BPCG-171

GENERAL PSYCHOLOGY

School of Social Sciences
Indira Gandhi National Open University

EXPERT COMMITTEE

COURSE PREPARATION TEAM

Block		Unit Writer
Block 1	**Orientation to Psychology**	
Unit 1	Nature of Psychology and Sociocultural Processes of Behaviour	Prof. Amulya Khurana,School of Humanities and Social Sciences, IIT Delhi (Adapted from BPC 001, Block 1)
Unit 2	Biological Basis of Behaviour	Dr. Shailender Singh Bhati, Lecturer, G.D. Government Girls College, Alwar, Rajasthan (Adapted from BPC-001, Block 2)
Unit 3	Cognitive Processes: Attention, Perception, Learning, Memory and Thinking	Prof Suhas Shet govekar, IGNOU
Unit 4	Affective Processes: Motivation and Emotions	Dr. Arti Singh, IGNOU
Block 2	**Psychology of Individual Differences**	
Unit 5	Individual Differences and Intelligence	Dr. Arti Singh, IGNOU
Unit 6	Theories of Personality	Dr. Arti Singh, IGNOU
Block 3	**Developmental Processes**	
Unit 7	Nature and Principle of Human Development	Dr. Mamta Sharma, Assistant Professor, Department of Psychology, Punjabi University, Patiala & Dr. Arti Singh (IGNOU) (Adapted from BPC-002, Block 1)
Unit 8	Stages of Development	Dr. Mamta Sharma, Assistant Professor, Department of Psychology, Punjabi University, Patiala & Dr. Arti Singh (IGNOU) (Adapted from BPC- 002, Block 1)
Unit 9	Cognitive and Moral Development	Dr. Mamta Sharma, Assistant Professor, Department of Psychology, Punjabi University, Patiala (adapted from BPC-002, Block 1)
Block 4	**Applications of Psychology**	
Unit 10	Applications of Psychology	Prof. Amulya Khurana,School of Humanities and Social Sciences, IIT Delhi (Adapted from BPC-001, Block 1)

COURSE COORDINATOR: Dr. Smita Gupta

GENERAL EDITORS: Dr. Smita Gupta and Dr. Arti Singh, Discipline of Psychology, SOSS, IGNOU

Print Production

Mr. Rajiv Girdhar
Assistant Regitrar (Pub.), MPDD, IGNOU.

Mr. Manjit Singh
S.O. (Pub.), SOSS, IGNOU.

Mr. Hemant Kumar
S.O. (Pub.), MPDD, IGNOU.

January 2020

ISBN: 978-93-89969-17-7

Further information on the Indira Gandhi National Open University courses may be obtained from the University's Office at Maidan Garhi, New Delhi-110 068 or visit our website: http://www.ignou.ac.in

Printed and published on behalf of the Indira Gandhi National Open University, New Delhi, by Director, School of Social Sciences.

Laser Typeset by : Tessa Media & Computers, C-206, A.F.E.-II, Okhla, New Delhi

Printed at : S G Print Packs Pvt. Ltd., F - 478, Sector - 63, Noida

Course Contents

COURSE INTRODUCTION

The course of Introduction to Psychology is one of the courses of First Semester of BA (Honours) Psychology. The attempt of this course is to explain you the meaning and concept of psychology. It also explains the human behavior and their cognitive processes; biological processes and affective processes that make them behave differently.

The first block of this course is **Introduction to psychology** which discusses the origin of the field of psychology and the emergence of psychology as an independent Discipline in the world including India. The second block of this course is- **Perception** which explains the steps and process of perception. It also explains how our perception is influenced by other factors.

The third block of this course is- **Thinking and language** which deals with the process of thinking and concept of creativity. The fourth block of this course is- **Learning and Memory** last block of **Motivation and Emotion,** you will be introduced with the concept and theories related to motivation and emotion.

Block 1
Orientation to Psychology

BLOCK 1 ORIENTATION TO PSYCHOLOGY

Introduction

This block comprises of four units. *The first unit* tries to explain the concept of psychology. This unit introduces the subject of psychology. Psychology, like all academic disciplines, has its own concepts such as intelligence, personality, stress, learning, memory, thinking, perception etc. Many of the concepts of psychology are familiar to you, but many of them are new. Some of the topics included in this unit are: the nervous system, sensation and perception, learning and memory, intelligence, language and thinking, growth and development, motivation and emotion, personality, stress, psychological disorders, ways of treating those disorders, sexual behaviour, and the behaviour of people in social settings such as groups and organisations. It also tries to describe the scope, nature and method of psychology. Further, it deals with the nature and characteristics of science and tries to explain the fact that psychology, is a science. It also discusses the various methods to study psychology as well as the scope of psychology. The unit also explains the socio cultural processes that influence the human behaviour.

The second unit of this block deals with the biological bases of behaviour. It describes the biological processes like heredity and endocrine glands which effects the personality and behaviour. The unit on biological basis of behaviour will provide you an overview of neurons, central nervous system, endocrine glands and their influence on our behaviour. *The third unit* deals with certain cognitive processes like attention, perception, learning, memory, and thinking which influences an individual's personality and behaviour. It discusses the processes of attention and perception. It also explains certain theories of learning and models to explain the memory and the levels of memory. *The last unit* of this block deals with the affective processes . It discusses the concept and theories of motivation and emotion. Motivation is simply the reason for an action and it gives purpose and direction to behaviour. Motivation is "WHAT drives you" to behave in a certain way or to take a particular action.Emotion is a reaction consisting of subjective cognitive states, physiological reactions, and expressive behaviours.

UNIT 1 NATURE OF PSYCHOLOGY AND SOCIOCULTURAL PROCESSES OF BEHAVIOUR*

Structure

1.0 INTRODUCTION

Psychology is concerned with almost all aspects of our lives. That is why, everyone is interested to know about psychology. But, there are many misconceptions about psychology too. Many people think that psychology deals with treating mad people. Some others feel that psychologists can read your mind just by looking at you or your face/forehead. They tend to equate psychologists with astrologers, gemologists, numerologists, palmists or graphologists, who claim to solve your problems of life and predict your future. You might have heard the terms 'psychology', 'psychological', 'mental' etc., but do you know what is the meaning of psychology and how did it evolve? Is psychology a 'science' or 'art'? How our brain structures affect our behaviour? What is the role of perception, attention, learning, motivation and emotions in shaping our behaviour? In this unit you will find answer to these and many more such questions. By studying psychology, you will be able to understand what psychology is and what it is not. This unit introduces the subject of psychology.

1.1 OBJECTIVES

After finishing this unit, you would be able to:

- Understand the origin and nature of psychology;

* Contributed by Prof. Amulya Khurana, School of Humanities and Social Sciences, IIT Delhi (Adapted from BPC 001, Block 1)

- Articulate the scientific nature of psychology;
- Know the Scope and application of psychology;
- Understand different methods to study psychology; and
- Understand the role of sociocultural processes underlying human behaviour.

1.2 PSYCHOLOGY: ITS ORIGIN AND EVOLUTION

The origin of psychology dates back to 1870s. The term 'Psychology' is derived from two Greek words; *Psyche* means "soul or breath" and *Logos* means "knowledge or study" (study or investigation of something). The word 'Psychology' was not in common use before the nineteenth century, and the field of psychology did not actually become an independent science until the middle of the nineteenth century.

Psychology emerged as an independent academic discipline in 1879, when a German Professor Wilhelm Wundt established the first psychology laboratory at the university of Leipzig, Germany. According to Bolles (1993), Wundt was a medical doctor by training and early in his career, he was fortunate to work with some of the great physiologists of the nineteenth century. Fittingly, his laboratory was established during the time he spent as a professor of philosophy. (It is important to know that the intellectual roots of psychology lie at the union of philosophy and physiology). Wundt is traditionally recognised as the founder, or father of the modern psychology, and 1879 is seen as the year in which the psychology finally emerged as a unique field. Prior to Wundt, it was not possible to major in psychology, because there were no official psychologists or psychology departments. Wundt started studying the structure of *mind* which meant the immediate (conscious) experience, the contents and processes of subjective experience such as sensations, thoughts, feelings and emotions. Thus, formally, psychology was recognised as an independent science in 1879. Let us now look at how psychology has been defined.

1.2.1 Definition of Psychology

Psychology has been defined in a number of ways by various authors. Psychologists had been debating on whether psychology should focus on "mind", "consciousness" or "behaviour". Let us look at how the definitions of psychology have come a long way over the past 130 years. Earlier, psychology was part of Philosophy. Ancient philosophers were interested in the study of the soul. Thus, it was first defined in terms of 'the science of soul'. However, since the term 'soul' has very wide and comprehensive meanings, it was considered as a vague term and was criticized severely in the middle ages. But now, this is not the case. Some of the famous definitions of Psychology are as follows:

- Psychology is the science of human and animal behaviour. It includes the application of this science to human problems. (Morgan et al., 1986)
- The scientific study of behaviour and mental processes. (Feldman,1996)
- The scientific study of behaviour and mental processes and how they are affected by an organism's physical state, mental state and external environment. (Tavris and Wade, 1997)

- Psychology is all about human behaviour, about mental processes, and about the context in which behaviour and mental processes occur. (Das, 1998)
- The science of behaviour and mental processes. (Lahey,1998)
- The science of behaviour and cognitive processes. (Baron, 1999)
- Scientific study of behaviour and mind. (Nairne, 2003)
- A science in which behavioural and other evidence is used to understand the internal processes leading people (and members of other species) to behave as they do. (Eysenck, 2004)
- The scientific study of behaviour and mental processes. (Ciccarelli & Meyer, 2006; Coon & Mitterer, 2007, 2008)
- The science that studies behaviour and mental processes. (Rathus,2008)

As is evident in the above definitions, study of behaviour (human and animal) has been emphasised in all of them.

Self Assessment Questions (SAQ I)

State whether the statements are 'True' or 'False'

1) Psychology is all about human behaviour, about mental processes, and about the context in which behaviour and mental processes occur. ( )
2) Psychology is the science of human behaviour only. ( )
3) Psychologists are like astrologers, gemologists, numerologists, palmists or graphologists who can predict your future. ( )
4) Earlier, psychology was part of philosophy. ( )
5) Wundt is recognised as the father of the modern psychology. ( )

1.3 THE SCIENTIFIC NATURE OF PSYCHOLOGY

Contemporary psychologists have always defined psychology as a science of behaviour. But is it a science like physics, chemistry, biology and zoology or something different? In this section we will look at some of the definitions of science. We will also discuss the nature and characteristics of science and try to understand psychology, as a science. Let us look at the following definitions of science:

- Science is a systematized body of knowledge gathered through carefully observing and measuring events. (Morgan et al.,1986).
- Science is approach to knowledge, based on systematic observation. (Lahey,1998)

The sole aim of science is to classify, understand, and unify the objects and phenomena of the material world. By using a combination of accurate observation and experimentation, logic and intuition, scientists seek to understand the rules that govern all levels of the natural universe. We will now describe the characteristics of science.

1.3.1 Characteristics of Science

The observation of events are systematized in various ways, but mainly by classifying and establishing general principles and laws to describe and predict new events as accurately as possible. Psychology studies behaviour in the same way like the other sciences study their subject matter and therefore shares a number of features with them. In common with other sciences, psychology, as a science, has the following characteristics, as described by Morgan et al. (1986).

- *Empirical observation*

  Psychology, as a science, is first of all, an *empirical* process. That is to say, it rests on experiment and observation, rather than on argument, opinion, or belief.

- *Systematic approach and theory*

  Data from observation and experiments are essential to science, but for them "to make some sense" in helping us to understand events, they must be ordered in some way. Like scientist a psychologist also tries to find out of principles to summarize the data economically. Therefore, the theories and organisation of data in psychological research in systematic.

- *Measurement*

  Another distinguishing feature of many sciences is measurement, which refers to assignment of numbers to objects or events according to certain rules. Physics is ranked highest (most scientific) among the sciences as it has developed the most precise measurements. Like other sciences, psychology also involves measurement.

- *Definition of terms*

  Careful definition of terms is essential to clear thinking in science. The procedure in psychology is to define concepts by relating them to observable behaviour (operational definition). When we define a concept operationally, we define it in terms of measurable and observable operations. For example, the concepts of length, height in physics, and concepts like intelligence, motivation, personality in psychology are defined in terms of observable operations, which can be performed to measure them. However, psychology cannot measure many behaviours such as bravery, friendship, love, beauty etc. as these cannot be defined operationally.

The above characteristics are common to all sciences including psychology. However, psychology is a different type of science (Behavioural science). In physics or chemistry, researchers investigate processes and events which remain stable and constant to a large extent. This makes it possible to measure and predict with a reasonable degree of accuracy. But it is not the case with human behaviour, which is highly complex, not easily controllable, and appears to be much more unpredictable than the reactions of physical and chemical substances. Whereas other sciences investigate things around man, the psychology studies man himself. The methods used in psychological research include observation, interviews, psychological testing, laboratory experimentation, and statistical analysis. Thus, psychology is categorized under the youngest group of scientific inquiry, the 'Social/Behavioural Sciences', which also includes subjects like anthropology, economics, education, geography, history, linguistics, sociology etc. (Rush, 1972).

The first group of sciences are the 'Physical Sciences', which include subjects like physics, chemistry etc. Next is the 'Biological / Life Sciences' that include such subjects as biology, botany, zoology etc. The application of knowledge to practical problems is an *art*; it is the skill or knack for doing things which is acquired by study, practice and special experience. Since principles and laws of psychology are applied to solve human problems in a number of situations (families, schools, organisations, environment) as well as treating behaviour disorders and emotional problems, Therefore, it is a behavioural science.

1.4 THE SCOPE OF PSYCHOLOGY : WHAT IT IS AND WHAT IT IS NOT

Psychology is an exciting field. It is at once familiar, exotic, surprising, and challenging. Psychology is about each of us. It asks us to take a reflective attitude as we inquire, "How can we step outside of ourselves to look objectively at how we live, think, feel, and act?" psychologists believe the answer is through careful thought, observation, and inquiry (Coon & Mitterer, (2008).

According to Parameswaran & Beena (2002), some people regard psychology as a part of philosophy. Others equate it with magic. Some view it as madness. Still others are of the opinion that psychologists are either mystics or mysterious people, their interest in psychology mainly arises from uninformed curiosity. They are of the view that if they studied psychology, they would learn about miracles, mysteries, madness and that it would be an exotic experience. Many of them feel that the main use of psychology is to treat mentally ill individuals. While certainly this is an important area of application, yet it is not the only area. Today, psychology finds useful applications in an individual's life almost from the womb to the tomb.

Psychology, like all academic disciplines, has its own concepts such as *intelligence, personality, stress, learning, memory, thinking, perception* etc. Many of the concepts of psychology are familiar to you, but many of them are new. The topics included in psychology are: the nervous system, sensation and perception, learning and memory, intelligence, language and thinking, growth and development, motivation and emotion, personality, stress, psychological disorders, ways of treating those disorders, sexual behaviour, and the behaviour of people in social settings such as groups and organisations. The goals of psychology, like other sciences, are to *describe, explain, predict and control* (Coon & Mitterer, 2008*)* the phenomena it studies. Psychology, thus, attempts to describe, explain, predict and control behaviour and mental processes.

