.

In this approach, if the psychoanalyst wants to obtain knowledge of unconscious processes in a person’s psyche, she/he presents certain ambiguous material and asks the person to describe what she/he sees. This ambiguous material may be on ink-blot, or a picture which leads to the person “reading” or projecting some meaning into it from personal experience or fantasy. In this way, the person’s unconscious mind is tapped and something is revealed about it. The ‘Rorschach Test’ and the ‘Thematic Apperception Test’ (TAT) are two well known projective tests. The former is based on ink-blot and the latter consists of pictures containing human characters. For example, a TAT picture may have an outline of boy from the back, looking at the sun. On being asked what she/he sees, a person may

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respond that “The boy is thinking that she/he will achieve great things in life”. In this way the person may have projected his/her own dream of achieving great things in life.

**INTEXT QUESTIONS 19.1**

Fill in the blanks with appropriate words

1. In _____ a person has to answer many questions about the way she/he reacts to different situations.
2. A description of a person's traits, based on prior knowledge, is called the _____ approach.
3. _____ uses indirect symbolic meaning which is interpreted by the psychoanalyst to uncover unconscious conflicts.
4. _____ test consists of pictures containing human figures about which a person is required to tell a brief story.

19.3 ASSESSMENT IN HUMANISTIC PERSPECTIVE

As you have learnt, the humanistic approach to personality focuses on how a person experiences her/his world. Therefore, assessment here is concerned with understanding the perception of a person about his/her life situation and experience. A number of methods have been developed to measure a person's self-concept. One approach is based on the person selecting, from a number of descriptive sentences, those which describe him/her in an accurate way. (e.g., “I am a confident person”, “I am often nervous”, “I am a sincere and hard working student, etc.). Another approach focuses on a person's willingness to express his/her inner nature or self to others. This approach is based on the understanding that the tendency for very high or very low level of self-disclosure are both an indication of emotional immaturity.

19.4 ASSESSMENT OF GUNAS

In the last lesson you also studied about the Indian approach to personality which emphasises the three Gunas: Sattva, Rajas and Tamas. In order to assess a person's nature based on this conception, we need to have an understanding of which Guna is predominant in a person's life, in thought, speech and action, and then which is



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less dominant, and finally which is the least. For example, a person who is extremely truthful, detached, and helpful is likely to be high on Sattva. In order to assess which Guna is predominant in an individual's personality, we have to obtain combined information using questionnaires, observation etc. Some inventories have been developed which gives us some information about the way the Gunas are active in an individual's personality.



INTEXT QUESTIONS 19.2

Fill in the blanks:

1. In the _____ approach, assessment focuses on how a person perceive his/her world.
2. A person's willingness to expose his/her inner nature or self to other's is referred to as the tendency for _____.
3. Assessment in the Indian Guna approach attempts to find out, which Guna is _____ in an individual's personality.
4. _____ method which is used in the trait approach is also used for the Guna perspective.



WHAT YOU HAVE LEARNT

- Personality assessment is related to the theory of personality through which we want to understand a person.
- The trait approach to assessment uses personality inventories, and rating scales.
- The psychoanalytic approach to assessment uses the projective technique where a person describes ambiguous material like inkblots.
- The humanistic approach to personality assessment attempts to find out how a person perceives his/her world.
- The Guna approach to assessment relies on multiple ways, including inventories.



TERMINAL EXERCISE

Briefly write how personality assessment is done in each of the following approaches:

1. Trait approach
 2. Psychoanalytic approach
 3. Humanistic approach
 4. Guna approach.
-



Notes



Notes

20

PSYCHOLOGICAL DISORDERS

*F*eeling happy, or crying when one is hurt, are some common actions which we all engage in some time or the other. Most of the time we act as the situation demands us to, that is, we control our emotions and behaviours according to the norm prevalent in the society. But if behaviour is perceived to occur without any reason or against the context—how will you evaluate it? It will not be called normal behaviour, in other words, it will be termed as abnormal behaviour. But again at some point of time in our life many of us behave irrationally or away from normal behaviour. Does it mean that we have become abnormal? Perhaps not.

So what is the definition of abnormal behaviour, what are the factors which cause abnormal behaviour and many such other questions arise in our mind. This lesson attempts to explain and answer such questions.



OBJECTIVES

After studying this lesson, you will be able to:

- explain the term psychological disorder;
- enumerate and describe the major types of abnormalities;
- describe the symptoms of various types of psychological disorders such as anxiety disorders, somatoform disorders, mood disorders, schizophrenia.

20.1 PSYCHOLOGICAL DISORDERS

As the name itself suggests, any disorder, which prevents a person to function in effectively in the social domain, is termed as a psychological disorder. Psychological

**Notes**

disorders can be defined as a pattern of behavioural or psychological symptoms that causes significant distress, impairs the ability to function in one or more areas of life or both.

The important feature is that the symptoms which a person is showing must represent a serious departure from the prevalent social and cultural norms. Cultural and social norms are being emphasized here because the traditions in each culture differ. Some actions which may form an essential part of one culture may be a serious disturbance in others. For example tribal societies have different norms and culture. Their way of living and habits will be considered abnormal in the urban context.

To determine any behaviour as away from normal, seven considerations are used as the distinguishing criteria. They are:

- (i) Suffering – experiencing distress and discomfort in one’s own life.
- (ii) Maladaptiveness – engaging in behaviour or thought pattern which makes it more difficult to lead one’s life.
- (iii) Irrationality – unable to communicate in a reasonable manner with others.
- (iv) Unpredictability – acting in ways which are entirely unexpected.
- (v) Vividness and intensity – experience sensations which are far more vivid and intense than those of other people.
- (vi) Observer discomfort – acting in ways which others find embarrassing.
- (vii) Violation of moral and ideal standards – habitual breaking of norms.

As we have read earlier, normality and abnormality are not very rigid concepts. As states of mind, they lie in a continuum, and, most of us experience them in different phases of life.

It can be said that abnormality is a matter of the degree to which a set of behaviours of an individual are considered inappropriate as against accepted norms of the society, and which are problematic for the person in his/her social functioning and adjustment. Now let us study about the various causes of abnormal behaviour.

20.2 CAUSES OF ABNORMAL BEHAVIOUR

There are many factors which contribute to the causes of abnormal behaviour. Some of them are:

- (a) **Biological factors:** The biological factors which give rise to abnormal



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behaviour include the genetic factors, chromosomal dysfunctions, brain or endocrine dysfunctions that may cause the development of abnormal behaviour.

- (b) **Psychological factors:** The psychological factors causing abnormal behaviour are difficult to identify and measure as they work indirectly. The effect is not very predictable but if one tries to analyze the various processes adopted during childhood like over-protection or over-indulgence, inconsistent rewards and punishments, these factors significantly contribute in the development of maladaptive behaviour.



INTEXT QUESTIONS 20.1

- (a) Explain irrationality as a property of abnormal behaviour.

- (b) What are the causes of abnormal behaviour.

20.3 TYPES OF DISORDERS

Till now in this lesson we have learnt about abnormal behaviour and the causes. Now let us study in detail about some psychological disorders. Some of the major psychological disorders are –

- 1) anxiety disorder
- 2) mood disorders
- 3) schizophrenic disorders
- 4) substance related disorders.

20.3.1 Anxiety Disorder

All of us have experienced anxiety in our life in some way or the other. Whether it is during examination or waiting for interview results or maybe due to death of a loved one, anxiety is experienced by us. We also have our own way of coping with it but anxiety can take the form of a disorder if not treated properly at the correct time. Anxiety disorders are disorders which decrease the performance or social functioning of an individual due to hyper-anxiety. Anxiety disorder can be of many types. Some of the anxiety disorders are:



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- (a) generalized anxiety disorder (GAD)
- (b) panic disorder
- (c) phobias
- (d) obsessive – compulsive disorder
- (e) somatoform disorder
- (f) post traumatic stress.