Psychology as a science of behaviour, attempts to explain the 'why' and 'how' of behaviour. The knowledge of psychology can also be applied to solve various problems facing human beings, be it at home, society, work place or in the whole world.

Self Assessment Questions (SAQ II)

Fill in the Blanks

1) Psychology as a science of behaviour, attempts to explain the 'why' and 'how' of .....

2) Psychology attempts to describe, explain, predict and control .... and .....

3) Other sciences investigate things around man whereas, psychology studies about .....

4) Measurement is defined as assignment of numbers to objects or events according to .....

5) The procedure in psychology is to define concepts by relating them to ..... behaviour.

1.5 METHODS OF PSYCHOLOGY

There are various methods to study psychology. Here we are going to discuss three major methods of psychological inquiry.

a) *Experimental Method:* In this method investigation starts with defining a research problem. With the help of available literature, appropriate hypotheses (statement referring to proposed explanation of an idea or expected outcome) are generated. Then experiment is conducted to test proposed hypotheses. The investigator manipulates an independent variable and studies its effect on dependent variables. The goal of an experiment is to investigate and explore facts and causes.

b) *Correlation Method:* Correlation refers to analyse how change in one variable causes change in another variable. Therefore, we can say that this method investigates the co-variability between two variables of study. If change in one variable leads to change in another, then we can suggest that some degree of correlation exists between these two variables. The correlation value is measured in terms of correlation coefficient, r. The value of correlation coefficient can vary from +1 to -1.The value of +1 represents a perfect positive correlation, -1 represents perfect negative correlation. Whereas, r = 0 represent zero correlation.

c) *Observation Method:* It involves studying a phenomenon by observing it. The researcher simply makes systematic observation of the event or behaviour in its natural environment. After making observation for a number of times, researcher attempts to seek the reasons behind it.

1.6 APPLICATIONS OF PSYCHOLOGY

Clinical Psychology: A clinical psychologist does psychotherapy; investigates clinical problems; develops methods of treatment. This field emphasises on the diagnosis, causes, and treatment of severe psychological disorders and emotional troubles.

Community Psychology: This field promotes community-wide mental health through research, prevention, education, and consultation. Community psychologists apply psychological principles, ideas, and points of view to help solve social problems and to help individuals in adapting to their work and living groups.

Counseling Psychology: A counseling Psychologist does psychotherapy and personal counseling; s/he researches emotional disturbances and counseling methods. This branch deals with helping people/individuals with personal problems including interpersonal relations, career choice, mild emotional troubles or behavioural problems such as over eating, slow learning or lack of concentration.

Educational Psychology: The field investigates classroom dynamics, teaching styles, and learning; develops educational tests, evaluates educational programs suitable for smooth flow of education among students. This branch deals with broader problem of increasing the efficiency of learning in school by applying psychological knowledge of learning and motivation to the curriculum.

Forensic Psychology: The field Investigates problems of crime and crime prevention, rehabilitation programs, prisons, courtroom dynamics; selects candidates for police work. Forensic psychologists mostly work within the judicial system in certain areas like assessing emotional and psychological state of under trials and victims, evaluation of rehabilitation programmes; eyewitness testimony and evidence; jury selection; and police training etc.

Industrial/Organisational Psychology: The field investigates all aspects of behaviour in work setting ranging from selection and recruitment of employees, performance appraisal, work motivation to leadership.

Environmental Psychology: The field studies the effects of urban noise, crowding, attitudes toward the environment, and human use of space. The expert psychologists of the field act as consultants on environmental issues.

Health Psychology: The field of health psychology studies the relationship between behaviour and health; uses psychological principles to promote health and prevent illness.

1.7 SOCIOCULTURAL PROCESSES UNDERLYING BEHAVIOUR

Humans are referred as a social animal and thus their behaviour is also governed by many social factors such as family, peers, their society and culture. Our behaviour is much more complex than any other animal on this planet and sole reason for this is the 'sociocultural' factors that regulate our behaviour. For example, need for thirst is the basic biological need which is common across humans and animals. However, the way we humans gratify it is completely different from animals. For example, some people will drink cold water, some will drink lukewarm water, and some may prefer normal water while others may prefer soda water or juice to ward off their thirst. This example shows that our behaviour is not governed by biological factors only but various social and cultural factors also play vital role in shaping it.

Family is one of the most important sociocultural factors that affect our behaviour. Since birth, family is our primary source of interaction and thus play vital role in value acquisition and role expectations. Bandura have suggested in his theory that child learns behaviour by imitating others and especially elder models. In case of family, a child learns to act in a particular way by observing her/his

parents, siblings and other relevant caregivers. Thus, it can be suggested that family plays an important role in learning any behaviour. Further, the type of family, number of caregivers, number of siblings, family's socioeconomic condition etc. factors also affects one's behaviour.

Another important sociocultural process underlying our behaviour is *society* and *culture*. Often these two terms are used interchangeably but they carry different meanings. Society refers to a group of people which shares a common territory, language and culture, other neighboring group of people or society. Many studies have found that our society and culture affect our behaviour at deeper level. For example, in individualistic culture like America and European countries emphasize independences, individual rights and, being assertive are considered important traits. Whereas, collective cultures (like India and China) promote traits like dependable, self-sacrificing and helping others.

Self Assessment Questions (SAQ III)

Briefly answer the following questions:

1) How can an investigator test a hypothesis?

.....

.....

.....

2) How is family one of the most important sociocultural factors that affect our behaviour ?

.....

.....

.....

3) What are the areas that Forensic Psychology deals with?

.....

.....

.....

4) What is an observation method?

.....

.....

.....

5) What is the value of correlation coefficient?

.....

.....

.....

1.8 LET US SUM UP

This unit is an attempt to give a broad overview of psychology to the new bees of this discipline. We started with origin and definition of psychology. Then we explored if psychology is scientific in nature or not. We also talked about different methods of studying psychology and how psychology can be applied in different spheres of life. Lastly, sociocultural processes underlying our behaviour were covered in this unit.

1.9 UNIT END QUESTIONS

1) Define psychology and write a short note on the origin of psychology as a discipline.
2) Can we consider psychology as science? Support your answer with appropriate justification.
3) What are the different methods to study psychology?
4) What are the different applications of psychology?
5) Write a short note on how sociocultural processes affect our behaviour?

1.10 GLOSSARY

Psychology : It is the science of human and animal behaviour. It includes the application of this science to human problems.

Empirical observation: Observation based on experiment, rather than on argument, opinion, or belief.

Science : It is a systematized body of knowledge gathered through carefully observing and measuring events.

Clinical Psychology : It is that branch of psychology which deals with the assessment and treatment of mental illness and abnormal behaviour.

Experimental method : It involves manipulating one variable to determine if changes in one variable cause changes in another variable.

Observation method : Observation method involves watching a participant in his or her natural setting and recording relevant behavior for later analysis.

1.11 ANSWERS TO SELF ASSESSMENT QUESTIONS

Self Assessment Question I

1) True

2) False

3) False

4) True

5) True

Self Assessment Question II

1) behaviour

2) behaviour and mental processes

3) the man himself

4) certain rules

5) observable

Self Assessment Question III

1) To test a hypothesis, investigator manipulates an independent variable and studies its effect on dependent variables.

2) Since birth family is our primary source of interaction and thus play vital role in value acquisition and role expectations.

3) Forensic Psychology investigates problems of crime and crime prevention, rehabilitation programs, prisons, courtroom dynamics; selects candidates for police work. Forensic psychologists mostly work within the judicial system.

4) Observation method involves watching a participant in his or her natural setting and recording relevant behavior for later analysis.

5) The value of correlation coefficient can vary from +1 to -1.The value of +1 represents a perfect positive correlation, -1 represents perfect negative correlation. Whereas, r=0 represent zero correlation.

1.12 REFERENCES AND SUGGESTED READINGS

Benjamin Jr, L. T. (2007). *A Brief History of Modern Psychology*. Blackwell publishing.

Kalat, J. W. (2016). *Introduction to Psychology*. Nelson Education.

Baron, R.A.(2001). *Psychology*. 5th Edition. Pearson Education, New Delhi, India.

Mishra, G. & Baron, R. A. (2006). *Psychology : Indian Subcontinent* (5th Edition). New Delhi, Pearson Publication

Morgan, C. T., King, R. A., Weisz, J. R. & Schopler, J. (2004). *Introduction to Psychology*. New Delhi: Tata McGraw-Hill.

Moore, B.C.J. (2003). *An Introduction to the Psychology of Hearing.* Academic Press.

UNIT 2 BIOLOGICAL BASIS OF BEHAVIOUR*

Structure

2.0 INTRODUCTION

Can we control all of our behaviour or are there some behaviours for which we have no control? You would be amazed to know that many of our behaviours are hard-wired in our brains and we have very little control over it. In this unit, we will discuss those biological structures that play vital role in influencing our behaviour. As a student of psychology and future psychologists, you should be aware of all important links between our biological structure and behaviours. This unit on biological basis of behaviour will provide you an overview of neurons, central nervous system and endocrine glands and their influence on our behaviour.

2.1 OBJECTIVES

After finishing this unit, you would be able to:

- Identify the nature and structure of neurons;
- Understand different classification of neurons based on structure and functions;
- Comprehend the way neurons transmit signals from one cell to another;
- Understand the basic structure of central nervous system;

* Contributed by Dr. Shailender Singh Bhati, Lecturer, G.D. Government Girls College, Alwar, Rajasthan (Adapted from BPC-001, Block 2)

- Understand the division of our brain; and
- Have an in-depth understanding of the functions of different endocrine glands in our behaviour.

2.2 NEURONS

Neuron is the smallest unit of nervous system. Before proceeding to discuss the main nervous system, we must, first understand neuron, its types, structure and functions. It is neuron which converts stimulation from different stimuli into electrical impulse.

Structurally a neuron is divided into three parts:

- Dendrite
- Cell body
- Axon

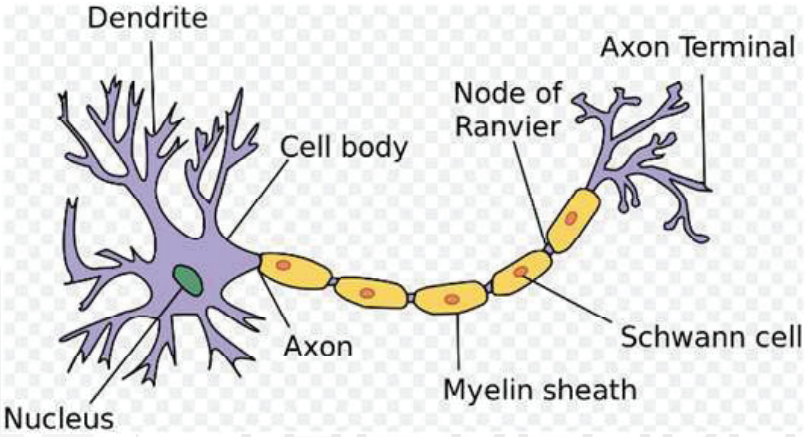

Fig.2.1: Neuron

Source: https://commons.wikimedia.org

The *dendrite* is a bushy structure. Its main function is to receive nerve impulses from other neurons and send to cell body. *The cell body*, also called *soma* is the second main part of neuron. It is filled with a liquid called cytoplasm and nucleus is in its center. It sends nerve impulse to another neuron through axon and keeps the nerve cell alive and healthy. The axon is a long structure having end buttons known as *endbrush*. It functions to receive nerve impulse coming from cell body and sends it to the endbrush.

2.2.1 Classification and Types of Neuron

Neurons can be classified on basis of functions and structure of neurons.

- ***Classification on the basis of function of the neurons***

  i) *Sensory neuron:* They are responsible for carrying nerve impulse from sense organ to the brain and spinal cord.

  ii) *Motor neuron:* They are responsible to carry nerve impulse from brain and spinal cord to effector muscles, so that organism makes response to stimulus and,

  iii) *Association neuron:* Also known as interneurons, these neurons are found only within the brain and spinal cord. The main function of these neurons are to receive sensory information, process it and to decide how to respond for it.

- ***Classification on the basis of the structure of the neurons***

  Neurons can also be classified based on their structure. Based on sturucture, there are three types of neurons namely, unipolar neurons, bipolar neurons and multipolar neurons.

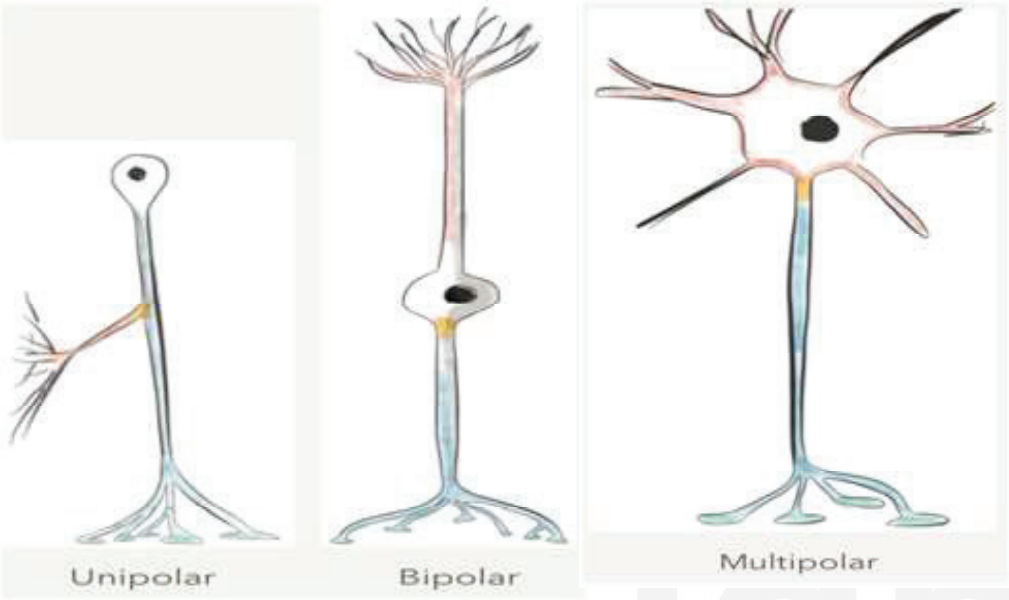

Fig. 2.2: Types of Neurons

Source: https://commons.wikimedia.org

i) *Unipolar neurons:* These neurons have one axon that separates from the soma and branches into two. These neurons are involved in sensory functions. They send impulses received from the environment to the central nervous system.

ii) *Bipolar neurons:* They have one axon and one dendrite which separate itself into branches like a tree. The dendrites of these neurons are always placed at the opposite end of the soma. They are very few in numbers and can be found in the retina of the eye, the inner ear and in the olfactory path.

iii) *Multipolar neurons:* These neurons have only one axon but several dendrites. They are located in our brain and spinal cord.

2.2.2 Nerve Impulse

You must be wondering that you were informed about cell, neurons, their types, structures and functions, but exactly how do the brain function? How it receives information and how it sends information? Answer to your questions is nerve impulse. A *nerve impulse* is an electrical event. When a neuron is in stable or resting condition, the neuron inside has negative electrical charge and outside portion of neuron is positively charged. Whenever some stimulation takes place it disturbs this electrical balance, so that the inside becomes positive and outside gets negative. At this moment an impulse is generated aimed at restoring this balance. In this process electrical disbalance runs throughout the membrane. This impulse is then transmitted to another neuron via axon. In this way a chain of reaction occurs till it reaches the concerned part of the brain where the meaning of this impulse is deciphered and brain sends directives for activity to the concerned parts of the body.

Self Assessment Questions (SAQ I)

Answer the following questions in 'Yes' or 'No'

1) Is the nerve impulse transmitted to another neuron via axon? ( )
2) Does the multipolar neuron have only one dendrite? ( )
3) Does the dendrite send nerve impulses? ( )
4) Is the neuron the smallest unit of nervous system? ( )
5) Is the neuron divided in to three parts? ( )

2.3 NERVOUS SYSTEM

Nervous system is a complex structure. It controls all our activities and functions as a whole in an integrated manner. Given below is the flow chart of human nervous system.

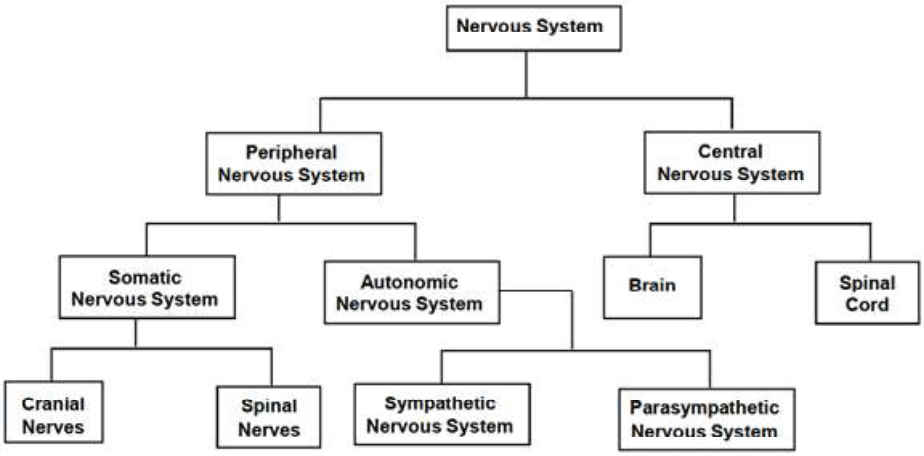

Fig. 2.3: Flow Chart of Human Nervous System

2.3.1 Central Nervous System

Our central nervous system comprises of two parts i.e. brain and spinal cord.

2.3.1.1 Spinal Cord

It runs from cervics to the end of waist. It is filled with fluid which is covered with **meninges**. It has thirty one divisions from which pairs of spinal nerves come out at regular intervals. It is a good conductor of nerve impulses. All the sensory information from various parts of body are received here and then sent to higher parts of the brain. All motor information from brain first enters spinal cord and then sent to different parts of body for action. Besides this, the spinal cord also functions as center of reflex actions. Given its importance, it also called the **automatic machine.**

2.3.1.2 Brain

Brain is located in the bony skull. Within the skull, the brain is protected by three layers of tissues called **meninges**. Outer most layer is called ***dura matter*** and inner most layer is called ***pia matter.*** Between these two layers is a soft membrane called arechnoid. Arechnoid is filled with CSF (cerebro spinal fluid). Our brain

is composed of white and grey matter. White matter is called so because it is covered with a sheath known as ***mylin sheath***.

From the view point of physiologists, the brain is divided into three parts, which is as given below.

- **Fore brain** (thalamus, hypothalamus and cerebrum).
- **Mid brain** (situated between forebrain and hind brain)
- **Hind brain** (medulla, pons, cerebellum and reticular formation)
- Let us start our journey of brain from the back i.e**. *Hind brain,*** because from evolutionary point of view it is the earliest part to develop. The first and foremost structure of Hind brain is *medulla*. Medulla connects higher parts of the brain with spinal cord. It also includes a portion of reticular formation, and is called the vital center of the brain. It is responsible for autonomic activities of respiration, heart rate, blood pressure etc. Destruction of this part of the brain can lead to instant death of the organism. *Pons*, another important part of Hind brain, is located above the medulla. It contains different types of sensory and motor neurons. It receives sensory information from some parts of face and head and sensations of touch, pain, and temperature. It also regulates motor activities related to facial expressions, muscular activities, eye balls and jaw movements. Besides it also acts as connection center between higher and lower parts of brain.

  Cerebellum, located at the back of Hind brain, is a complex structure. Its outer structure is composed of grey matter while inner structure is made up of white matter. In appearance it resembles cerebral cortex. Its main function is to coordinate motor activities. Destruction of cerebellum leads to lack of coordination as for example, a person can walk but his gait would be disorganised.

- ***Midbrain*** encompasses brain above the pons and acts as a bridge between forebrain and Hind brain. It has two subdivisions called *tectum* and *tegmentum***.** Tectum has a pair of structures called *superior colliculi* and *inferior colliculi* **.** Superior colliculi is roof and concerned with visual information while inferior colliculi is on the floor and deals with auditory information. Tegmentum lies below tectum. It has some important structures like rostral, end of reticular formation and nuclei controlling the activities of eye movements. Sensory impulses from lower parts to higher parts of brain and motor impulses from higher parts to lower parts of brain pass through it. Starting from medulla in the Hind brain and extending to midbrain and hypothalamus of forebrain, a net of fibers pass by and is called reticular formation. Since this structure regulates and controls the activities of sleep, arousal and attention it is also called *reticular activating system*. It has two subsystems. (i) ascending reticular system and (ii) descending reticular system. *Ascending system* sends sensory impulses to cerebral cortex while *descending system* receives motor impulses from brain and sends them to spinal cord. Destruction of this system sends an animal into sleep and may even into coma. It acts as filter as for example, when we are concentrating on some task we receive no other sensation except the ones on which we are focused. It happens because RAS filter away all other sensations and do not allow them to reach the brain.

- Now we will discuss about the most important part of the brain i.e. ***forebrain***. This portion of brain regulates and controls all higher and complex activities of human beings e.g. thinking, reasoning, memory etc. Neuroscientists divide it into two parts – *telencephalon and diencephalon.*

Telencepahlon includes cerebral hemispheres, limbic system and basal *ganglia. Diencephalon* includes Thalamus and Hypothalamus. The psychologists have paid much attention on the structure and functions of thalamus and hypothalamus and cerebral hemispheres because almost all the activities are controlled and regulated by these parts.

Thalamus is an oval shaped structure located right above the midbrain and between the two hemispheres. Thalamus contains three types of sensory nucleir which receive sensory impulses relating to vision, hearing, pain, temperature, taste, and smell and sends them to appropriate parts of the cerebrum. Another type of nuclei receives nerve impulses from cerebellum, brain stem and reticular formation and sends them to cerebrum. Third type of nuclei receives impulses from within the thalamus and sends them to cerebrum.

Hypothalamus is a small structure located below the thalamus. It is very important and functions to regulate and control – biological motives of hunger, thirst and sex. It also controls and regulates homeostatic mechanism of our body as for example, when we feel hot it causes us to sweat thereby reducing our body temperature and when we feel cold it causes us to shiver thereby raising our body temperature. Hypothalamus also regulates the activities of autonomic nervous system and endocrine gland. It regulates the functioning of pituitary gland which affects the functioning of all other glands. Hypothalamus plays an important role in the regulation and control of emotions like anger, fear and aggression.

Basal ganglia include caudet nuclei, putamen, globus pallidus and some part of amygdala. It plays an important role in motor control. Destruction of this portion may lead to Parkinson's disease.

Limbic system has five main parts – olfactory bulb, septal area, hippocampus, amygdala and cingulate gyrus. Olfactory bulb receives smell sensations. Septal area, cingulated gyrus and amygdala play important role in the regulation of emotions. Hippcampus plays an important role in memory.

The Cerebrum is the largest portion of the brain and is divided into two hemispheres by the longitudinal fissure. Both right and left hemispheres are composed of gray matter. In layman's language it is said that larger the gray matter the more intelligent a person will be. The two hemispheres are connected through corpus callosum, a bundle of nerve fibers. Each hemisphere has two deep fissures known as fissure of Rolando and central sulcus or lateral fissure. These fissures together divide each hemisphere into four parts or lobes:

- *Frontal lobe* is located in front of the central sulcus and above the lateral fissure. It plays important role in motor activities and higher mental processes. It has motor cortex, Broca's area and frontal association area.

- *Parietal lobe* is located behind central sulcus and above the sylvius fissure it is primarily responsible for bodily sensations and knowledge of direction.

- *Temporal lobe* is located below central sulcus in the temple it has Wernicke's area and temporal association area.
- *Occipital lobe* is located at the back of each hemisphere and it is the primary area for visual sensation.

Self Assessment Questions (SAQ II)

Briefly answer the following questions:

1) What is cerebrum?

.....

.....

.....

2) What is the function of Hypothalamus?

.....

.....

.....

3) Which part of our brain is called automatic machine and why?

.....

.....

.....

4) Where is brain the located?

.....

.....

.....

5) What is the role of Parietal lobe?

.....

.....

.....

2.3.2 Peripheral Nervous System

This comprises of all those neurons which lie outside the brain and spinal cord and connect these two with receptors, effectors and glands. It is divided into two parts i.e. somatic and autonomic nervous system.

2.3.2.1 Somatic Nervous System

It is primarily related to voluntary activities. Central nervous system sends impulses to voluntary muscles through somatic nervous system. It is further divided into cranial nerves and spinal nerves.

- *Cranial nerves* originate from the bony skull and are found in pairs of twelve nerves. These are motor, sensory and association nerves.

- *Spinal nerves* originate at regular intervals from the spinal cord and they are in 31 pairs and are divided into five parts:

Table 2.1: Division of Spinal Nerves

Name	Number	Position
Servical	8	Neck
Thoracic	12	Chest
Lumbar	5	Coin/waist
Sacral	5	End of spinal column
Cocygeal	1	End of spinal column

2.3.2.2 Autonomic Nervous System

This is rather important portion of peripheral nervous system. It is comprised of those neurons or nerve cells which regulate and control involuntary muscles, glands like kidneys, cardiac muscles, endocrine glands etc. Although connected with brain and spinal cord it acts in an independent manner. Autonomic nervous system is further subdivided into – *sympathetic nervous system and parasympathetic nervous system*.

Sympathetic system is located in the thoracic and lumbar region of spinal cord and is therefore known as thoraciclumbar system. It acts in integrated manner. It prepares our body for emergency situations e.g. when faced with danger it activates adrenal gland and pancreas thereby increasing the quantity of blood sugar in blood and also increases the rate of metabolism. All these changes in the body give us extra energy to meet the emergency situation.

Parasympathetic system is located in the cranial and sacral regions of the spinal cord hence called craniosacral system. It functions to restore our bodily processes to normalcy. In other words it is the opposite of sympathetic system. It lowers metabolic rate, heart beat and quantity of blood sugar in the blood. Although the two systems are antagonistic they tend to act in a coordinated manner e.g. in situations of fear or anger adrenal gland, pancreas are activated by the sympathetic system to generate more energy. The parasympathetic system suspends digestive activity and other functional systems so that energy freed from these is available for use to meet the emergency situation.

Self Assessment Questions (SAQ III)

State whether the statements are 'True' or 'False'

1) Sympathetic system is located in the cranial and sacral regions of the spinal cord. ( )

2) The autonomic nervous system comprises of those neurons which are connected and regulate and control involuntary muscles. ( )

3) The parasympathetic nervous system prepares our body for emergency situations. ( )

4) Autonomic nervous system is divided into the sympathetic nervous system and parasympathetic nervous system. ( )

5) Spinal nerves originate at regular intervals from the spinal cord and they are in 31 pairs. ( )

2.4 ROLE OF ENDOCRINE GLANDS

Endocrine glands are a group of glands that release their chemical substance (known as hormones) directly into bloodstream.

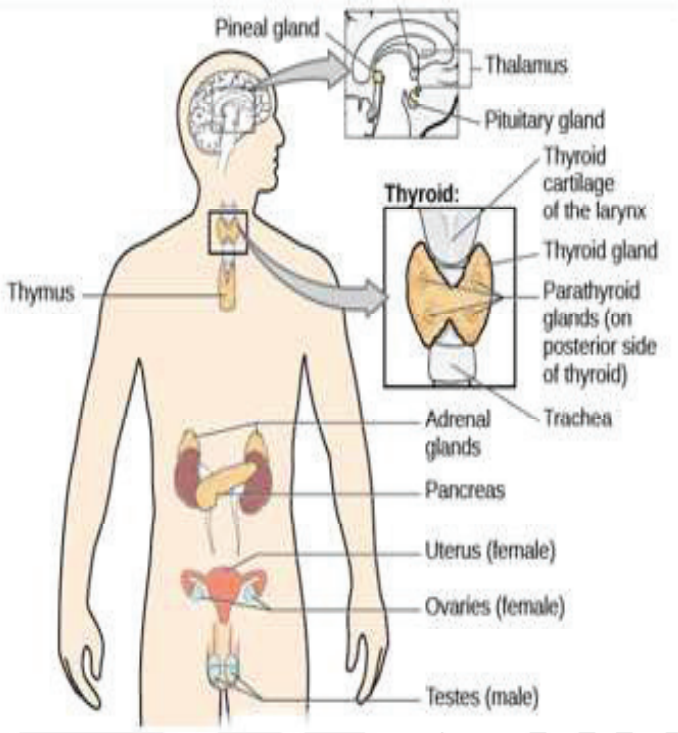

Fig. 2.4: The Major Glands of the Endocrine System

Source: https://cnx.org

Role of various endocrine glands in our body have been described in following table:

Table 2.2: Major Endocrine Glands

Endocrine Gland	Hormone Released	Target Tissue/Organ	Major Function of Hormone
Hypothalamus	Hypothalamic releasing and inhibiting hormones	Anterior pituitary	Regulate anterior pituitary hormone
Posterior Pituitary	Antidiuretic (ADH)	Kidneys	Stimulates water reabsorption by kidneys
	Oxytocin	Uterus, mammary glands	Stimulates uterine muscle contractions and release of milk by mammary glands
Anterior Pituitary	Thyroid Stimulating (TSH)	Thyroid	Stimulates thyroid

	Adrenocorticotropic (ACTH)	Adrenal cortex	Stimulates adrenal cortex
	Gonadotropic (FSH, LH)	Gonads	Egg and sperm production, sex hormone production
	Prolactin (PRL)	Mammary glands	Milk production
	Growth (GH)	Soft tissue, bones	Cell division, protein synthesis and bone growth
Thyroid	Thyroxine (T4) andTriiodothyronie (T3)	All tissue	Increase metabolic rate, regulates growth and development
	Calcitonin	Bones, kidneys andintestine	Lowers blood calcium level
Parathyroids	Parathyroid (PTH)	Bones, kidneys andintestine	Raises blood calcium level
Adrenal Cortex	Glucocorticoids (cortisol)	All tissue	Raise blood gluclose level, stimulates breakdown of protein
	Mineralocorticoids (aldosterone)	Kidneys	Reabsorb sodium and excrete potassium
	Sex Hormones	Gonads, skin, muscles and bones	Stimulates reproductive organs and brings on sex characteristics
Adrenal Medulla	Epinephrine and norepinephrine	Cardiac and other muscles	Released in emergency situations, raises blood glucose level, *"*fight or flight*"* response
Pancreas	Insulin	Liver, muscles, adipose tissue	Lowers blood glucose levels, promotes formation of glycogen
	Glucagon	Liver, muscles, adipose tissue	Raises blood glucose levels
Testes	Androgens (testosterone)	Gonads, skin, muscles and bone	Stimulates male sex characteristics
Ovaries	Estrogen and progesterone	Gonads, skin, muscles and bone	Stimulates female sex characteristics
Thymus	Thymosins	T lymphocytes	Stimulates production and maturation of lymphocytes
Pineal Gland	Modified aminoacid	Brain	Controls circadian and circannual rhythms, possibly involved in maturation of sexual organs

Source: https://www.saylor.org

2.5 LET US SUM UP

Now let us sum up this unit. We started this unit with the discussion on neuron, specialized cells responsible for transmitting nerve impulses. We discussed the structure of neurons and its classification based on function and structure. We also briefly talked about nerve impulse, phenomenon of transmitting signal from nerve to another. Then we moved on to discussing central nervous system and its division in length. Lastly, role of various endocrine glands were covered in this unit.