Let us look at the features of these disorders as described below:

- (a) **Generalised Anxiety Disorder:** It is the most common form of anxiety disorder. The chief symptom of this disorder is unrealistic or excessive worry. The various symptoms of GAD are nervousness, dizziness, sweating, trembling, tension, difficulty in concentration etc.
- (b) **Panic Disorder:** Intense anxiety along with marked physiological symptoms such as increased palpitation, breathing difficulty, and a sense of helplessness are seen in the case of panic disorder. Before and after the release of anxiety calmness prevails. The person suffering from this disorder may not remain always anxious.
- (c) **Phobia:** Phobia means an irrational fear of some object or situation. Most of us have a fear about something or the other but when this fear reaches a level when it disrupts normal functioning, then it is termed as phobia. One type of phobia is known as social phobia – when one is afraid of speaking on stage, or talking to strangers and there are some specific phobias, like fear of rats or cats.
- (d) **Obsessive-Compulsive Disorders:** Persistent thoughts or wishes that intrude into one's consciousness and cannot be stopped are obsessions. Compulsion is an act which a person feels compelled to carry out despite knowing that it is unnecessary. Obsessive thinking often leads to compulsive acts.
- (e) **Somatoform disorder:** Somatoform disorders refer to physical problems which have no organic basis, for example, fatigue, headaches, vague body pains etc. The persons suffering from this disease remain preoccupied with symptoms.



INTEXT QUESTIONS 20.2

1. What is an anxiety disorder?



Notes

2. List any two types of anxiety disorder.

20.3.2 Mood disorders

Mood disorders are disorders of emotion. Heightened intensity and duration of emotion require immediate psychological and medical attention. The individuals suffering from this type of disorder are termed as emotionally disturbed. The three types of mood disorders have been characterized as - depressive disorders, bipolar disorders, and other disorders. Mood disorders include severe symptoms such as dissatisfaction and anxiety, changes in appetite, disturbances of sleep and psychomotor functions, sudden weight loss, inability to think clearly, and thought of death and suicide.

In some of the disorders genetic factors are involved. Drug therapies and biological therapies have been found to be very effective for its treatment.

20.3.3 Substance related disorders

It has been found that when people suffer from prolonged periods of pain or tension, they take drugs or alcohol. Drugs, like alcohol, influence our thoughts, actions and activities negatively. These drugs, if used for a long time, cause deterioration in attention, motivation, and motor co-ordination. People have suffered losses in their personal and social life due to the usage of drugs.

Substance related disorder is not only limited to the usage of alcohol but it also related to panmasala, tobacco, opium, marijuana etc. To help a person suffering from this disorder, the following issues are important. These are :

- (i) Detoxification
- (ii) Administration of drugs for easing withdrawal symptoms.
- (iii) Aversive conditioning
- (iv) Social support
- (v) Psychotherapy
- (vi) Rehabilitation
- (vii) Prevention and follow up.

20.3.4 Schizophrenia

Schizophrenia is considered by the experts as the most devastating mental disorder.

**Notes**

It can be defined as a cluster of disorders characterized by fragmentation of the basic psychological processes such as attention, perception, thoughts, emotions and behaviour. This fragmentation leads to serious maladjustments. Patients suffering from schizophrenia do not perceive things happening around them correctly, and they often see or hear things which are not there. Their thinking pattern is confused and disorganized and they fail to communicate properly with others.

The categorization of schizophrenia is given in the following table.

	Type	Symptoms
1.	Catatonic	Unusual patterns of motor activity, speech disturbances such as repetitive chatter or rigid postures.
2.	Disorganized	Verbal asymmetry, poorly developed ideas
3.	Paranoid	Preoccupied with one or more set of ideas.
4.	Undifferentiated	Hallucinations, incoherence
5.	Residual	Withdrawal, absence of motivation etc.

The primary symptoms of schizophrenia are disturbance of thoughts, disturbances of perceptions, disturbances in emotional expression, disturbances of speech, social withdrawal, low motivation.

20.3.5 Personality disorder

Rammohan is a clerk in a company. As a clerk he was able to do work that was assigned to him. But whenever any situation comes when he has to take a decision, he is not able to do so. He has a good rapport with his seniors because he was highly submissive, but when his promotion was due, his officers were not sure about his capability for that position.

This is an acute case of dependent personality disorder where the individual always shows a need to be taken care of and is not able to show any decision-making skill. Another form of personality disorder is antisocial personality disorder in which individuals show irresponsible and socially disruptive behaviour like destroying property, stealing etc.

Personality disorder is characterized by a maladaptive style of thinking, feeling and behaving which disturbs the normal functioning of an individual.



Notes



INTEXT QUESTIONS 20.3

1. List any two steps to be followed for helping a person with substance related disorder.

2. State any two symptoms of schizophrenia.



WHAT YOU HAVE LEARNT

- Any disorder which prevents a person to function effectively in a social set-up is known as a psychological disorder.
- The behaviour should show a serious departure from the prevalent social and cultural norm.
- To determine any behaviour as abnormal, seven considerations are used as a criteria-maladaptiveness, irritability, unpredictability vividness, observer's discomfort and violation of moral standards.
- The cause of abnormal behaviour can be biological or psychological.
- Some of the major psychological disorders are anxiety disorder, mood disorder, substance related disorder and schizophrenia etc.
- Anxiety disorder decreases the performance of a person due to anxiety.
- The various forms of anxiety disorders are: Somatoform disorders, generalized anxiety disorder, panic disorder, phobias, obsessive-compulsive disorder.
- Schizophrenia is a severe psychological disorder. Schizophrenia is also characterized by fragmentation of basic psychological processes. The various forms of schizophrenia are catatonic, disorganized, paranoid, undifferentiated and residual.

**21****GROUP PROCESSES**

Human life primarily depends on various kinds of groups. After we are born we remain dependent upon fellow human beings to achieve various goals. We spend most of our time interacting with people. A child is born in a family, goes to school and makes friends. An adult works in an organization, looks after the needs of family members and indulges in various kinds of activities in relation to other persons. His/her interaction with different types of people is to a large extent determined by the type of group, and the context in which the interaction takes place. In this lesson you will be learning about the nature of group, the processes involved in group formation and advantages and disadvantages of being a group member.

**OBJECTIVES**

After studying this lesson, you will be able to:

- describe the concept of group;
- understand the functioning of groups;
- explain the nature of group processes;
- discuss various stages in group formation;
- describe types of group; and
- discuss effect of group on individual's behaviour.

21.1 THE NATURE OF GROUP

When two or more persons interact, we say that a group has come into existence. The reasons for interaction among persons and forming social relationships are



many. For example, students might interact to collaborate for their studies outside the classroom. Others might interact as they live at one place and share a common goal. They may want to play together and fulfill the need for companionship. Some people might meet by chance but continue to interact because they find each other's company mutually rewarding. Thus it is clear that each group strives to achieve a goal. The more explicit a goal is, the greater the interaction and co-operation among the group members. The relationship among group members remains stable or continues for some time (months, or years). The group also has a structure and members think that they are part of a group or have a feeling of belongingness.

At the physical level any collectivity with a purpose can be called a group.

A class of fifth grade children is a group, a committee of bank officials is a group, two carpenters manning a saw to cut a large piece of timber form a group, and a team playing football is also a group, and so on. All these groups exist at the physical level and have direct or face to face interaction. In these groups direct and immediate communication among the members of group is possible and usually takes place.

Persons possessing certain common characteristics, too, are conceived to form a group. For example, all Sikh students in a class may be conceived to form a group; all left-handed students in the small class form another set; all elements in the set possess at least one common characteristic which non-members may lack. There need not be any face-to-face communication among the members in such sets. One member may not necessarily know another member.

Thus, it may be said that a group comprises of two or more persons who interact and share common goals. They have stable relationship and are interdependent and perceive themselves as belonging to this collectivity.

The most important characteristic of a group is interdependence. It may be related to behaviours and outcomes tasks. Let us examine three types of interdependencies:

- (i) **The interdependence of behaviour** refers to the fact that the behaviour of one member gives rise to another member's behaviour and which in turn forces the entire group to perform certain functions.
- (ii) **The interdependence of outcome** refers to the fact that each member's outcome (received reward) is not the result of his/her behaviour alone but is also dependent upon the behaviour of other group members. For example, while walking on a road, you are safe till someone hits you from the back or the front side. It also implies shared fate, that is, the outcome of an event has more or less equal implications for the welfare of every member of the group.



- (iii) **Task interdependence** refers to the fact that to achieve a goal, group members need to coordinate their activities. For example, in playing football or cricket, coordination of activities of different players is essential for winning the game. They work on the basis of the principle of complementarity.