2.6 UNIT END QUESTIONS

1) Describe briefly different types of neurons.
2) What do you understand by nerve impulse?
3) Write a short note on three major parts of brain.
4) Differentiate between sympathetic and parasympathetic nervous system.
5) What do you understand by nervous system? Describe its classification.
6) What is neuron? Draw a diagram of neuron and explain its parts.
7) What do you understand by endocrine glands? Write briefly major functions of any five endocrine glands.

2.7 GLOSSARY

Axon : It is a long slender part of the neuron that extends from a portion of the cell body known as axon hillock. It is often covered by the myelin sheath and carries information from the cell body towards its distal ends known as terminal buttons.

Neuron : The cells of the nervous system are known as neurons. Neurons receive and process information to and from the brain.

Myelin sheath : It is an insulating cover that surrounds an axon with the layer of myelin (a mixture of protein and phospholipids).

Peripheral nervous system : It is responsible for carrying information to and from the central nervous system to the whole body.

Somatic nervous system : This system of Peripheral Nervous System (PNS) conducts all sensory and motor information to and from the Central Nervous Systems (CNS). Further, it is responsible for voluntary movement.

Autonomic nervous system : It is a part of the Peripheral Nervous System. It helps to regulate the effectors like the cardiac muscles in the heart, smooth muscles on the skin, blood vessels and epithelial tissue in the glands.

Endocrine glands : These are a group of glands that release their chemical substance (known as hormones) directly into the bloodstream.

2.8 ANSWERS TO SELF ASSESSMENT QUESTIONS

Self Assessment Question I

1) Yes
2) No
3) No
4) Yes
5) Yes

Self Assessment Question II

1) The Cerebrum is largest portion of the brain & is divided into two hemispheres by the longitudinal fissure. Both right and left hemispheres are composed of gray matter.
2) Hypothalamus regulates and controls the biological motives of hunger, thirst and sex.
3) Spinal cord is called the automatic machine because all the motor information from brain first enters spinal cord and then is sent to different parts of body for action. Besides this, the spinal cord also functions as center of reflex actions.
4) Brain is located in the bony skull and is protected by three layers of tissues called **meninges**.
5) Parietal lobe is responsible for bodily sensations and knowledge of direction.

Self Assessment Question III

1) False
2) True
3) False
4) True
5) True

2.9 REFERENCES AND SUGGESTED READING

Khosla, M. (Ed.) (2017). *Physiological Psychology: An Introduction.* Sage Texts,Delhi, India.ISBN 978-93-860-6211-6.

Pinel, J. P. (2009). *Biopsychology*. Pearson education.

Kalat, J. W. (2015). *Biological Psychology*. Nelson Education.

Greene, S. (2013). *Principles of Biopsychology*. Psychology Press.

Breedlove, S. M., Watson, N. V., & Rosenzweig, M. R. (2010). *Biological Psychology* (pp. 45-46). Sunderland: Sinauer Associates.

Hubbard, J. (Ed.). (2012). *The Peripheral Nervous System*. Springer Science & Business Media.

The Endocrine System. Retrieved July 3, 2018, from https://www.saylor.org/site/wp-content/uploads/2010/11/The-Endocrine-System.pdf

Dubner, R. (Ed.). (2013). *The Neural Basis of Oral and Facial Function*. Springer Science & Business Media.

Jean, A. (2001). Brain stem control of swallowing: neuronal network and cellular mechanisms. *Physiological Reviews*, *81*(2), 929-969.

Rinn, W. E. (1984). The neuropsychology of facial expression: a review of the neurological and psychological mechanisms for producing facial expressions. *Psychological Bulletin*, *95*(1), 52.

REFERENCES FOR IMAGES

The Endocrine System (digital image). Retrieved July 15, 2018, from https://cnx.org/contents/Sr8Ev5Og@8.1:34oFmAxl@8/The-Endocrine-System

Types of Neurons. Retrieved July 15, 2018, from https://commons.wikimedia.org/wiki/File:Types_of_Neurons.jpg

Neurons. Retrieved July 15, 2018, from https://commons.wikimedia.org/wiki/File:Neuron.svg#filelinks

UNIT 3 COGNITIVE PROCESSES: ATTENTION, PERCEPTION, LEARNING , MEMORY AND THINKING*

Structure

* Contributed by Dr. Arti Singh, IGNOU

3.0 INTRODUCTION

To understand human behaviour, we need to understand the mental processes through which we acquire information and try to understand it. Now, the question is what are those processes through which we understand this world? There is no single process but a collection of processes that are responsible for giving meaning to this world which is known as cognitive processes. Thus, cognitive processes are those mental processes using which, we acquire information from the world and understand it. In this unit we are going to discuss five important cognitive processes namely: *attention, perception, learning, memory and thinking.* We will try to understand these processes and see how it affects our behaviour.

3.1 OBJECTIVES

After finishing this unit, you would be able to:

- Know how the process of attention takes place;
- Understand the phenomenon of perception;
- Articulate different principles involved in organizing stimuli i.e., Gestalt principles;
- Understand the process of learning and related theories;
- Understand the concept and models of memory; and
- Appreciate the phenomenon of thinking.

3.2 ATTENTION

Right now, as you are reading these lines, you are exercising attention. Often studied by cognitive psychologists, attention has been found to play vital role in every aspect of human behaviour. Ross (1951) has defined it as "the process of getting an object or thought clearly before the mind". Whereas, according to William James, "attention is focusing of consciousness on a particular object. It implies withdrawal from some things in order to deal effectively with others. It is taking possession of one, out of several simultaneous objects or trains of thought by the mind, in clear and vivid form". There are broadly four forms of attention: *selective attention, divided attention, sustained attention, and executive attention.*

- *Selective attention*

  When bombarded with numerous attention grabbing environmental factors or stimuli, our brain selectively focus on particular stimuli and block out other stimuli consciously. This term of attention is known as selective attention.

- *Divided attention*

  It refers to the ability to maintain attention on two or more tasks simultaneously. For example, texting while talking to someone. According to some psychologists it is the ability to multi-task.

- *Executive attention*

  This form of attention helps us in blocking out unimportant features of the environment and motivates us to attend only those features that are important of our goal accomplishment.

- *Sustained attention*

  This form of attention helps us in maintaining focus or concentration on one task for a prolonged period of time.

3.3 PERCEPTION

Perception is a set of process, which helps us in understanding the world around us. Within a time frame we encounter numerous stimuli every second. Take a look around the room in which you are sitting right now. What can you see? Walls, the colour of the walls, fan, light, the sound of the fan, books kept in the racks and many more things. Your awareness about all those stimuli is the result of a higher mental process called "perception". *Perception* helps us in interpreting our world and thus helps us in making an appropriate decision, from what dress to wear to how to cross the road. Therefore, perception is a process of selecting, organising and interpreting the sensory information based on previous experiences, other's experiences, need or expectation.

So broadly speaking, the process of perception involves three steps when it encounters stimuli viz. (i) selection, (ii) organization and, (iii) interpretation. These stages of the process of perception have been discussed in detail in the following section.

3.3.1 Stages of Perception

This section will explain in details the stages involved in perception as well as the factors affecting these stages.

Stage I: Selection

The first stage of perception is "selection". Since our brain has limited capacity, therefore, it cannot attend to all stimuli at a time. We unconsciously or consciously select some stimuli and ignore others. The selected stimulus becomes the "attended stimulus".

Stage II: Organization

In the second stage of the process of perception, stimuli are arranged mentally in a meaningful pattern. This process occurs unconsciously. Gestalt psychologists have proposed many principles for organising stimuli. Such as, 'figure-ground relationship', 'law of proximity', 'law of closure' etc. It explains how humans naturally organize stimuli to make a meaningful pattern and thus interpretation.

Stage III: Interpretation

In this last stage, meaning is assigned to the organized stimuli. Interpretation of the stimuli is based on one's experiences, expectations, needs, beliefs and other factors. Thus, this stage is subjective in nature and the same stimuli can be interpreted differently by different individuals.

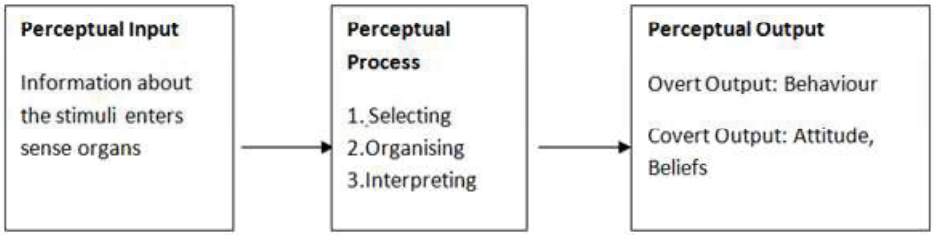

Fig. 3.1: Process of Perception

3.4 LAWS OF ORGANIZATION: GESTALT PRINCIPLES

In the early 20th century, three German psychologists Max Wertheimer, Wolfgang Köhler and Kurt Koffka proposed new principles for explaining perception called as *Gestalt principle*. According to these psychologists, the process of perception does not involve perceiving an array of stimuli as an object but it involves our tendency to seek a form or pattern in it. The literal meaning of the word *Gestalt* is form or configuration. The basic premise of Gestalt psychology is that '*whole is different from the sum of its parts'*. Based on this basic premise, Gestalt psychologists proposed a number of principles or laws to explain the process of perceptual organisation i.e., how we perceive smaller units of stimuli as a whole, having a particular pattern. In the following section, let us discuss some important Gestalt laws of perceptual organisation but before doing so, can you find thirteen faces in the following picture? (Fig 3.2)

Fig.3.2:The Forest Has Eyes by Bev Doolittle (1984)

Source: http://www.greenwichworkshop.com

3.4.1 Figure-ground Relationship

Now, let us look at the Gestalts differnt laws of perception:

Can you see two different images in the picture given below (Fig. 3.3) If you focus one of the images reflects chess pieces while if you shift your focuse you can see two people standing face to face. This is nothing but the law of figure-ground relationship.

Fig.3.3: An Example of Figure-ground Relationship

Source: https://www.tes.com

Therefore this principle states that we have a tendency to segregate our world in the form of figure and ground. Figure is that part of stimuli which has our focus of the visual field, whereas the ground is background. Figure has a definite shape and is better remembered whereas; background is shapeless and has no limits. Now let us we look at the Figure 3.2 what can we see ? Two people or two pieces of chess (two queens and one bishop)? When you focus on people, chess pieces disappears in the background and when you focus on the chess pieces, people become background.

3.4.2 Law of Proximity

Fig. 3.4: The Gestalt Principle of Proximity

Source: https://courses.lumenlearning.com

The law of proximity states that in order to perceive stimuli meaningful, stimuli which are closer to each other are perceived by us as belonging to one group. Due to this reason, people tend to see following circles as cluster or group rather than individual circles (Fig. 3.4). Our brain tends to group large elements as one to make us interpret more easily.

3.4.3 Law of Similarity

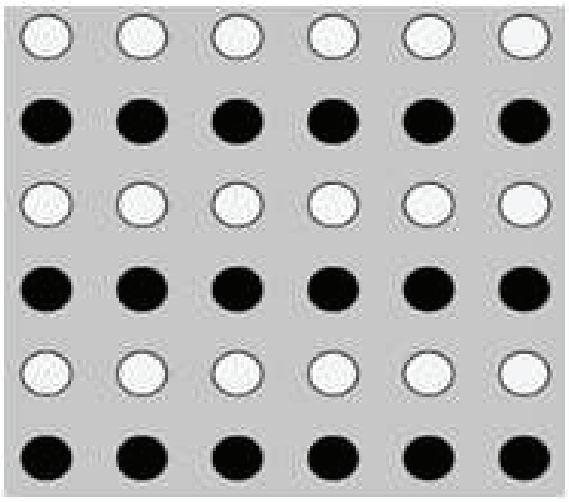

Fig.3.5: The Gestalt Principle of Similarity

Source: https://www.verywellmind.com

This principle states that stimuli similar to each other are grouped together. For instance, in the Figure 3.5, we tend to group circles based on its colours. In real life also, we use this principle extensively. For example, during a cricket match, we tend to group players based on the colour of their jersey.

3.4.4 Law of Continuity or Good Continuation

Fig.3.6: The Gestalt Principle of Continuity

Source: http://art.nmu.edu

The law of continuity refers to our tendency to perceive figures in continuation rather than in parts. This principle is exhibited more in the perception of line. As can be seen in Figure 3.6 we generally perceive it as a line instead of separate circles.

3.4.5 Law of Closure

Fig.3.7: The Gestalt Principle of Closure

Source: https://www.logodesignlove.com

Following its name, this law should not be confused with the law of proximity. This law states that we have a tendency to perceive stimuli as closed shapes even with some missing parts. (refer Fig. 3.7)

3.4.6 Law of Common Fate

Fig.3.8: The Gestalt Principle of Common Fate

Source: http://cdn.zmescience.com

This principle states that stimuli moving in similar directions are perceived as belonging to same group, as shown in Figure 3.8.

3.4.7 Law of Pragnaz

Fig.3.9: The Gestalt Principle of Pragnaz

Source: https://www.interaction-design.org

The word Prgnaz is German in origin, meaning "good figure". This principle is also called as "law of good figure". According to this principle, out of all possible ways of grouping stimuli, we tend to group stimuli in the simplest and stable shape. Thus, we can say that simpler forms are more quickly perceived by us (Fig. 39).

Self Assessment Questions (SAQ I)

Fill in the blanks:

1) The ..... principle states that we tend to group stimuli in the simplest and stable shape.

2) In order to perceive stimuli, ... the stimuli which are closer to each other are perceived by us belonging to one group.

3) ..... is that part of stimuli which has our focus of the visual field, whereas the ground is .....

4) The first stage of perception is .....

5) Interpretation of the stimuli is based on .....

3.5 LEARNING

The term learning has been defined by psychologists in many ways. According to the most acceptable definition, it is a "relatively permanent change in behaviour (or behaviour potential) resulting from experience" (Baron, 2001). Three points of this definition require clarification. First, as written in definition 'relatively permanent change', it is important to mention here that any temporary change in behaviour can be termed as learning. Such as, feeling sleepy after taking drugs or heavy meals or feeling tried due to illness. Second, permanent change due to ageing or maturation, will not be considered as learning. Third, here 'experience' does not mean our own experience only. Learning can also occur through vicarious learning, i.e., by other's experiences.

3.5.1 Theories of Learning

In this section we will discuss various theories explaining psychological processes involved in learning. Broadly, theories of learning can be categorized based on the following:

- Learning by association: Known as classical conditioning
- Learning by consequence: Known as operant or instrumental conditioning
- Learning by watching others: Known as observational learning

3.5.1.1 Classical Conditioning: Learning by Association

There are learning thories which explain that learning takes place by association. The theory is termed as "classical" conditioning theory. The theory of classical conditioning was proposed by Ivan Pavlov. According to this theory, we learn by making associations and relationships among various stimuli. Before moving further, first we should know the famous experiment done by Ivan Pavlov. His experiment on dog laid the foundation of Classical conditioning. Pavlov, a physiologist by profession, was working on the process of digestion on dogs around 1889. While measuring the salivation rate of dogs, he observed that the dog often began to salivate when it could smell the food or even at the sight of their empty food pan. That is, they start salivating before they actually tasted the food. To understand this interesting observation he conducted a study. He conducted his study in two trials. He called his first trial as *conditioning trial*. During this trial, he presented a neutral stimulus-a bell-that had no effect on dog's salivation. Ringing of bell was immediately followed by an **unconditioned stimulus (UCS)**. The food that had known effect on producing dog's salivation. The response that dog gave after getting food (unconditional stimulus) in the form of salivation was termed as **unconditioned response (UCR)**, because it did not depend upon previous learning. This pairing of ringing of bell followed by food was done for a number of times. After this repetitive pairing, neutral stimulus i.e., bell acquired the characteristics of UCS i.e., food. Finally, Pavlov's dog started giving **conditioned response (CR),** i.e., it start, salivating in response to the sound of the bell itself. The neutral stimulus used by Pavlov in his experiment, i.e., bell was termed by him as a **conditioned stimulus (CS),** because initially bell had no characteristics of producing salivation in dog but later under certain condition, it acquired the ability to produce salivation in dog.

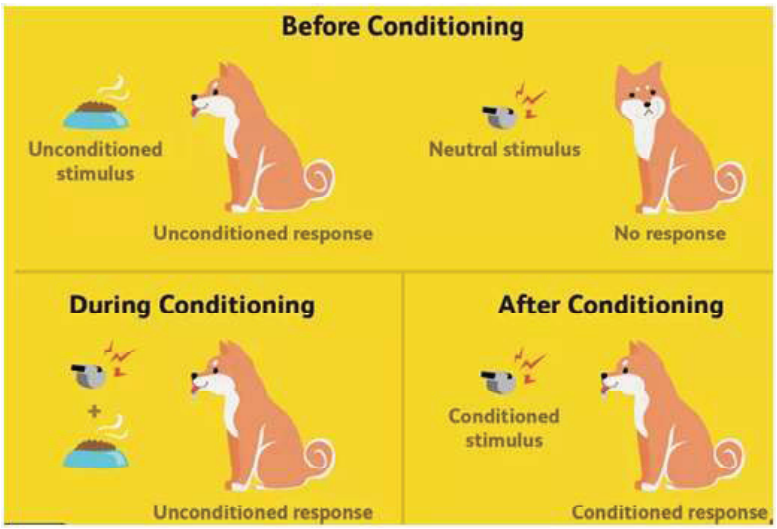

Fig.3.10: Experiment of Classical Conditioning

Source: https://www.verywellmind.com

3.5.1.2 Operant Conditioning: Consequence Based Learning

Suppose you want to use principles of classical conditioning to teach a child to write. For this, first you need to identify an unconditional stimulus that will make the child write neatly. But since, writing is not a reflex or any emotional behaviour; therefore we cannot use classical conditioning to make someone learn writing. In this situation, we should explore another form of conditioning called *operant conditioning*. In operant conditioning, the end result or consequence of behaviour determine if it will be repeated in the future or not. Operant conditioning can be defined as a principle of learning in which behaviour is maintained or changed through its positive or negative consequences. According to the principles of operant conditioning, positive consequences lead to the repetition of behaviour, whereas, negative consequences will lead to avoidance of behaviour. Factors that increase the probability of repetition of behaviour have been termed as **reinforcement**. Whereas, factors that weakens or suppresses the targeted behaviour has been termed as **punishment**.

B.F. Skinner was the main proponent of operant conditioning. He studied learning mechanism involved in voluntary behaviour. Since, voluntary behaviour occurred when an organism 'operates on the environment'. He termed such voluntary behaviour as operant. Thus, conditioning of operant behaviour is known as operant conditioning. Now let's talk about the experiment done by Skinner. In his experiment, Skinner kept a hungry rat inside a closed chamber. The chamber had a lever, which was connected to a food container kept outside. During exploratory behaviour, initially rat pressed the lever accidently, leading to dropping of a food pellet. After a number of such accidental trials, rat learned the behaviour of pressing lever for a food pellet. Conditioning was complete when the rat presses the lever immediately after it was placed in the chamber. Here, lever pressing is an operant behaviour and getting food is its consequence. Since in this experiment, behaviour of pressing lever was a medium or instrument of obtaining food, this type of learning is also known as **instrumental learning**.

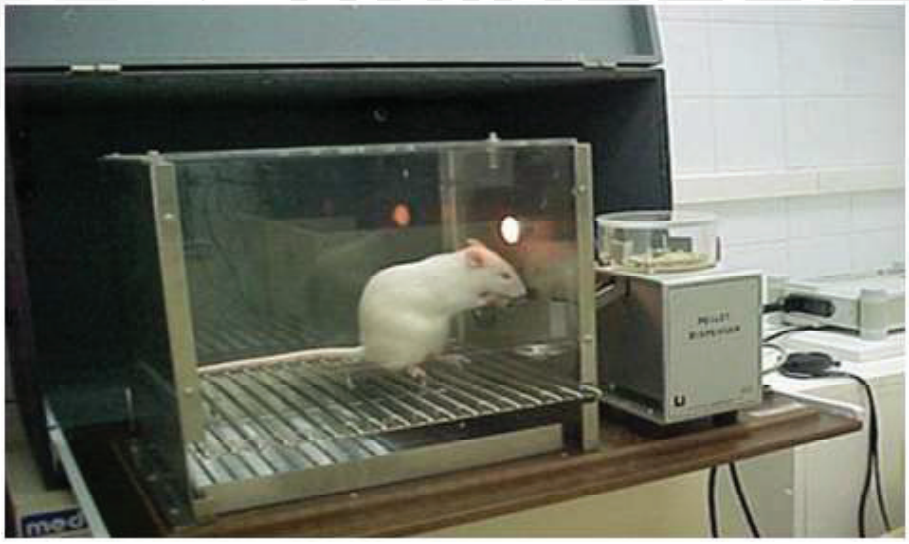

Fig.3.11: A Skinner's Rat

Source: https://impersonalytransferible.wordpress.com

3.5.1.3 Observational Learning

The main proponent of observational learning was Albert Bandura. Unlike classical conditioning and operant conditioning, according to observational

learning cognitive processes plays important role in learning behaviour. Based on his work with phobic patients and the famous Bobo doll experiment (1963), Bandura propounded 'Social Learning Theory'. According to social learning theory, learning occurs in a social setting by observing others' behaviour and its outcome. This observational learning can occur in two ways: (i) direct observation, and (ii) indirect observation. In *direct observation*, you learn behaviour by observing others (called as model) directly, while in *indirect observation* you learn by observing or hearing others' experiences. This kind of indirect learning is known as vicarious learning. Suppose you wanted to go on a trip to North-eastern states of India. One of your friends who recently came back from her/his trip of north-east suggests you to carry umbrella or raincoat, as it can rain anytime. What will you do? There are very high chances that you will listen to his/her experience and carry an umbrella. This kind of learning is an example her of vicarious learning.

Now, let us discuss the famous bobo-doll experiment, for an in-depth understanding of observational learning. Bandura and his colleagues conducted an experiment on children to investigate the role of observational and imitation in learning social behaviour, such as aggression. They selected 72 children between the age group of three to six years. Children were randomly assigned to three groups: one control and two experiment groups. In one group of experiment condition, children were shown a movie with an aggressive model, beating, hitting and abusing a bobo doll. In another experimental condition, a non aggressive model was shown playing peacefully and friendly with a bobo doll. Whereas, in control group condition the children were not shown any movie. Later on, all groups of children were placed in a room which was full of varieties of toys. It was observed that children who were exposed to aggressive model imitated the model's behaviour. They also punched, hit and used abusive words for bobo dolls. In contrast, the children of second experimental group, who were exposed to non-aggressive model, did not demonstrate any aggression with bobo doll. This experiment was one of the landmark study in psychology. It suggested that observation and imitation plays crucial role in learning. Further, according to Bandura, four processes are involved in observational learning: *attention, retention, production and motivation.*

Fig.3.12: Children Imitating Aggressive Behaviour of the Actor of the Film

Source: https://thedirtpsychology.org

3.6 MEMORY

What did you eat in dinner yesterday? What is the name of your best friend? Do you know how to drive a car or a cycle? How did you feel when you got highest marks in your high school? The mental process you used to answer all of these questions is known as *memory*. It refers to the ability of retaining information and reproducing it over a period of time when required to perform a cognitive task. It has been conceptualised as a process comprised of three stages: (i) encoding, (ii) storage, and (iii) retrieval. All information received by our senses go through these stages.

- *Encoding:* It is the process of converting sensory information into a form that can be processed further by the memory systems.
- *Storage:* In this second stage, received information by memory systems are stored so that it can be used at later time also, and
- *Retrieval:* It refers to locating and bringing the stored material to one's awareness when required to complete a task.

However, any issue or hindrance in the completion of any of these stages can lead to memory failure.

3.6.1 Models of Memory

Several model were stated to explain the process of memory. Some of the models can be explained as follows:

3.6.1.1 The Traditional Model of Memory

Atkinson and Shiffrin (1968) proposed a model for memory, known as "Stage model of memory" or "Modal model". This model is greatly influenced by the working of computer. If you have ever used computers, you must be aware about two types of memory used by it: RAM (Random Access Memory) and ROM (Read Only Memory) or memory available in computer in the form of hard drive. RAM is the memory that you use while performing a task at hand whereas ROM is that part of memory where you can save all types of files as it has a vast storage capability.

Atkinson and Shiffrin (1968) equated working of human memory to the working of computers. They proposed that similar to computers, we also possess different forms of memory systems, described as follows:

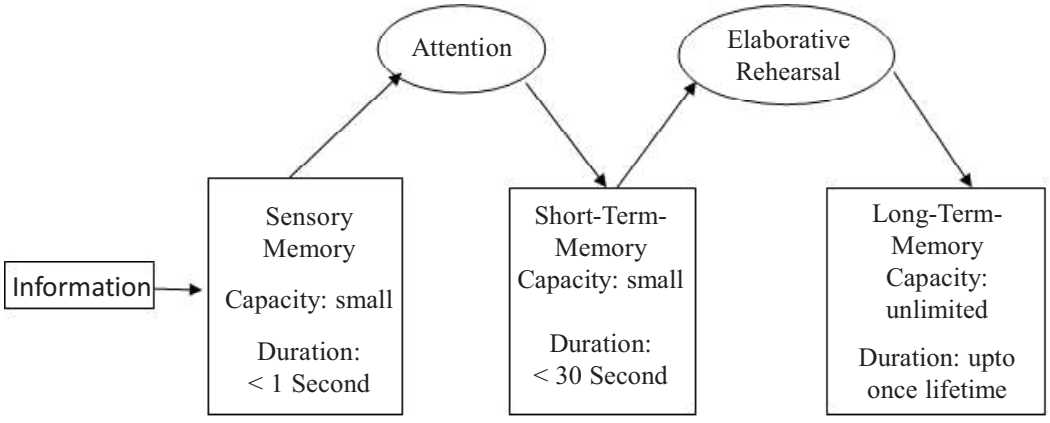

Fig.3.13: Atkinson and Shiffrin (1968) Model of Memory

- *Sensory memory:* In this, representation of sensory information is stored from a very brief period of time. which means that whatever information we sense by focussing, it remains in the sensory memory for a span of about a second.

- *STM (Short Term Memory):* After a span of a second it get transferred to STM. This system also holds information for a short duration of time. Studies have suggested that it can hold information up to 30 seconds. Tasks such as dialling a phone number manually or writing in a dictation are examples of information remainning in STM

- *LTM (Long Term Memory):* After an elaborative rehearsal, information moves to LTM. Which has been considered as a store house of all kinds of memories. You can remember things from last evening to since your childhood due to this system of memory.

How information move from one memory system to another? According to Atkinson and Shiffrin, only that information which can grab our attention will move from sensory memory to STM. Whereas, information from STM can only be moved to LTM through *elaborative rehearsal* which refers to thinking in terms of the meaning of the information and relating it to already existing information in LTM.

3.6.1.2 The Levels-of-Processing Model (LOP)

This model refutes the claim of Atkinson and Shiffrin model that, memory consists of different subsystem. According to the model of level of processing (LOP), whether information will be retrieved successfully or not depends on its level of processing. LOP refers to the level at which information have been encoded.

Craik and Tulving (1975) have proposed three levels of proessing information:

a) *Physical/Structural Processing:* Encoding of information based on its physical attributes.

b) *Phonological Processing:* Encoding based on how it sounds. Such as, 'Hat' rhymes with 'Cat'

c) Semantic Processing: Encoding done based on its meaning and/or concept.

Studies on this model have suggested that deeper the level of processing, the higher will be its probability to be retrieved successfully.