INTEXT QUESTIONS 21.1

1. Define a group?
2. What is the most important characteristic of a group?

21.2 HOW GROUPS OPERATE?

Whenever a group is organized or formed it functions on the basis of certain norms. Also, the group members perform different roles. They also vary in status. Finally, a group may be highly integrated and members may share cohesiveness or may lack it. It will be good if we are clear about these aspects of group functioning.

- (a) **Roles:** In any group different members are required to perform different roles. You will recollect that in various associations we get people who occupy the roles of president, secretary, treasurer etc. All of them perform different roles which help achieving group goals.
- (b) **Norms:** Each group functions according to certain rules. These rules constitute the norms. They may be explicit or implicit and regulate the behaviours of group members. It is expected that members must accept the norms
- (c) **Status:** The different roles carry a specific rank or standing in the group. This standing is related to nature of task assigned and power to influence decision making. Thus status differences emerge in the group.

21.3 THE NATURE OF GROUP PROCESSES

After knowing the nature of a group, you may be interested in knowing why people join groups, how groups are formed, and what are the experiences of joining a group. Let us examine these questions in some detail.

Reasons for Joining the Group

People often join a group primarily for the reason that it enables them to receive certain benefits or need satisfaction. They often extend opportunity to achieve certain desired goals. For example, a football player would like to be a member of



the football team as it would enable him to play football. A group can be helpful to individual in at least four ways:

- (i) People join a group because **groups help to achieve those goals that one cannot attain individually**. For example, you join a group because your friend or teacher is a member of the group.
- (ii) You join a group because you feel that the **group members have resources** (economic or otherwise) which can at times be helpful to you.
- (iii) People often join a group to **meet the need for security**. People get protection when they become members of particular groups.
- (iv) Groups help to **provide positive social identity** to its members. People who are members of various groups tend to have a positive feeling and positive self appreciation simply because of being members of that group.

In brief people join groups because groups help achieving goals, have resources, meet the need for securities and provide social identity.

Outcome of Group Experiences: Cohesiveness

A number of outcomes occur when people come together over a period of time. For example, being a member of group provides satisfaction to the group member. We all feel proud of being an Indian, or studying in a particular school, or working with a particular organization. Thus, a sense of satisfaction leads to cohesiveness in the group. A cohesive group has a higher level of solidarity and consensus. There are forces in the structure of the group that act on the members to remain in the group.

21.4 STAGES IN GROUP FORMATION

The formation of group follows four stages. These are: (a) orientation (b) focus (c) regulation and (d) formalization. Let us learn more about the important features of these stages:

Stage 1 – Orientation

In the initial stage of group formation, the potential or would be members make an attempt to assess their gains and losses for working together and interacting over a period of time. At this stage people judge about their potentialities and the goals of the group. They become more concerned about their benefits or losses while joining a particular group. People spend much time in asking and answering questions about one another's interest, abilities and knowledge etc.

**Notes****Stage 2 – Focus**

When an individual decides that it is in their interest to form a group to achieve a specific goal, their focus gets centred on the means (or how) to achieve the goal. At this point the members become clear about their contribution to achieve the group goal, the other available resources, and the likely benefits to be received by the members of that group.

Stage 3 – Regulation

Due to interaction over a longer period of time, a pattern in the social exchange of the group members emerges. The roles and functions of each member are clearly defined. It is at this stage that one member becomes the leader of the group and starts playing a decisive role in shaping the activities of the group. Other members look forward to that leader for guidance.

Stage 4 – Formalization

During this phase, the norms and roles that emerge during the third stage become formalized. Members of the group, either in writing or in their speech, acknowledge the existence of these rules and show their willingness to comply with them.

**INTEXT QUESTIONS 21.2**

1. Why do people join groups?
2. Name the four stages in formation of a group.

21.5 TYPES OF GROUPS

There are generally two types of groups:

- (i) Primary groups
- (ii) Secondary groups

Primary groups are characterized by more or less continued, intimate, face-to-face association and cooperation. The most important example of primary group is the family, where one can observe close, face-to-face interaction in family. The members of a primary group have a common fate. Primary group is the nucleus of all social organizations. Such groups exert profound influence on shaping the personality of children.

Secondary groups, in contrast, are special interest groups. For example, membership to these groups is voluntary. One may be a member of a professional



group such as doctors, engineers, teachers, artists and so forth. The members of these groups do not necessarily have face-to-face contact although there may be direct interaction among them.

People become members of a secondary group to satisfy their psychological needs such as prestige, companionship, etc. When their needs are satisfied by the group, the individuals take on the secondary groups attitudes more readily than they might otherwise.



INTEXT QUESTIONS 21.3

1. What are the two types of groups?
2. Give an example of a secondary group.

21.6 EFFECTS OF GROUP ON INDIVIDUAL'S BEHAVIOUR

Becoming a member of a group on the part of an individual appears to influence his or her behaviours in many ways. Let us examine some of the important influences in detail.

Decision Making

It has been found that while taking decisions an individual, when left alone, takes less risk. On the other hand, when he or she is present in a group, there appears a tendency on the part of an individual to take greater amount of risk. The group as a whole takes greater risk than the individual. This phenomenon is popularly known as *risky shift*.

The question then arises as to why groups take greater risk than individuals? It is believed that it is due to the spread of responsibility. The fact that there are others to share the blame if failure occurs makes each group member feel lesser degree of personal blame for a possible failure. The risky shift also results in part from persuasive communication. If most members of a group agree that risk is the correct response to the problem under consideration, then most of the reasons and justifications brought out in the discussion shall favour risk.

Social Facilitation

Social facilitation refers to the influence of the presence of others persons on one's performance. Try to recall your own behaviour. When you are performing

an easy task or something which you know very well, there is a possibility that other group members such as parents or teachers will evaluate your work, and you try to show your best performance. On the other hand, such awareness interferes with your ability to perform when the task is complex and your performance decreases.



INTEXT QUESTIONS 21.4

1. Why does a group take greater risk than an individual?
2. What is social facilitation effect?



WHAT YOU HAVE LEARNT

- Persons possessing certain characteristics with a common goal often form a group.
- A group is a subpopulation within a large population with which individuals may be identified as included and belonging to it.
- Interdependence is an important characteristic of a group. It means that the behaviour of one member gives rise to another member's behaviour, which results in forcing the group to perform in certain ways.
- People join groups for different reasons because groups are beneficial and group members have resources and responsibilities which can be shared.
- Cohesiveness refers to the belief of the individuals that being a member of a particular-group would be rewarding.
- The formation of a group follows four stages, which include orientation, focus, regulation and formalization.
- There are two types of groups : Primary and Secondary.
- Group formation has an effect on individual's behaviour like decision making and performance.



TERMINAL EXERCISE

1. Define a group.
2. List down the characteristics of a group.
3. Describe briefly the four stages in the evolution of groups?



Notes



4. How does being part of a group affects individual behaviour?



ANSWER TO INTEXT QUESTIONS

21.1

1. When two or more people interact for achieving a common goal, a group comes into existence.
2. interdependence

21.2

1. People join groups because groups:
 - help achieving goals
 - have resources
 - meet the need for securitz
 - provide social identity
2. Orientation, Focus, Regulation, Formalization

21.3

1. Primary groups and Secondary groups.
2. Association of teachers

21.4

1. Because in groups there are others to share the blame if failure occurs.
2. When an individual's performance improves due to the presence of other people, it is called social facilitation.

HINTS TO TERMINAL EXERCISE

1. Refer to section 21.1
2. Refer to section 21.1
3. Refer to section 21.4
4. Refer to section 21.6

**22**

PERSON PERCEPTION AND INTERPERSONAL ATTRACTION

We have already noted, achieving a sense of self is an important achievement. A neonate may not be able to distinguish between self and others. Our self knowledge is peculiar in the sense that we are aware that we have a self. This kind of self consciousness is a major achievement.

It may be easily guessed that the knowledge of self does require some kind of social knowledge. In the beginning the infant lacks distinction between his and her world which includes other persons. The child is immersed in the social environment. From there, the child gradually attains an awareness of self.



OBJECTIVES

After studying this lesson, you will be able to:

- understand the salience of social environment for self growth and development;
- identify the factors that determine interpersonal attraction; and
- understand the role of interaction with significant others in self-perception.