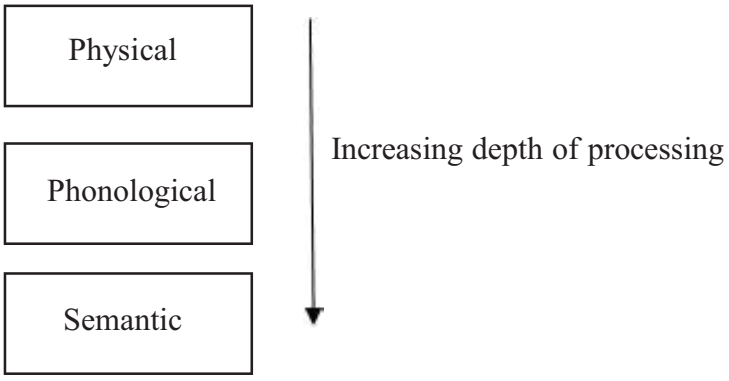

Fig.3.14: Level of Processing (Craik & Tulving, 1975)

Self Assessment Questions (SAQ II)

Fill in the blanks:

1) The main proponent of observational learning was .....

2) ..... is the process of converting sensory information into a form that can be processed further by the memory systems.

3) In ..... conditioning, the end result or consequence of behaviour determine if it will be repeated in the future or not.

4) ..... in 1968, proposed a model for memory called "Stage model of memory".

5) Baron (2001), defined learning as " ..... in behaviour (or behaviour potential) resulting from experience".

3.7 THINKING

Thinking is a higher mental process. In the literature, it has been defined primarily in two ways; one category of definition consider thinking as a problem-solving activity. While the other class of definition considers it as a mechanism of an internal representation of the external world. According to Garrett (1968), "Thinking is a behaviour which is often implicit and hidden and in which symbols (images, ideas, and concepts) are ordinarily employed." Gilmer (1970) has defined thinking as a "problem-solving process in which we use ideas or symbols in lace of overt activity." Thus, thinking is goal-directed behaviour. That is, it occurs in some context only and does not occur randomly. From choosing a dress to wear to solving a mathematical problem, all activities involve thinking.

Thinking can be categorized into various forms. Some of the most common types of thinking are as follows:

- *Perceptual or Concrete Thinking*: It is the simplest form of thinking, carried out for the perception of a concrete object. If you are asked to write four sentences on 'your favourite book,' then the thinking you will be using is perceptual thinking.
- *Conceptual or Abstract Thinking:* It is superior to perceptual thinking and involves using of concepts, symbols or language to solve a problem.
- *Reflective Thinking:* It is an insight based thinking which uses previous experiences to solve a problem.
- *Creative Thinking*: Thinking involved in creating new and novel ideas or objects is creative thinking. It involves rearranging the existing stimuli to create something new.
- *Critical Thinking:* This type of thinking is involved in making the reasoned judgment and examining assumptions.

3.8 THE PROCESS OF THINKING: MENTAL IMAGERY, CONCEPTS, AND PROPOSITIONS

We think either in words or mental images. The thought we "hear" in our mind in the form of statements or words is known as **propositional thought**. Sentences

such as "one should not waste water" or "black is a beautiful colour" are proposing or claiming something. Therefore, it is called as propositional thought. Another mode of thinking is **visual thought** or **imaginal thought**. It is the type of thought that we "see" in our mind. These (**propositional thought and imaginal thought**) are the two primary modes of thinking.

To understand imaginal thought, first, we need to understand "mental images" and to understand propositional thought, we need to understand the meaning of "concept."

3.8.1 Pictures in Your Mind: Mental Imagery

Suppose, you were told by your friend that he saw a beautiful yellow bird with colourless beak in his garden. If you were paying enough attention to his description, you might form a visual image of that bird. The visual image of the bird that you formed is known as 'mental image' or 'mental imagery', it is a mental representation of stimuli that are not presently being perceived by the senses (Moulton & Kosslyn, 2009).

3.8.2 Concept

"A concept represents an entire class; it is the set of properties that we associate with a particular class" (Atkinson & Hilgard, 2009, pp. 332). Our concept of a 'car', for example, includes the properties of having four wheels, petrol engine, steering, and seats. *Concepts help us in reducing the mental complexity* of our world by categorising it into manageable information. Further, it helps us in developing **prototypes** of the concepts. *A prototype is the typical example of the concept or a set of characteristics representing the best example of the concept.* For example, for the concept of 'car,' our prototype might include properties like having four wheels and petrol engine. We compare a target object with the prototype and decide by similarity whether the target object belongs to the category or not.

3.8.3 Propositions

Many researchers proposed that thinking should not be limited to images or words only, but it is also abstract. A *propositional theory* was given by some researchers to support this view. A proposition is a form of mental representation but neither in the form of words or nor in the images. It refers to the underlying meaning of the relationship among concepts. In simpler words, it is the smallest statement which can be judged as true or false. For example, 'trees are green'. This statement represents the smallest proposition coded with two arguments (are, trees, green).

Thinking is not a passive act; we keep relating one concept to another to understand our world in a better way. According to propositional theory, also called as conceptual-propositional theory, we think not regarding words or images only but also their concerned meanings. Thus we represent our world in the form of meanings by relating concepts together. "We may experience our mental representations as images, but these images are *epiphenomena*—secondary and derivative phenomena that occur as a result of other more basic cognitive processes. According to propositional theory, our mental representations (sometimes called "mentalese") more closely resemble the abstract form of a proposition" (Sternberg, 2012, pp. 281).

Self Assessment Questions (SAQ III)

Briefly answer the following questions

1) What is a proposition?

.....

.....

.....

.....

2) What is a prototype?

.....

.....

.....

.....

3) What is perceptual thinking?

.....

.....

.....

4) What is creative thinking?

.....

.....

.....

5) What is a concept?

.....

.....

.....

3.9 LET US SUM UP

It can be summed up that the above unit discusses five major cognitive process viz., attention, perception, learning, memory and thinking. We started this chapter with the concept of attention- the process of getting an object or thought clearly before the mind (Ross, 1951). The second cognitive process we covered in this unit was perception- defined as a set of process, which helps us in understanding the world around us. To understand the concept of perception, we discussed in depth various Gestalt principles of organization. Then we moved on to the concept of learning. We covered three basic theories of leaning namely, classical conditioning, operant conditioning and observational learning. Process of memory was also discussed and its major models were covered in this unit. Lastly, the process of thinking was covered in this unit.

3.10 UNIT END QUESTIONS

1) What do you understand by perception? Define it and describe the stages of the perceptual process.
2) Discuss the role of mental imagery, concept, and proposition in the process of thinking.
3) Write a short note on the stages involved in memory.
4) What is observational learning?
5) Write any four principles of Gestalt organisation.
6) Differentiate between theory of classical conditioning and operant conditioning.
7) Explain traditional model of memory and level of processing model of memory.

3.11 GLOSSARY

Perception : It is a process of selecting, organising and interpreting the sensory information based on previous experiences, other's experiences, need or expectation.

Thinking : A higher mental process that is done with the help of symbol of one's language.

Classical Conditioning: A basic form of learning in which one stimulus comes to serve as a signal for the occurrence of a second stimulus. During classical conditioning, organisms acquire information about the relations between various stimuli.

Operant Conditioning : A form of learning in which behaviour is maintained or changed through its positive or negative consequences. Positive consequences lead to the repetition of behaviour, whereas, negative consequences will lead to avoidance of behaviour.

LTM (Long Term Memory) : A store house of all kinds of memories, in which one can remember things from last evening to since your childhood.

3.12 ANSWERS TO SELF ASSESSMENT QUESTIONS (SAQ)

Self Assessment Questions I

1) law of good figure
2) meaningful
3) figure; background
4) selection
5) one's experiences, expectations, needs, beliefs and other factors.

Self Assessment Questions II

1) Albert Bandura
2) Encoding
3) operant
4) Atkinson and Shiffrin
5) relatively permanent change

Self Assessment Questions III

1) A proposition is a form of mental representation but neither in the form of words or nor in the images. It refers to the underlying meaning of the relationship among concepts.
2) A prototype is the typical example of the concept or a set of characteristics representing the best example of the concept.
3) It is the simplest form of thinking, carried out for the perception of a concrete object.
4) This type of thinking involves in making the reasoned judgment and examining assumptions.
5) "A concept represents an entire class; it is the set of properties that we associate with a particular class" (Atkinson & Hilgard, 2009, pp. 332).

3.13 REFERENCES AND SUGGESTED READINGS

Galotti, K. M. (2017). *Cognitive Psychology in and out of the Laboratory*. 5th Edition. Sage Publications, New Delhi, India.

Sternberg, R.J. & Sternberg, K. (2012). *Cognitive Psychology.* 6th Edition. Wadsworth Cengage Learning, United States.

Smith, E. E., Nolen-Hoeksema, S., Fredrickson, B., & Loftus, G (2003). *Atkinson & Hilgard's Introduction to Psychology*. Wadsworth Publishing Company.

Changizi, M.A. & Hall, W. G. (2001). Thirst modulates a perception. *Perception*, 30(12), 1489-1497.

Foster, J. (2000). *The Nature of Perception*. Oxford: Oxford University Press.

Coon, D. & Mitterer, J.O. (2007). *Introduction to Psychology: Gateways to Mind and Behaviour* (11th edition). Delhi (India): Thomson Wadsworth.

Baddeley, A. D., & Baddeley, A. D. (2004). *Your Memory: A User's Guide*. New York, NY, USA: Carlton Books.

Rubin, D. C. (Ed.). (1999). *Remembering Our Past: Studies in Autobiographical Memory*. Cambridge University Press.

Foer, J. (2012). *Moonwalking with Einstein: The Art and Science of Remembering Everything*. Penguin.

Styles, E. (2004). *Attention, Perception and Memory: an Integrated Introduction*. Psychology Press.

Smith, E. E., Kosslyn, S. M., & Barsalou, L. W. (2007). *Cognitive Psychology: Mind and Brain* (Vol. 6). Upper Saddle River: Pearson/Prentice Hall.

3.14 REFERENCES FOR IMAGES

The Forest Has Eyes by Bev Doolittle (1984). Retrieved July 21, 2018, from http://www.greenwichworkshop.com/details/default.asp?p=32&t=1

An example of figure-ground relationship. Retrieved July 21, 2018, from https://www.tes.com/lessons/p5F2D5-riCAYMw/figure-ground-relationship

The Gestalt principle of proximity. Retrieved July 21, 2018, from https://courses.lumenlearning.com/wsu-sandbox/chapter/gestalt-principles-of-perception/

The Gestalt Principle of Similarity. Retrieved July 21, 2018, from https://www.verywellmind.com/gestalt-laws-of-perceptual-organization-2795835

The Gestalt Principle of Continuity. Retrieved July 21, 2018, from http://art.nmu.edu/groups/cognates/wiki/d42cf/Continuity.html

The Gestalt Principle of Closure. Retrieved July 21, 2018, from https://www.logodesignlove.com/world-wildlife-fund

The Gestalt Principle of Common Fate. Retrieved July 21, 2018, from http://cdn.zmescience.com/wp-content/uploads/2013/09/traffic.jpg

The Gestalt Principle of Pragnaz. Retrieved July 21, 2018, from https://www.interaction-design.org/literature/article/the-laws-of-figure-ground-praegnanz-closure-and-common-fate-gestalt-principles-3

Experiment of classical conditioning. Retrieved July 21, 2018, from https://www.verywellmind.com/classical-conditioning-2794859

A Skinner's rat. Retrieved July 21, 2018, from https://impersonaly transferible.wordpress.com/2012/11/30/la-gran-caja-de-skinner/

Children imitating aggressive behaviour of the actor of the film. https://thedirtpsychology.org/bobo-doll-experiments/

UNIT 4 AFFECTIVE PROCESSES: MOTIVATION AND EMOTIONS*

Structure

4.0 INTRODUCTION

Do you recognise this face? He is **Ma Yun a.k.a. Jack Ma**, one of the self-made billionaires and the richest person of the China.

Fig.4.1: Jack Ma
Source: https://www.shoutmeloud.com

But do you know that in his early childhood, Jack Ma Failed in his Primary School examinations, not once, but Twice! **He failed thrice during his Middle School exams**. When applying to universities after his High school, Jack failed the entrance exams thrice,

* Contributed by Prof Suhas Shetgovekar, IGNOU

before finally joining Hangzhou Normal University. He even applied and wrote to Harvard University ten times about being admitted – and got rejected each time. This was only during his education! During and after his Bachelor's degree, Jack tried and failed to get a job at many places. After spending three years to get into a University, Jack failed to land a job after applying to them 30 times! He recollects in his interview, "When KFC came to China, 24 people went for the job. Twenty-three people were accepted. I was the only guy who wasn't." He also was one of the 5 applicants to a job in Police force and was the only one getting rejected after being told, No, you're no good."

Also, on his Entrepreneurial undertakings, Jack Ma went on to fail on two of his initial ventures. But that didn't stop him in any way of dreaming bigger.-

Source: https://www.shoutmeloud.com

What do you think; why some people like Jack Ma persist even after having multiple failures in their life? One reason of his success could be high level of motivation. But, what is motivation? In this unit we will talk about the concept of motivation as well as emotions. We will see how these two terms can explain our behaviour.

4.1 OBJECTIVES

After finishing this unit, you would be able to:

- Know about the concept of motivation;
- Appreciate the difference between motivation, needs, drives and incentives;
- Know about the different types of motivation;
- Understand various theories explaining motivational behaviour;
- Know what emotion is and how important they are in our life;
- Get an idea of different types of emotions;
- Understand six basic components of emotions; and
- Have an in-depth understanding of theories of emotions.

4.2 MOTIVATIONS

Motivation refers to complex reactions consisting of:

1) physiological responses such as changes in blood pressure and heart rate;
2) the subjective feelings which we describe as happiness, anger, sorrow, disgust and so on; and
3) expressive reactions that reflect these internal states, such as changes in facial expression or posture.

Motivation is simply the reason for an action and that which gives purpose and direction to behaviour. Motivation is "WHAT drives you" to behave in a certain way or to take a particular action. It gives you an answer of "WHY". Do you know the meaning and definition of motivation? More importantly, do you know why you need to know? The meaning of motivation is to give reason, incentive, enthusiasm, or interest that causes a specific action or certain behaviour.

As discussed, motivation can be termed as a driving force or it can also be stated as a process that starts and drives various activities, whether physical or psychological (Gerrig and Zimbardo, 2006). The term motivation has been derived from a Latin word '*movere*', which means 'to move'.

There are various definitions of motivation and some of them can be discussed as follows:

Feldman (2015, pg. 287) defined motivation as "*the factors that direct and energise the behaviour of humans and other organisms*".

Feist and Rosenberg (2015, pg. 397) define motivation as "*the urge to move towards one's goals, to accomplish tasks*".

Chamorro- Premuzic (2015, pg. 272) defined motivation as *"an internal state, dynamic rather than static in nature, that propels action, directs behaviour and is oriented toward satisfying both instincts and cultural needs and goals".*

Quick, Nelson and Khandelwal (2013, pg. 172) defined motivation as *"the process of arousing and sustaining goal directed behaviour".*

Nolen-Hoeksema et al (2009, pg. 419) describe motivation as "*a condition that energizes behaviour and gives it direction*".

Morgan et al (1993, pg. 268) define motivation as "*the driving and pulling forces which result in persistent behaviour directed toward particular goals*".

As can be seen in the above definitions, motivation has been mainly termed as a factor that drives or pushes an organism in certain direction or to behave in certain way. It can thus be described in terms of drive, force, desires, needs and wishes that may lead to individuals behaving in certain manner. A desire to get praise from teacher may motivate a student to perform well in a class activity. A wish to gain more knowledge about a certain subject may motivate an individual to take up an educational programme in that subject. A hunger drive may prompt an individual to buy biscuits or snacks. A desire to spend time with his/ her parents, may encourage a person to travel long distance.

Thus, any human behaviour can be said to be as a result of some kind of motivation. In the context of motivation the three main terms that need to be discussed are needs, drives and incentives that contribute to motivation.

Needs: These are related to the biological states of cellular or bodily deficiencies that lead to drives. For example, individuals need water, food and of course oxygen to survive (Feist and Rosenberg, 2015).

Drives: Feist and Rosenberg (2015, pg. 397) define drives as "the perceived states of tension that occur when our bodies are deficient in some need, creating an urge to relieve the tension". As we discussed under need, a need leads to or compels drive. Thus when an individual is hungry he/ she will seek food. Thus the need leads to drive and makes individual to behave in such a way that the deficiency created is deal with.

Incentives: This is external or is from the environment (as opposed to drive that are internal) and plays a role in motivating behaviours. It could be an object or

an event. A trophy won in a game can be termed as an incentive to do well in that game.

Yet another term that needs to be highlighted here is that of *motives.* Most often the terms motivation and motives are used interchangeably. However, they are different as motivation can be termed as a general term, where as motives is a specific term. *Motive* is something that actually drives an individual to take certain action. Motivation is the process within which a motive drives an individual towards certain action.

4.2.1 Types of Motivations

Motivation can be of different types, these have been discussed as follows:

4.2.1.1 Primary and Secondary Motivation

The two main types of motivation are primary and secondary motivation. *Primary motivation* can also be termed as basic motivation and mainly includes the needs related to hunger, thirst, sleep, sex, avoidance of pain and so on. These mainly influence an individual's behaviour at a basic level and these needs are also related to the basic need for preservation of self. *Secondary motivation* can be termed as learned motivation and these may differ from individual to individual. They are also related to the priorities and values of the individual. These will be further touched upon under drive reduction theory.

4.2.1.2 Extrinsic and Intrinsic Motivation

This is yet another way in which motivation can be categorised. *Extrinsic motivation* can be defined as "motivation that comes from outside the person and usually involves rewards and praises" (Feist and Rosenberg, 2015, pg. 415). The examples of extrinsic motion are reward, praises, money, feedback and so on. These motivators can be applied to let individuals carry out activities that the individiual they may not do otherwise. And as such these motivators provide satisfaction/ pleasure that the task may not provide. Extrinsic motivation does have a number of advantages as it is not only linked with the increase in behaviour but also with increase in performance. However, it can also be criticised as, if the reward (for example) is removed then the behaviour may also decrease. And at the same time if the amount of native of reward remains the same and is not increased their again the motivation will decrease. Further, extrinsic motivation may be effective with simpler tasks as opposed to tasks that require creative and lateral thinking. Further, it may also affect the intrinsic motivation of the person in carrying out the task. For example, if a child enjoys keeping his/ her room organised and tidy, but if parents start providing reward for the same, the child will keep the room tidy not because of the intrinsic motivation, that is the enjoyment, but will do so because of the reward given by the parents. To take yet another example, if an employee adequately uses safety devices because he/ she is intrinsically motivated to do so and if his/ her supervisor provides him/ her with extrinsic motivators for use of the safety devices, the employee will start using the safety devices due to the extrinsic motivation and not due to the intrinsic motivation. So, intrinsic motivation can be defined as "motivation that comes from within a person and includes the elements of challenge, enjoyment, mastery and autonomy" (Feist and Rosenberg, 2015, pg. 416). For example, there could be an activity that an individual may simple enjoy doing without expectation of

external rewards. There are four components of intrinsic motivation (Feist and Rosenberg, 2015) that are discussed as follows:

- *Challenge*: This is related to the extent to which an individual enjoys the excitement that accompanies a new challenge.
- *Enjoyment*: This is related to the pleasure that an individual may obtain from carrying out the task.
- *Mastery*: This is related to the sense of pride and accomplishment that an individual may experience when he/ she carries out a difficult task.
- *Autonomy and self determination:* The autonomy that an individual enjoys while carrying out the task, that is, the freedom with which the individual can determine what is to be done and how is it to be done.

Intrinsic motivation plays an important role in enhancing the productivity as well as creativity in the individuals.

Self Assessment Questions (SAQ III)

Fill in the blanks

1) The two main types of motivation are ..... and ..... motivation.
2) ..... is related to the pleasure that an individual may obtain from carrying out the task.
3) ..... motivation may be effective with simpler tasks.
4) ..... are related to the biological states of cellular or bodily deficiencies that lead to drives.
5) Motivation gives ..... and ..... to behaviour.

4.3 THEORIES OF MOTIVATIONS

4.3.1 Biological Explanations: Instinct Theory

Some of the first theories of motivation attributed behaviour to instincts, and explained it as in borned patterns of behaviour. The complexity and variety of behaviour along with the undeniable role of learning and other environmental factors were taken as arguments against instinct theory. A more useful definition emerged in the 1950's: An instinct is an adaptive pattern of behaviour formed by an interaction of genetics and ordinary developmental processes. An instinct is not invariant, but is widespread and similar among members of a species. Culture and learning are often cited as alternatives to instinct, but they are not. If we do not define instinct as behaviour which excludes learning or memory, we may just as easily possess instincts that allow humans to learn and form culture. Primary reinforcers can be thought of as instinctively reinforcing. Thus the theory explained motivation is caused due to instincts and are results of biological and genetic programming.

4.3.2 Drive Reduction Theory

The theory states that we are motivated to reduce or the push exerted by drives or internal stimuli that represent biological needs. This is reasonable to the extent that our behaviour helps us to maintain homeostasis, or a steady biological state. When some internal system is out of balance, a drive builds up to force behaviour that restores balance. For example, if you are feeling cold, you put on a sweater or turn up the heat. This explanation suits basic behaviours related to basic needs, such as food and water.

Still, our behaviour is not always consistent with our drives. You may be hungry right now, but you are not eating. Perhaps the biggest drawback of this theory was is that some behaviours do not decrease internal tensions, they increase them.

4.3.3 Arousal Theory

Arousal is a term used for a general state of physiological activation. You could think of it as the extent to which your body and mind are alert. Arousal theory holds that we act so as to bring about an optimal level of arousal. When we are too aroused (e.g, hungry) we act to reduce arousal (e.g., eat). When we are not aroused enough (e.g., bored), we act to increase arousal (e.g, read a book). The idea is that there is an optimal level of arousal, which has also been found from the observations underlying the Yerkes-Dodson law. The graph of performance vs arousal is an inverted U: Performance improves with an increase in arousal up to a point, then it drops off. Optimum performance on an easy task occurs at a higher level of arousal than on a difficult task.

4.3.4 The Optimal Arousal Model

As was discussed earlier that the drive reduction model cannot be applied to explain the behaviours related to curiosity or behaviours that seek thrill. In such cases the optimal arousal model can be used. This model is based on the work carried out by Yerkes and Dodson in 1908, referred to as the Yerkes- Dodson law (Feist and Rosenberg, 2015). The model states that "we function best when we are moderately aroused or energised and both low and high arousal/ energy levels lead to poor performance" (Feist and Rosenberg, 2015, pg. 399). This can also be explained with the help of the following figure.

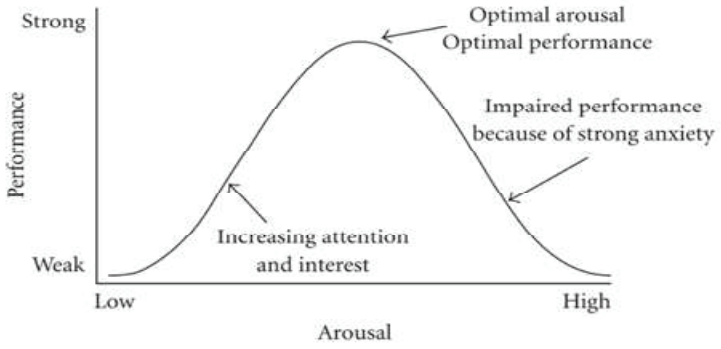

Fig.4.2: The Yerkes- Dodson Law

Source: https://en.wikipedia.org

As can be seen in Figure 4.2, when the arousal is low or high the performance is also low, however, an optimal level of arousal leads to high performance. Thus it

can be said that individuals are motivated when certain situation is not very high or low in stimulation.

4.3.5 Incentive Theory

The previously discussed Arousal theory focuses on internal stimuli. The Incentive theory holds that certain external stimuli act as incentives, pulling us toward some behaviour. Incentives are pleasing external stimuli that can serve as goals toward which our behaviour is directed. Cognitive factors are thought to be important with reference to incentives.

4.3.6 Maslow's Hierarchy of Needs

Humanist psychologist Abraham Maslow synthesized a number of different theories into a hierarchy of needs. The theory says that there are certain needs arranged in hierarchy. If and only if our needs at a lower level are met, we can be motivated by higher level needs. Once we are fed, safe, loved, and accomplished, we strive to be all that we can be. This theory is intuitively appealing, but is difficult to validate experimentally. Maslow himself admitted that self actualisation is difficult to achieve, even difficult to define.

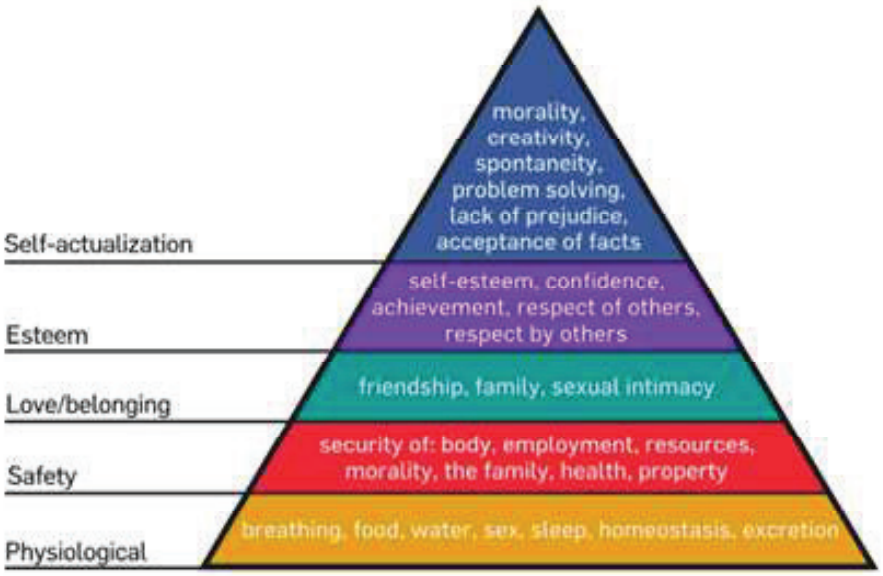

Fig.4.3: Maslow's Hierarchy of Needs

Source: https://courses.lumenlearning.com

4.3.7 McClelland's Acquired Needs Theory

This theory was developed by David McClelland and it highlights the three basic needs: achievement, affiliation and power. These needs are discussed in table 4.1.

Table 4.1: The Three Basic Needs Stated by McClelland

Need for achievement	This is related to achieving excellence, goals that are challenging, overcoming obstacles and difficulties, competition and persistence, need to master skills and so on.
Need for affiliation	This is related to maintaining close and intimate relationship with others
Need for power	This is related to having an influence, impact and control others.

The above theories thus help us further understand the concept of motivation.

Self Assessment Questions (SAQ II)

State whether the following statements are 'True' of 'False':

1) The mastery refers to the freedom with which the individual can determine what is to be done and how is it to be done. ( )

2) Abraham Maslow synthesized a number of different theories into a hierarchy of needs. ( )

3) The motivational theory of acquired needs was developed by Yerkes and Dodson. ( )

4) An instinct is invariant, but is not widespread and is dissimilar among members of a species. ( )

5) Arousal is a term used for a general state of physiological activation.( )

4.4 EMOTIONS

Emotion is a reaction consisting of subjective cognitive states, physiological reactions and expressive behaviours. They involve three major components: (1) physiological changes within our bodies-shifts in heart rate, blood pressure and so on; (2) subjective cognitive states, which is, the personal experience we label as emotions; and (3) expressive behaviours that is outward signs of these internal reactions.

Emotion is associated with mood, temperament, personality, disposition, and motivation. Emotions can be considered as thoughts that you cannot identify. For instance when you feel something, it must be that you are thinking about something unconsciously. We can feel them in our bodies as tingles, hot spots and muscular tension. Emotions involve cognitive aspects, but the physical sensation is what makes them really different.

Thus, emotions are important and as students of psychology we need to focus on this concept.

Emotion has been derived from a latin term 'emovere' that means 'stirred-up state'.

There are various definitions of emotion that are discussed as follows:

Feist and Rosenberg (2015, pg. 418) defined emotions as "*brief, acute changes in consciousness experience and physiology that occur in response to a personally meaningful situation*".

As stated by Gerrig and Zimbardo (2006, pg. 418) emotions are "*a complex pattern of bodily and mental changes that includes physiological arousal, feelings, cognitive processes, visible expressions (including face and posture) and specific behavioural reactions made in response to a situation perceived as personally significant*".

Kosslyn and Rosenberg (2013, pg. 259) defined emotion as *"a psychological state with four components, a positive or negative subjective experience, bodily*

arousal, the activation of specific mental processes and stored information and characteristic overt behaviour".

Feldman (2015, pg. 312) defined emotion as "*feelings that generally have both physiological and cognitive elements and that influence behaviour".*

Mishra (2016, pg. 466) defined emotion as "a state of being moved, stirred up or behaviourally aroused on experiencing an emotional situation and which involves external and internal physiological changes".

One of the key points that can be highlighted in the above definitions are that there is a change. This change can be in the consciousness experience or could be in terms of physiological arousal and even in cognitive processes. Changes can also be in the visible expression that is displayed on the face or in the posture of an individual. This change is as a result of some situation that is important for the individual. For example, a parent might display emotions of happiness as his/ her child receives a gold medal. In this the situation, the child receiving the gold medal is personally significant for the parent and he/ she may thus experience certain changes that could be in terms of physiological arousal, cognitive processes and feelings. There could also be changes in the facial expression of the parent.