22.1 PERCEPTION OF OTHERS

Toward the end of infancy children start constructing a representation of the self as an objective entity. The cognitive and linguistic development facilitates interaction with others. Others help defining our characteristics. We adjust our behaviours in



relation to their expectation. With some mastery over language children organize their self knowledge. It may be noted that recognizing or deciding that something is “mine” presupposes some differentiation of “me” from everything else. By the third year children tend to show various characteristics. They indicate existence of internal processes, appearance, opinions and volition. As the children grow their self concepts become more and more differentiated.

It may be noted that the development of self concept is primarily a social activity. The other persons present in the environment provide context and guidance to them. For instance, it is common to find parents approving or disapproving the actions of children. They suggest goals and encourage aspirations. They talk about various events and happenings in the child’s environment. All these situations help child to learn about ‘self’. In particular children learn about emotional regulation.

However, it would be inaccurate to view self merely something to be shaped by others. It is a complex social product in which child’s own experience also plays an important role.

While learning about self, children also develop an understanding that people are different from other things, they have certain characteristics and have independent psychological existence. Infants are very much interested in other persons. They are aware of differences between people and other things. It has been found that the understanding of others is related to understanding of the self. The children are aware of other’s internal processes like feelings, thoughts and intentions from an early age. The awareness grows and gets elaborated with advancing age. The school age children provide elaborated and complex descriptions of others. The children actively construct a social understanding. This involves finding out the similarities between child’s own psychological processes and those of others.

22.2 IMPRESSION FORMATION

Perceiving other persons is an important task in our every day life. When you meet a person you often form an impression. A glance, and a few uttered words are enough for this. When we perceive others we do not simply add various pieces of information. Rather we perceive the various traits in relation to others. We form a dynamic whole. We form an impression of the whole person. The traits do not remain in isolation. They interact with each other and form a new whole.

While forming impressions we rely on and give greater weightage to the sources we trust or admire. Similarly we often emphasize more the negative information. Also, we give more importance to unusual information. Finally, the first impressions are given more weightage than subsequent information.

It has been found that when we make judgments about others we recall examples

of their behaviours and base our judgments on them. We also use previously formed abstractions or representations in mind while forming impressions and making decisions.



INTEXT QUESTIONS 22.1

State whether True or False.

1. In the beginning the child cannot differentiate between self and other. (True/False)
2. As child grows older his self concept becomes fixed. (True/False)
3. People in the environment provide the necessary context and guidance to the developing person. (True/False)
4. While forming impressions we rely on sources we trust. (True/False)
5. From an early age children are sensitive to feelings of other people. (True/False)

22.3 DEALING WITH THE SOCIAL WORLD

Interpersonal Attraction

We live in a social world occupied by other persons. We frequently interact with them in family, school, market, almost every where. The self realizes itself while relating to other persons. In this way the processes taking place between persons or those technically known as interpersonal processes become central to our lives. Social psychologists have investigated these various processes in detail. Here we shall learn about two processes – attraction and long term relationship.

Attraction between persons is a common experience. It is present not only in the case of intimate people like wife and husband but also in case of friends and work place companions. One of the important things that we notice that we make efforts to spend time with people whom we like and avoid people whom we don't like. You may be interested in knowing how does attraction occur and what factors influence it? Let us try to understand these factors.

Physical Attractiveness: It has generally been found that we react more positively to people who are viewed as physically attractive. We often act more favourably towards attractive people.

Similarity and Complementarity: We like people who are similar to ourselves.





It is said that birds of a feather flock together. In other words people who share the same kind of attitudes and ideas are preferred and liked by us. Complementarity is a situation in which we find that people who are different but complement each other, like to interact more with each other. This may explain attraction between a rich and a poor person.

Familiarity and Propinquity : Propinquity means nearness or physical proximity. It has been found that friendship often develops with people whom we see more often. Thus nearness and familiarity shape our attraction to other persons. Repeated interpersonal contacts often lead to interpersonal attraction.

Reciprocal Liking : Whether we like some one or not depends on the fact that whether the other person likes you or not. We often tend to avoid those who express negative views about ourselves and want to be with those who like us.

Affect: Affect refers to the feelings and emotions which vary in intensity and direction. Thus our feelings can be very intense or less intense and can be positive or negative. Studies indicate that a person who does something which triggers or arouses positive or negative affect is liked or disliked by us. Also, if someone is merely linked with positive or negative affect is liked or disliked by us.

Need for Affiliation: We spend a lot of our free time interacting with other persons, because affiliation improves the chances of survival. This has led the idea of stable affiliative trait or need. Also, situational characteristics may arouse this need.

Enduring Relationships: Many of our relationships continue for long periods of time. They may be life long like friendship, marriage etc. The relationships vary in many ways. For example they may vary in the degree of intimacy, commitment, and quality.

Many people think relationship as a type of social contract. We value relationships in term of rewards that we get while engaging in that relationship. The rewards in those areas in which we are inadequate are more valuable. However, in almost all kinds of close relationships interdependence happens to be the most common element. As person children are treated by mothers using a certain type of attachment. It can be secure, avoidant or ambivalent. Psychologists think that infants learn to trust and to love another person, to mistrust and avoid or a mixture of the two on the basis of the kind of attachment they are exposed to. It has been found that mothers contact with the infant (tactile, visual and verbal) and her awareness of and responsivity to infant's needs leads to secure attachment.

The pattern of interaction of children with parents and siblings plays important role in shaping the quality of love and affection in children. Their parental love is



determined by attraction towards parents and the personal virtues. Some of the virtues which are emphasized in the Indian society are given below.

Charity: Helping, forgiving and tolerating parents.

Justice: Fulfilling obligations to parents and respecting their rights.

Prudence: Using reason for their benefit.

Fortitude: undergoing hardships for their benefit.

Temperance: Controlling disruptive emotions and practicing self-discipline.

Close Friendship

Close relationship is found when friends spend a considerable amount of time together, interact in a number of settings, and provide emotional support to each other. During childhood children desire to share activities with friends which both parties tend to enjoy. The attachment style mentioned above influences the way children interact and, in turn, affect the quality of relationships. During adolescence and young adulthood friendship tends to become more intimate. It has been noted that women report having more close friends than men. Intimate relationship is expressed in a variety of behaviours including self-disclosing behaviour, emotional expression, giving and receiving support, experiencing trust, and feeling relaxed in the company of each other. Some people fail to develop close friendship and experience loneliness.



INTEXT QUESTIONS 22.2

Choose the correct alternative:

1. When we consider similarity and interpersonal attraction:
 - (a) We like people who are different from us in attitudes and ideas.
 - (b) We like people who are similar to us in attitudes and ideas.
 - (c) We like people who are attractive.
2. We like long-term relationships:
 - (a) Because we value relationships
 - (b) Because interdependence is a common element in relationship.
 - (c) Because we are attached to our loved ones.
 - (d) All of the above.



WHAT YOU HAVE LEARNT

- Self perception is a complex social process where both the child's own experience and society play an important role.
- Child learns to differentiate from others and has an independent psychological existence.
- We form impressions about others by considering all the information.
- Interpersonal attraction is determined by a number of factors - physical attraction, familiarity, similarity etc.
- Significant others - parents, siblings, friends etc. play a role in self-perception.
- Long term relationships provide psychological and emotional support to the individual.



TERMINAL EXERCISE

1. Discuss the role of perception of others in self development.
2. Explain the role of different factors in interpersonal attraction.
3. Identify the factors you think are important for long-term relationships.



ANSWER TO INTEXT QUESTIONS

22.1

1. True 2. False 3. True 4. True 5. True

22.2

1. (b) 2. (d)

HINTS TO TERMINAL EXERCISE

1. Refer section 22.1
2. Refer section 22.3
3. Refer section 22.3



23

MAN-ENVIRONMENT INTERACTION

Environment is a very broad concept. Everything that affects us during our life-time is collectively known as environment. As human beings we are often concerned with surrounding conditions that affect people and other organisms. Today, all over the world there is growing concern about the deteriorating quality of environment and efforts are being made to stop the widespread abuse of environment and improve its quality.

The first worldwide meeting of heads of state in response to the concerns for the environment took place at the Earth Summit, formally known as the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992. This conference reflects world-wide concern about the quality of our environment. International Environment Education Programme is the outcome of the 1992 conference and efforts are being made globally to educate people at all levels of society about the environmental concerns. The environment in which we live and work affects our thoughts, feelings, and behaviours. The relationship of man and environment is, however, bi-directional. That is, human beings are affected by the environment and they also affect the environment. The study of environmental psychology emphasises this interaction. In this lesson we will learn about various aspects of the man-environment interaction.



OBJECTIVES

After studying this lesson, you will be able to :

- explain the concept of environment;
- describe the various facets of human-environment interaction;
- explain the environmental effects of human behaviours;
- indicate the effects of human behaviour on environment; and
- describe the future threats to environment.



Notes

23.1 MAN-ENVIRONMENT INTERACTION

We know that physical environment directly or indirectly affects our behaviour. For example, it has been observed that people become more irritable and aggressive when the weather is hot and humid, in comparison to cold weather. You must have read in the daily newspapers about the increase in “road rage” cases during the summer months. Our interest in such environmental variables has led to the development of a field known as **Environmental Psychology**.

This field of psychology is dedicated to the study of reciprocal relationships between psychological processes and physical environments, both natural and man made. Reciprocal relationship deals with two-way process in which environment influences human behaviours and human beings affect environment. In order to understand various aspects of this interaction it would be useful to understand various types of environment which we encounter. A brief description of major types of environment is given below.

Physical environment : It includes both physical reality and social-cultural phenomenon that surround us. The noise, the temperature, the quality of air and water, and various objects and things constitute the physical world around us.

The social and cultural environment: It includes the aspects of social interaction including its products such as beliefs, attitudes, stereotypes, etc. The material and non-material aspects of environment are included in it.

Psychological Environment: It includes the perceptions and experiences pertaining to any environmental setting. Some environments may be stimulating and exciting while others may be dull and boring. Expression of psychological is often used in the organizational context.

Environment is a theme relevant to many other disciplines, such as geography architecture, urban planning, etc. It is indeed multidisciplinary in nature. It is labeled as **Environmental Science**.

The human-environment interaction has five major components. These components are briefly described below:

1. **Physical Environment**: It includes aspect of natural environment such as climate, terrain, temperature, rainfall, flora, fauna, etc.
2. **Social –Cultural Environment**: It includes all aspects of cultural environment such as norms, customs, process of socialization, etc. It includes all the aspects dealing with other people and their creations.
3. **Environmental Orientations**: It refers to the beliefs that people hold about



Notes

their environment. For example, some people hold environment equivalent to God and therefore they perceive all its aspects with respect and reverence and try to maintain it in a perfect form and donot degrade it.

4. **Environmental Behaviour:** It refers to the use of environment by people in the course of social interactions. For example, considering the environment as personal space, where the individual identifies himself with it.
5. **Products of Behaviour:** These include the outcomes of people's actions such as homes, cities, dams, schools, etc. That is, these are products or outcomes dealing with the environment.

All the above aspects of environment depict the important constituents of the study of interaction between environment and the human beings. It is very important to understand that human beings are part of the environment and degrading environment will result in extinction of human beings and other forms of life. Therefore, it is the prime responsibility of human beings to maintain the environment in trim condition, its destruction means destruction of human life.



INTEXT QUESTIONS 23.1

Give one term for the following:

1. Use of environment by people in the course of social interaction_____.
2. Outcomes of people's actions like dams, schools, houses_____.
3. Beliefs that people hold about the environment _____.
4. All aspects of culture _____.
5. Aspects of natural environment _____.

23.2 PHYSICAL VS PSYCHOLOGICAL ENVIRONMENT

It is important to understand the difference between physical environment and psychological environment. Physical environment is what is out there in physical terms, like house, tree, mountain etc. On the other hand psychological environment consists of all that exists in one's mind.

It may have some relationship or correspondence with the physical environment or not. For example you may be sitting on the sea shore, where physically there



Notes

are ships, boats, sea gulls, and ripples in the sea (all constitute physical environment). However, you may be sitting there and all that is in front of you but you may not be aware of that and may be thinking about something else. The existing physical environment is not influencing the person. It is what constitutes the psychological environment.

Kurt Lewin, a German Psychologist, differentiated between physical environment and psychological environment. Lewin has introduced the concept of **life space** to explain the relationship between person and environment. According to Lewin, life space is the whole psychological reality that determine the behaviour of an individual. Life space (L) includes everything present in the environment (E) that influences an individual's behaviour. The environment (E) contains everything outside the person (P), including physical, psychological, and social aspects. Lewin calls the person (P) in the environment (E) as life space.

Mathematically, life space can be described as: $B = f(L) = f(P.E)$.

That is behaviour of an individual at a particular time is a function of life space, which contains the person (P) and environment (E). the environment (E) in the life space influences individual's behaviour and other physical environment that does not directly influence behaviour that is called **Foreign hull**. At some other time the events or objects in the foreign hull can influence the behaviour of an individual, in that event the part of the foreign hull influencing the behaviour becomes the part of E and E expands to include some part of the foreign hull.

23.3 ENVIRONMENTAL EFFECTS ON HUMAN BEHAVIOUR

We have earlier discussed that environment affects human behaviour and human behaviour affects environment, the two interact. Environment has both nourishing as well as destructive effects on human beings.

Throughout human history, people have been threatened by floods, earthquakes, and other natural disasters. In spite of enormous scientific development, we have not been able to control the effect of natural calamities and we have not been able to control natural disasters either. In recent times, technological innovations and advances have brought us new potential threats from the environment, which are man made. These threats are physically harmful and stressful. People have to cope with these stressors. Such man made environmental stressors are many. These stressors are called pollutants and basically there are four: air pollution, water pollution, noise pollution and Crowding.

We find many natural disasters that affect human behaviour in many ways. These

**Notes**

natural disasters include earthquake, volcanic eruptions, wind storm, tornado, cyclone, famine, flood etc. The earth quakes at Latoor and Bhuj (2001) and Super cyclone in Orissa (1999) not only caused extensive damage to property and physical environment (uprooting of trees etc) but also had long-term effect on the lives of the people.

There are various man-made disasters also. The technological disasters such as three Mile Island (1979), Chernobyl (1986) and Bhopal Methy Iso Cynide (MIC) Disaster (1984) etc. are some of the major man-made disasters that have intense and long-term adverse effects on the lives of the people. In the Bhopal disaster more than 8,000 people died and over 2,00,000 were physically affected. Thousands of gas victims are still suffering from mental and physical health problems. Research studies indicate that the survivors of such disasters suffer from anxiety, withdrawal symptoms, depression, stress, anger and nightmares.

23.4 EFFECTS OF HUMAN BEHAVIOUR ON ENVIRONMENT

As indicated earlier human activities also affect the environment. In fact, almost every human being adds, through his activities, some effect that contributes cumulatively and negatively to the environment we live in. Whenever, some one drives a scooter, motor cycle or car, uses hair spray, cooks food, etc. the environment is affected. We do not perceive the role our simple activities play in degrading our environment. Imagine that billions of people living on our planet in some way or the other affect the environment and the cumulative effect is tremendous. The effect of human activity (e.g. polluting air) is long-term and irreversible and will affect the lives of generations that were follow.

Fortunately, after playing havoc with our environment, people all over the world have become conscious of this disaster that the mankind has already made. Now, the efforts are being made to somehow control the onslaughts of the disaster.

23.5 PLANNING FOR THE FUTURE

As stated earlier, the United Nations is working seriously to control the harmful activities of people affecting our environment around the world. Environment is a naturally given capital having certain limits and we have to learn to use the resources judiciously. Air, water, food, fuel, etc. are all gifts of this environment to the human kind and we have to learn to judiciously use and conserve them. We have to pay greater attention to conserve water and air. Disposal of waste material we produce, ranging from sewage to garbage needs special attentions.



Water: We are using natural resources that we are not replenishing, and water is one such resource. On our planet, there are now at least 80 countries having serious water shortage with serious threat to agriculture. India is one among these countries where water shortage is adversely affecting the agriculture. The water shortage in Karnataka and Tamil Nadu is an example. The water shortage is assuming serious threat to the big cities also. For example, during the summer months there is serious shortage of water in Delhi region and due to population influx from the neighbouring cities the problem is getting worse day-by-day. The solution lies in harvesting rain water and efforts are being made to use rain water to augment water supply.

Air: The quality of air has been adversely affected by automobile and industrial emission. Large quantities of emissions from such sources have increased the presence of harmful and toxic gases like carbon monoxide, nitrogen dioxide, sulphur dioxide etc. in the air that we breathe. Serious efforts are required in stemming the rot and save the public health. In this direction Delhi administration has taken serious steps in introducing CNG (Compressed Natural Gas) as a fuel for public transport system and it has made a significant improvement in the quality of air in Delhi. Such innovative intervention is required to restore the quality of air.

Waste Material: Perhaps the most obvious by- product of human activity is waste material we produce. This waste product of our activity range from sewage to garbage. It is a very serious problem for municipalities, corporations, and local governments to manage them. So far, much of our sewage disposal is flushed untreated into the rivers. This has created serious problem of water pollution. This makes our river water unfit for human consumption. There is now awareness of this serious problem and efforts are being made in pre-treating the sewage disposal before throwing it in the rivers and sea.

Another serious problem emanates from the tremendous amount of garbage we produce. The disposal of the garbage, especially of non-bio-degradable material (e.g., plastic bags) is a serious problem. We must take care not to use such material, like plastic bags for daily use. Recycling the waste should be undertaken to save the land from the polluting effects of such garbage.



INTEXT QUESTION 23.2

1. Give any one suggestion for reducing water shortage.
2. What should be done to reduce air pollution?
3. Give suggestions for treatment of waste materials?

**WHAT YOU HAVE LEARNT**

- Environment is made of two parts: Physical (such as noise, temperature, air, water, etc.) and psychological environment (perception and experiences of the environment by an individual).
- Human behaviour is the result of interactions between the person and the environment.
- Changes in the environment, whether natural such as earthquake, tsunami, etc, or man-made disasters such as Bhopal MIC disaster, influence human behaviour.
- Human beings also influence environment by their activities such as driving car, cooking food, etc.
- There is a need for developing effective mechanisms for protecting the environment.

**TERMINAL EXERCISE**

1. What are the various facts of human-environment interaction? Explain environmental effects on human behaviour.
2. What are future threats to environment? What we should do to remove these threats?

**ANSWER TO INTEXT QUESTIONS****23.1**

1. Environmental behaviour
2. Products of behaviour
3. Environmental orientations
4. Social cultural environment
5. Physical environment

23.2

1. Harvesting rain water
2. Introduction of CNG
3. pre treating sewage and recycling the waste

HINTS TO TERMINAL EXERCISE

1. Refer section 23.1 and 23.3
2. Refer section 23.4 and 23.5

**Notes**



24

PSYCHOTHERAPY

In the previous lesson, you were told about psychological disorders. Psychologists have tried to understand the causes of abnormal behaviour, and the best way to treat it. There are four major models which deal with psychological disorders and their treatment. These are known as medical, psychodynamic, behavioural and the humanistic.

In this lesson some important approaches for treatment of abnormal behaviour, referred to as psychotherapy, are described. The term psychotherapy is used to describe the process where a trained psychologist helps a disturbed person to behave normally. The psychologist generally uses one of the approaches mentioned above.



OBJECTIVES

After studying this lesson, you will be able to:

- explain the purpose of psychotherapy;
- describe the major models for psychotherapy; and
- explain the relative merits and demerits of each of these models for psychotherapy.

24.1 MEDICAL MODEL

According to the medical model, abnormality occurs due to a physical cause, and is a kind of illness, which can be treated with the help of medicines. This approach



examines the role of genetics and imbalances in neurotransmitters. The therapeutic approaches used in the medical model are referred to as somatic therapy. Three somatic therapies which are currently used are chemotherapy, electro convulsive therapy (ECT) and psychosurgery.

ECT involves administering electric current for short duration through electrodes to the head of the person suffering from psychological disorder. For example, in unilateral ECT, two electrodes are attached to the temple region and a current of approx 200 milliamps at 110 volts, is passed from one electrode to another for 0.5 – 4 seconds. ECT is used to treat depression, bipolar disorder (mania-depression), and obsessive compulsive disorders.

Psychosurgery involves performing surgery on the brain to alter psychological functioning. It is used only as a last resort in extreme psychological disturbance like in aggressive schizophrenics.

The most common and effective somatic approach is chemotherapy which involves giving medicines to the person with disorders. There are three main types of medicines. Neuroleptics (major tranquilizers or antipsychotics) are mainly used to treat schizophrenia and mania. Antidepressants are used to treat several disorders including depression. Anxiolytic drugs (minor tranquilisers) are mainly used in anxiety disorders.



INTEXT QUESTIONS 24.1

Fill in the blanks below:

1. The therapeutic approaches used in the medical model are called _____ therapy.
2. The three major somatic therapies currently used are _____, _____ and _____.
3. _____ are mainly used to treat schizophrenia
4. For treatment of depression, _____ are used.
5. Anxiolytic drugs are mainly used in _____ disorders.

24.2 PSYCHODYNAMIC THERAPY

As you read earlier Sigmund Freud's psychodynamic model looks at mental disorders as caused by internal, psychological factors, which are basically



unresolved, unconscious, childhood conflicts. Therapy in this model is referred to as psychoanalysis. The purpose of psychoanalysis is to understand the unconscious conflicts which are responsible for a person's mental disorder, and then to make the person consciously aware of it. This allows the person to deal more effectively with his or her problems.

The approach most widely used in psycho-analysis is a technique called free association. The basic procedure is that the patient says whatever comes to mind, since this bypasses the ego's role of censoring or blocking threatening unconscious impulses. The ultimate goal of psychoanalysis is major modification of personality to enable people to deal with problems in a realistic way, without using defense mechanisms. Sometimes, hypnosis and dream interpretation are also used to help the therapeutic process.

24.3 BEHAVIOURAL MODEL

As you learnt in the earlier lesson, in the behavioural model, disorders are viewed as learned maladaptive behaviours. Watson was the first person to suggest that mental disorders such as phobias (extreme fear of certain objects, people or situations e.g. rats or snakes etc.) can be explained in terms of the mechanisms of conditioning. The behaviour therapies use classical conditioning principles, whereas behaviour modification techniques are based on operant conditioning (You were told about the types of conditioning in lesson 6).

In behaviour therapy, the assumption is that if maladaptive behaviour can be acquired through classical conditioning, they can also be unlearned by the same principles. Three approaches based on behaviour therapy are—implosion therapy, flooding, and systematic desensitisation (SD). Implosion therapy and flooding are based on the concept that if the stimulus causing a fear response (e.g. snakes) is repeatedly presented without the unpleasant experience that accompanies it, it loses its power to evoke a fear response.

In implosion therapy, the therapist again and again exposes the person to mental images of the feared stimulus in the safety of his room. The person is asked to imagine the most frightening form of contact with the feared object. After a number of trials, the stimulus (e.g. snakes) loses its power to cause anxiety.

In flooding the individual is forced to face the situation causing fear or anxiety. For example a person afraid of heights, may be forced to stay on the roof of a tall building. With some persons, this approach is effective and removes the fear of the situation. Implosion therapy and flooding have limited effectiveness. A better procedure is called systematic de-sensitization.

**Notes**

In systematic desensitization, the person is asked to construct a series of scenes or events which gradually lead the person to face the object/situation which causes the fear. For example, a person who has a fear of dead bodies may be asked to imagine an ambulance and then focus on relaxation. Then he may be asked to go close to a cremation ground and finally (through a number of intermediate steps) the person may be asked to come close to a dead body, and at the same time, focus on relaxation.

As mentioned above apart from the approaches based on classical conditioning there are certain therapies based on operant conditioning called behaviour modification. There are a number of therapies based on operant conditioning, but all of them consists of three basic steps. The first objective is identification of the undesirable or maladaptive behaviours. The second step involves identification of the reinforcers that maintain the maladaptive behaviours. The last step involves restructuring the environment in such a way that the maladaptive behaviour is no longer reinforced.

One way to eliminate behaviours which are not desirable is to remove the stimuli that maintain them. This is based on the idea that removing the stimuli will extinguish the behaviour that was earlier reinforced by it. Another method involves use of stimuli which have a negative impact in the form of punishment for voluntary maladaptive behaviour. Operant conditioning can also be used to increase desirable behaviours by giving positive reinforcement when the desirable behaviour is carried out. For example, if we want a child to study everyday we could reinforce study by allowing to watch a T.V programme of his choice, every time he studies, say, at best for one hour.

In recent years, a social learning approach to psychotherapy has emerged. This model is a link between behaviour and cognitive model of personality. Cognitive approaches view mental disorders as caused by “irrational beliefs” or faulty thinking. Therapy involves cognitive restructuring or changing one’s way of thinking. For example, if a person believes that a black cat crossing in front of them will cause problems, he may be made to experience it many times till (s) he realized that there is no link between cat and negative events, and thus changes their thinking.

**INTEXT QUESTIONS 24.2**

Fill in the blanks below:

- (i) The approach most widely used in psychoanalysis is a technique called free _____.



- (ii) The purpose of psychoanalysis is to understand the _____ conflicts which are responsible for a person's abnormal behaviour.
- (iii) Other approaches used in psychoanalysis are _____ and _____ interpretation.
- (iv) The behavioural model of therapy uses classical conditioning principles is called _____, _____.
- (v) Three approaches based on behaviour therapy are _____, _____ and _____.
- (vi) Behaviour modification approaches are based on _____ conditioning.

24.4 HUMANISTIC PSYCHOTHERAPY

According to the humanistic view of personality, people are fundamentally good and seek growth and work towards better ways of living. All people have a need for self-respect and to shape their life according to free choice. Humans are special because they have a free will and a natural need to do all they are capable of. The need to actualize one's potential is called the basic human drive towards self-actualization.

In the humanistic view, psychological disorders are seen as occurring because the external environment blocks us from moving in the direction of personal growth. People around us put pressure by their expectations from us, they do not accept us as we are. If everyone around us gives us unconditional positive regard there would be hardly any gap between what we are and what we desire to be. This means there would be little gap between the real self and the ideal self. This leads to greater harmony in our functioning, termed as congruence.

The goal of humanistic therapy is that the therapist by creating an environment of unconditional positive regard allows the client to get in touch with his or her true feelings and inner self. Then the client has to take responsibility and live more in accordance with the strivings of the inner self. This eventually leads to growth and greater life satisfaction.



TERMINAL EXERCISE

Write the answers of the following questions:

1. Describe the basic goal and process of psychoanalysis.

2. Outline the differences in the approach used in implosion therapy, flooding and systematic de-sensitization.
3. Briefly describe the three somatic therapies currently used – chemotherapy, electro convulsive therapy and psychosurgery.
4. What is the basic approach used in humanistic psychotherapy.



WHAT YOU HAVE LEARNT

- Medical model relies largely on medicines and sometimes use electric shock and surgery to treat psychological disorders.
- Psychoanalysis is psychotherapy which uncovers unconscious conflicts in the mind of a person from earlier life experiences, and helps the person in consciously accepting them.
- Behaviour therapy is based on the principles of classical and operant conditioning.
- Humanistic therapy helps a person to get in touch with their deeper needs and desires and then take responsibility to live more in accordance with one's inner or true nature



Notes



25

HEALTH PSYCHOLOGY

In order to enjoy life one needs to be healthy. People who are not healthy are called sick. They cannot perform well and meet the various demands of life. Health is important for a person individually as well as socially. In order to be a productive member of society, we need an alert mind and an active body. The field of health psychology deals with psychological factors which are important in maintaining and fostering health and well being. Also, it explores the factors which lead to the condition of illness. This field has become very important in recent years. It has become increasingly clear that the life style or our ways of thinking and behaving are contributing to the health status of people. Experts think that the factors causing illness and death can be prevented with the help of exercise, proper intake of nutritious food, and changes in bad habits like smoking. This lesson will help you to understand the issues related to learning how to lead a healthy life and experiencing well-being.



OBJECTIVES

After studying this lesson, you will be able to:

- understand the concept of health and well-being;
- describe health promoting behaviours;
- learn about the threats to health; and
- familiarize yourself with life-style interventions necessary for fostering health and well being.
- explain coping and self-management skills to safeguard from unwanted sexual advances and other forms of abuse.
- differentiate between safe and unsafe sex.
- list the risks like RTI, STD, HIV/AIDS due to unsafe sex and other modes of transmission.



Notes

25.1 CONCEPT OF HEALTH AND WELL BEING

Health refers to a state of physical, mental and spiritual well being. Health should not be confused with absence of illness. It is a positive state. In addition to absence of illness, it incorporates thriving and coping. Health occupies a central place in the personal and social lives of the people. The quality of life of people in today's world is being challenged from many quarters which reflect on the poor health of the people. On the one hand the external environment is changing very fast. It demands coping with a number of environmental stresses. Also, these changes in social structure (e.g., disintegration of family and other social institutions), increase in competition and consumerism are contributing to increase in frustration, loneliness, conflict and loss of support. The result is that psychosomatic disorders are on the rise. An analysis of this scenario indicates that health and well-being are becoming casualties.

In today's busy life each one of us is experiencing a variety of tensions and stresses. Stress is now recognized as the silent killer. It has a negative effect on physical health as well as psychological well-being. Technically, stress refers to our response to events that are viewed as threatening and disrupting psychological functioning. The situations or factors in the environment that cause stress are called stressors. While the list of stressors can be very long, they can be grouped in four main categories: **Stressful life events** (e.g., divorce, retirement, pregnancy, death of a near and dear one, unemployment); **Hassles of every day life** (e.g., shopping, too many commitments, Commuting to work place in difficult situation); **Work related stress** (e.g., role ambiguity, unpleasant work environment, conflict with colleagues meeting targets) and **Catastrophic events like disasters**. Stress is a potential source of health hazard for everybody but its effect depends on the degree of fit between person and environment. Also, people vary in certain dispositions like optimism, perception of control, health beliefs, emotional state, and personality pattern which may help or hinder coping with stress.



INTEXT QUESTIONS 25.1

1. List the main challenges that create threat to quality of life in modern life.
2. Give three examples each of (a) stressful life events, (b) daily hassles and (c) work related stresses.

In Indian thought the term swasth (healthy) means the state of 'being in oneself'. In other words it is an auto-locus person who can be called swastha. Ayurveda or the science of life often refers to a state of balance or appropriateness (Sama) as an important component of well-being and health.



25.2 HEALTH PROMOTING BEHAVIOURS

Achieving health requires following certain patterns of behaviour. The important behaviours are described below:

(i) Relaxation

Relaxation is very useful for stress reduction. Meditation which involves focusing attention on an object, word, or phrase has been found to have a calming effect. Another kind of relaxation is called progressive muscle relaxation. It involves systematically tensing and then relaxing the muscles while lying down or sitting comfortably. Yoga Nidra is also used for this purpose. **Relaxation often involves deep breathing. By holding one's breath for a few seconds and exhaling slowly.**

(ii) Exercise

Regular exercise helps in maintaining physical and mental health. It strengthens the heart and lungs and improves the use of oxygen by the body. Jogging, running, bicycling and aerobic exercise are quite useful to this end. The benefits include cardiovascular fitness and endurance, improved capacity for physical work, optimization of body weight, improvement of muscle tone and strength, control of hypertension, improved stress tolerance, and focusing of attention and concentration. In order to benefit from exercise it should be done regularly.

(iii) Weight Control

Regulation of food intake is determined by a complex system. In fact a set of biochemical processes control it. Poor regulation of food leads to high accumulation of body fat. The resulting obesity works as a risk factor because it increases blood pressure and cholesterol level. Obesity has been found to be a cause of early mortality. Genetic factors, and stress both are found to contribute to obesity. Weight control is very difficult. Dietary intervention is necessary but often insufficient for producing lasting weight loss. Fasting, yoga, surgery, use of appetite suppressing drugs are also used for this purpose. A multi-pronged approach to weight control is found better. Analysis of eating habits is used to make people aware of their eating patterns. The analysis of stimuli that affect eating provides insights to regulate eating. People are trained to modify the stimuli in their environment that have previously elicited and maintained over-eating. The patients are trained to control the eating process itself. Developing a sense of self control over eating contributes to weight control.

(iv) Diet

A healthy diet should be a goal for every one of us. Studies indicate that dietary



Notes

habits are critically involved in the development of diseases like cancer, hypertension and cardiovascular diseases. Low fat and low-cholesterol diet reduces the incidence of cardiac disease. **Dietary control involves meal planning, cooking methods and eating habits.** It has been noted that intervention with family is useful for promoting and maintaining dietary change.

**INTEXT QUESTION 25.2**

1. Fill in the blanks:

- (a) Relaxation involves _____ breath, holding _____ and _____ slowly while relaxing the muscles.
- (b) Developing a sense of _____ over eating _____ to weight control.
- (c) The dietary control involves _____ planning, _____ methods, and _____ habits.

Attending to Health Problems

It is very important to attend to your health problems in time. The matter of prime importance in any health matter is that it should be attended to without delay, as sometimes a problem may progress fast. Once a complaint or a symptom is noticed in the body whether physical or mental. It should be reported to a qualified medical personnel. You should proceed to take the necessary corrective steps at the earliest as per his consultation and guidance.

Positive Emotions

It is often said that a smiling face indicates happiness and mental health. It is true, but it misses one important information- that experiencing positive emotions like love, affection, interest, empathy, forgiveness, gratitude etc. contribute to one's state of health and well being. Recent studies indicate that the experiences of various positive emotions enhance the status of one's health. It is, therefore, important to discover, arrange and create opportunities for experiencing positive emotions in everyday encounters.

25.3 THREATS TO HEALTH

It must be clear by now that many of the diseases and threats to health which ultimately reduce longevity are related to the ways we behave and conduct



ourselves. In order to ameliorate such conditions we need to adopt a life-style consisting of certain do's and don'ts. Unfortunately, people develop habits that often create problems. They indulge in many self destructive behaviours. Some of the important ones which increase the risk for health are as follows.

- 1. Alcohol and Drug Use:** In the modern period these are the most common health impairing habits. Taken in an overdose they can immediately kill people. The addiction to alcohol and drugs often damage the respiratory system, intestine, liver in particular and other bodily systems in general. The thinking capacity and decision making also get affected. Alcohol, in particular adversely affects liver and may produce cirrohsis.
- 2. Smoking:** Studies clearly show that the chances of lung cancer and heart disease go high among the smokers. Smoking leads to chronic bronchitis and respiratory disorders. Interestingly the dangers of smoking are not confined to the smokers alone. The spouses, family members and co-workers who live with smokers are also prone to a variety of health disorders. Accompanied by over-weight and stress, smoking becomes more dangerous.
- 3. Use of Tobacco:** In India tobacco is used in many ways. People eat raw tobacco, smell it and chew it with paan leafs. The studies indicate that use of tobacco is related to mouth cancer. It adversely affects oral hygiene and may even involve gums and teeth.
- 4. Poor Nutritional Habits:** In recent years there has been an increase in following poor dietary practices. Use of junk food (fast food!) and eatables which are imbalanced in terms of cholesterol, fats, calories etc. have become the order of the day. Awareness needs to be generated in public about benefits of eating raw food and lot of fruits. The meals should be programmed for healthy living. In order to experiment with new taste, people often go for nutritionally imbalanced food. Uncontrolled food may lead to obesity.
- 5. Lack of Exercise:** Modern life values, white collar jobs increasingly lead to sedentary life. They lack time and skills for exercise. Healthy body requires adequate exercise for the entire body. On account of laziness, time pressure and ignorance about the body system many people avoid exercises. As a result the body becomes weak and sick and premature ageing begins.
- 6. Unsafe Sex: HIV (Human Immunodeficiency Virus) and AIDS (Acquired Immune Deficiency Syndrome)** is a fatal disease found among drug users (by needle sharing), homosexuals, and people engaging in sexual intercourse with a number of partners. It is estimated that approximately 6.5 million people have died because of AIDS. Following transmission, the virus grows rapidly and spreads throughout the body. The person infected by



this virus suffers from many abnormalities including neuro-endocrine and cardiovascular functioning.



INTEXT QUESTIONS 25.3

Match the two lists of factors causing illness and nature of illness:

- | | |
|---------------|-------------------------|
| 1. Alcohol | (a) respiratory disease |
| 2. Smoking | (b) intestinal illness |
| 3. Junk food | (c) HIV/AIDS |
| 4. Unsafe sex | (d) obesity |

25.4 INTERVENTIONS FOR PROMOTING WELL BEING

Living long, and having a productive and healthy life is a dream for everybody. We can learn about it from the people who have been successful in attaining this enviable goal. Looking at people with such successful ageing, we notice that they were clearly different from the rest in terms of three factors viz.- diet, physical activity, and involvement in community life. In particular, these people preferred leafy green and root vegetables, fresh milk, fresh fruits and eat low to moderate amount of food. They maintain low to moderate levels of daily calorie intake. They also engage in physical activity and walking on a regular basis and they continue with their involvement in family and community affairs.

Based on researches of a wide variety, it is being felt that ensuring health and wellness is possible with the help of adopting certain preventive strategies. A brief description of these strategies is given below:

- (i) **Primary Prevention:** It tries to reduce or eliminate the occurrence of preventable illness and injury. It involves helping people learn about behaviour and health, promoting motivation and necessary skills to practice healthy behaviour, and modifying poor health practices. It also involves generating awareness about immunization.
- (ii) **Secondary Prevention:** The major goal of this kind of prevention is to decrease the severity of illness which a person suffers. With the help of early detection, using diagnostic tests that screen the disease, steps may be taken for cure. People can learn methods of self-examination of body parts, and functioning of various organs, that may help in prevention of disease.



- (iii) **Changing the Life Style:** It must be noted that medicine alone is not sufficient to cure disease, when life style is faulty. It is necessary to understand that the way we think and the way we behave are interrelated. Mind and body both go together. The various types of illnesses are often caused by our beliefs and habits. In achieving the optimum state of health it is important to achieve the harmony of body and mind. It is with this in view that Ayurveda, the Indian system of medicine, suggests that health and well being depend upon proper Ahara (diet), Vihar (recreation), Achara (conduct) and Vichara (thought). The key principles that need our attention in these areas are as follows.

Ahara (Diet)

- Vegetarian food is safe and invigorating for the body.
- Fresh fruit and green vegetables rich in fiber contents, honey and curd provide vitamins, antioxidants, iron etc. necessary for health.
- Avoidance of food having opposite effects (e.g., hot milk and ice cream should be avoided).

Achar (Conduct)

- Daily routine should be organized according to season.
- Drinking lot of water, regular massage, exercises and yogic asanas help to keep body fit and active
- Develop skills for proper time management.

Vihar and Vichar (Recreation and Thought)

- Develop accommodative intellect, acceptance of criticism, understanding of the emotional needs of others.
- Practice self control and one should not be driven by lust and greed.
- Should not be dominated by negative emotions like fear, anger, jealousy and worry.
- Develop enduring friendships and social relations.
- Developing awareness of self, connectivity with others and spiritual inclination.



INTEXT QUESTIONS 25.4

1. What are the important factors found in the people who show successful ageing?

**Notes**

2. Enumerate steps for primary prevention.
3. Describe the components of Ayurvedic view of life-style.

**WHAT YOU HAVE LEARNT**

- Health is important for a person individually as well as socially. It consists of a state of physical, mental and spiritual well being.
- Contemporary life is full of stressful experiences in the context of family, economy, work and environment.
- Major stresses are categorized as stressful life events, hassles of everyday life, work related stress and catastrophic events.
- Health promoting behaviours include relaxation, exercise, weight control, and diet. One must attend to health problems by proper diagnosis. Positive thinking have a positive effect on health.
- Threats to health include alcohol and drug use, smoking, tobacco, poor nutrition, lack of physical exercise and unsafe sex.
- Successful ageing is related to moderate eating habits, physical activity and community work.
- Prevention can occur at primary and secondary levels. However changing the life style plays a key role.
- According to Ayurveda, attention must be paid to diet, recreation, conduct and thought.

**TERMINAL EXERCISE**

1. Discuss the concepts of health and well being.
2. What are the factors that should be considered for promoting health?
3. Mention some of the threats to health.
4. Suggest some information for promoting health.

**KEY TO INTEXT QUESTIONS****25.1**

1. Changes in environment, disintegration of family, competition, loneliness.



2. (a) death of spouse, unemployment, loan
(b) commuting to work place, collecting water, sending children to school.
(c) work over load, role ambiguity, time pressure

25.2

- (a) deep, breath, exhaling
- (b) control, contributes
- (c) meal, cooking, eating

25.3

- (1) b (2) a (3) d (4) c

25.4

1. diet, physical activity, involvement in community life.
2. learning about health, promoting motivation, skills to practice health behaviour, modification of poor health practices.
3. Ahar (diet), Achar (conduct) and Vihar and Vichar (recreation and thought).

HINTS TO TERMINAL EXERCISE

1. Refer to section 25.1
2. Refer to section 25.2
3. Refer to section 25.3
4. Refer to section 25.4