4.4.1 Types of Emotions

Emotions can mainly be of two types, basic emotions and self conscious emotions. These are discussed as follows:

4.4.1.1 Basic Emotions

Basic emotions are a set of emotions that commonly appear in all the human beings. *These are anger, disgust, happiness, fear, sadness and surprise*. These emotions can be stated to be innate and are shared by all human beings. And though human beings can experience a broad range of emotions, researches on emotions have indicated that all the emotions are an outcome of combinations of certain basic emotions (Kosslyn and Rosenberg, 2013). Further, Charles Darwin also proposed that the actions that arise as a result of emotions or emotional behaviour are innate in nature and similar emotional states are expressed in terms of similar facial expressions across cultures. In fact even persons with visual impairment may display similar facial expressions even if they have never observed emotional expressions in others. Further, different researchers have proposed a slightly different list of basic emotions (Kosslyn and Rosenberg, 2013). This proposition with regard to basic emotions have been challenged as well as the basic emotions are not simple. For instance, Rozin, Lowery and Ebert in 1994 stated three types of disgust based on the facial expression (as cited in Kosslyn and Rosenberg, 2013 pg. 260). Further, though certain emotions may be consistent across cultures, there are emotions that are influenced by the norms and practices of the cultures. Though, the basic emotions have been considered inborn, the influence of learning, social norms and practices cannot be nullified.

4.4.1.2 Self Conscious Emotions

Self conscious emotions on the other hand are emotions that necessarily require a sense of self as well as an ability to reflect on one's actions. Further, these emotions are a result of whether the expectation in terms of social norms and rules are met or not. Examples of self conscious emotions are embarrassment,

guilt, pride, shame and humiliation (Feist and Rosenberg, 2015). The self conscious emotions occur as a result of the extent to which an individual is able to meet his/ her own expectations, the expectations of others or social norms.

4.5 COMPONENTS OF EMOTIONS

Emotion can be termed as an episode that is complex as well as having multiple components (Nolen- Hoeksema et al, 2009). There are six main components of emotion process, these are discussed as follows:

- *Cognitive appraisal:* The first component is cognitive appraisal. Here the situation is assessed based on the personal meaning. For example, if a cricket team wins, there will be a cognitive appraisal with regard to the personal meaning of the situation, whether this individual supports this team or not. If he/ she supports this team and he/ she is a diehard fan of this team then the situation will be assessed as having personal meaning or is personally significant for the individual. The cognitive appraisal leads to the stage or component of emotion.
- *Subjective experience:* This is related to the affective state or the feeling tone that is brought by the emotion (Nolen- Hoeksema et al, 2009).
- *Thought and action tendencies:* At this stage the individual will display an urge to think in a particular manner or take certain actions. For example, when an individual is angery, he/ she may act in a manner that is aggressive.
- *Internal bodily changes:* There are physiological reactions mainly involving the autonomic nervous system. Thus, there could be changes in heart rate or the individual may start perspiring. For example, when a person is angry, he may breath faster.
- *Facial expressions:* In this there is movement in the facial landmarks like cheeks, lips, noses and so on (Nolen- Hoeksema et al, 2009). For example, when an individual is happy, he/ she will smile.
- *Response to emotion***:** This stage or component of emotion related to how an individual cope and react with one's own emotions.

Any emotion is as a result of these six components. To further highlight any emotion will thus have the physiological, cognitive and behavioural components When an individual experiences anger, he/ she may experience physiological arousal in terms of sympathetic arousal. This also has a cognitive component, as the individual may believe that he/ she is in danger. Thus, the individual may display tendencies of avoidance that are related to the behavioural component. further, when an individual is angry, he/ she will experience sympathetic and parasympathetic arousal. The individual will have belief that he/ she is being mistreated and thus he/ she will have attack tendencies (Rathus, 2008).

4.6 FUNCTIONS OF EMOTIONS

From what has been discussed above, there must be no doubt in your mind that emotions are important. But it is also important to understand the functions of emotions, that are discussed as follows:

- *Emotions prepares an individual for action:* Emotions serve as a link between the situation and the individual's reaction. For example, if an individual is crossing a road and suddenly sees a truck coming his/ her, the emotional reaction that he would display, that of fear, would be linked with the physiological arousal.
- *Emotions play a role in shaping of future behaviour of an individual:* Learning takes place as a result of emotions experienced by us and thus for example, the situations that evoke negative emotions are avoided by us.
- *Emotions help in effective interaction with others:* Emotions that are communicated via verbal and non verbal communications may help individuals interact with each other more efficiently, as emotions act as signals thus helping individuals understand what the other person is experiencing. Future behaviour of individuals can also be predicted based on this.

4.7 THEORIES OF EMOTIONS

4.7.1 James-Lange Theory

This theory was put forth by William James and Carl Lange. The theory states that emotions are experienced by individuals due to the physiological changes. Thus, the emotions experienced by an individual can be termed as reaction or response to the bodily changes that occur as a result of certain external events and situations (Feldman, 2015). As an individual is exposed to an external event or situation, he/ she will experience a physiological reaction. And how this physiological reaction is interpreted will determine the emotional reaction of the individual. For example, a teacher catches a student playing game in classroom, the student in this situation will experience physiological changes like rapid heartbeats. This physiological reaction is interpreted by the student as fear ("My heart is beating fast, so I must be scared). Also refer to Figure 4.4.

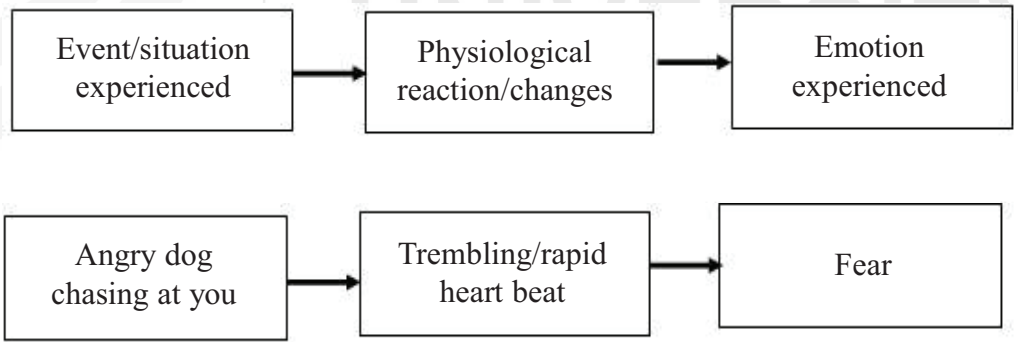

Fig. 4.4: Example of James- Lange Theory

The theory has been criticised because in certain situations, emotions may be experienced even before the physiological reactions are experienced. Also with the slow rate of visceral changes, it may be difficult to interpret how they are the source of the emotions being experienced. Further, some of the emotional experiences may not occur as a result of physiological arousal. For example, an individual who is exercising may experience rapid heartbeat but this may not be termed as fear. Thus it can be said that physiological changes are not as such sufficient in order to elicit emotional reaction. Also varied emotions may be linked with visceral changes that are similar in nature, which again contradicts the assumptions of this theory. For example, an individual may cry when he/ she is happy and also when he/ she is sad.

In this context the facial feedback hypothesis can also be mentioned that states that emotional experience are influenced by the sensory feedback received as a result of facial muscules. Thus, emotional feelings may get enhanced by facial expression.

4.7.2 Cannon-Bard Theory

This theory was proposed by Walter Cannon and Philip Bard. This theory assumes that a same nerve stimulus (that emerges from thalamus) produces physiological arousal as well as emotional experiences at the same time.

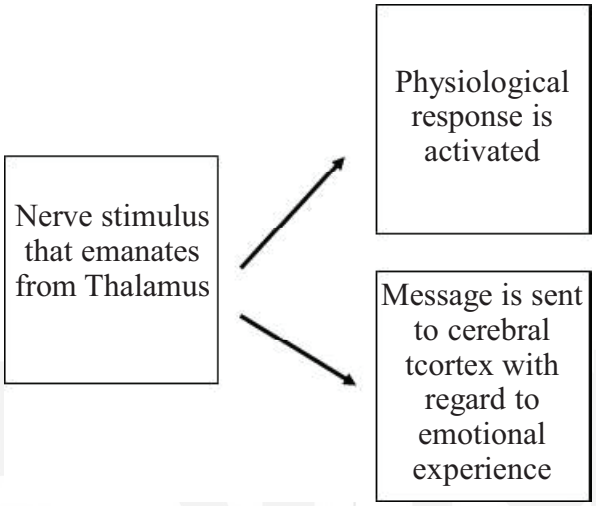

Fig.4.5: Cannon Bard Theory

Thus, when an emotion producing stimulus is perceived by an individual, a signal is sent by thalamus simultaneously to the autonomic nervous system that produces the visceral reaction and to cerebral cortex regarding the emotional experience. Though the theory does rejects the view that physiological arousal leads to emotional experience, recent research has highlighted the role of hypothalamus and limbic system (rather than thalamus) in emotional experience (Feldman, 2015).

4.7.3 The Schachter-Singer Theory

This theory, also called as two factor theory, was proposed by Stanley Schachter and Jerome E. Singer and is based on "the belief that emotions are determined jointly by a nonspecific kind of physiological arousal and its interpretation, based on environmental cues" (Feldman, 2015, pg. 316). Thus the theory states that emotions experienced are identified by the individuals based on their observation of the environment and by comparing themselves with others. This hypothesis was also tested by Schachter and Singer in their experiment. As experiment was carried out in 1962 on a sample of 184 participants (male college students), who were informed that they were receiving an injection of a vitamin to observe its effect on visual skills. The participants were then given either placebo (a saline solution having no side effects) or epinephrine (adrenalin) by a doctor. Epinephrine is a drug that produces responses that are similar to those that occur when intense emotional reactions are experienced (for example, increase in heart rate, blood sugar levels, increased breathing, increase in the blood flow to brain and muscles and so on). The individual injected with epinephrine may experience trembling, rapid heart beats, flushing and so on.

The participants were subjected to one of the four conditions:

a) Participants who were given epinephrine but were not told about its effect. [Adrenalin ignorant]

b) Participants who were given epinephrine (though they were told that they were injected with a vitamin) and were told about the effects (of the vitamin) and thus they were prepared. [Adrenalin Informed]

c) Participants who were given epinephrine (though they were told that they were injected with a vitamin) but were misinformed about the effects (of the vitamin) and were told that they would experience headache and numbness in feet. [Adrenalin misinformed]

d) Participants who were given placebo. [This served as a control group]

The participants were then placed individually in a situation along with a confederate who behaved in either of the two ways. The confederate was either happy and excited or was angry and hostile. The research was carried out with an objective to examine the emotional reaction of the participants towards the behaviours displayed by the confederates.

The results indicated that participants based their explanation with regard to the physiological arousal experienced by them to the behaviour displayed by others and the environmental cues. Thus, it can be said that this theory proposes a cognitive perspective of emotions.

4.7.4 Opponent Process Theory

The focus of this theory is that "an emotional reaction to a stimulus is followed automatically by an opposite reaction, repeated exposure to a stimulus causes the initial reaction to weaken and the opponent process (opposite reaction) to strengthen" (Baron, 2005 pg. 398). Thus, the theory states that the law of physics that every action is followed by a reaction is also applicable to emotion. The theory has found its application to understand drug addiction. As an individual starts using drugs he/ she may initially experience intense pleasure. However, with repeated use of drugs there is a decrease in the intensity of pleasure and the reactions related to withdrawal become stronger. Thus the individual now consumes drugs in order to avoid the negative feelings he/ she may experience as a result of not consuming drugs rather than for feelings of pleasure.

4.7.5 Cognitive Appraisal Theory of Emotion

This theory was proposed by Richard Lazarus in 1970. The theory states that any information is appraised from various sources, and this appraisal mainly involves cognition. Thus, the emotions experienced are an outcome of the appraisals of the information that is received from the environment and from within the body. Further, the past experiences and dispositions enable to react in certain manner as well as consideration with regard to the possible consequences of an emotional action also play a role in the appraisal process. The theory also focuses on reappraisal of the situation that provoked emotions. Reappraisal also assists in coping with situations that are stressful. For example, when a student is told that he/ she is being called by the Principal of the college, the student will experience apprehension as he/ she would wonder why he/ she is being called. But when the Principal informs the student that he/ she has been selected for an educational trip abroad then there is reappraisal of the situation and the student will experience happiness.

Self Assessment Questions (SAQIII)

Briefly Answer the following Questions:

1) What are emotions?

.....

.....

.....

.....

2) What are the components of emotions? \

.....

.....

.....

.....

3) What are basic emotions?

.....

.....

.....

4) What are the functions of emotions?

.....

.....

.....

5) What is James Lange theory of emotion?

.....

.....

.....

4.8 LET US SUM UP

This last Unit of Block 1 focuses on two important psychological processes; motivation and emotion. We started this chapter with a discussion on the nature and types of motivation. Following this, we discussed various major theories of motivation. In this section we covered seven major theories namely; Instinct Theory, Drive Reduction Theory, Arousal Theory, The Optimal Arousal Model, Incentive Theory, Maslow's Hierarchy of Needs and, McClelland's Acquired Needs Theory. Then our discussion moved to the concept of emotion. We talked about various definition of emotions, its types and function in our life. In the last section of this chapter, we studied five major theories explaining emotional process.

4.9 UNIT END QUESTIONS

1) Define motivation and explain its types.

2) What do you understand by instinct theory of motivation and how is it different from drive reduction theory of motivation.?

3) Write a short not on Maslow's hierarchy of needs and explain how it describes motivational behaviour.

4) What do you understand by emotions? Explain various components of emotions.

5) Differentiate between James-Lange theory of emotion, Cannon-Bard theory of emotion and Schachter -Singer theory of emotion.

4.10 GLOSSARY

Motivation : An internal state, dynamic rather than static in nature, that propels action, directs behaviour and is oriented toward satisfying both instincts and cultural needs and goals.

Needs : These are related to the biological states of cellular or bodily deficiencies that leads to drives.

Drives : It can be defined as the perceived states of tension that occur when our bodies are deficient in some need, creating an urge to relieve the tension.

Motive : It is something that actually drives an individual to take certain action and motivation is the process within which a motive drives an individual towards certain action.

Emotion : Subjective state of being often described as feeling.

Basic emotions : These are a set of emotions that commonly appear in all the human beings. These are anger, disgust, happiness, fear, sadness and surprise. These emotions can be stated to be innate and are shared by all human beings.

James-Lange Theory of Emotion : Physiological arousal leads to emotional experience.

4.11 ANSWERS TO SELF ASSESSMENT QUESTIONS

Self Assessment Questions I

1) primary and secondary
2) Enjoyment
3) Extrinsic
4) Needs
5) purpose and direction

Self Assessment Questions II

1) False

2) True

3) False

4) False

5) True

Self Assessment Questions III

1) Emotion is a reaction consisting of subjective cognitive states, physiological reactions and expressive behaviours.

2) Major components of emotions are: (1) physiological changes within our bodies-shifts in heart rate, blood pressure and so on; (2) subjective cognitive states, which is, the personal experience we label as emotions; and (3) expressive behaviours that is outward signs of these internal reactions.

3) Basic emotions are a set of emotions that commonly appear in all the human beings. These are anger, disgust, happiness, fear, sadness and surprise.

4) Emotions prepares an individual for action; Emotions play a role in shaping of future behaviour of an individual; Emotions help in effective interaction with others.

5) According to the theory, emotion is felt and experienced in the following steps- Environmental influence (event) —> Physiological change —> Psychological experience

4.12 REFERENCES AND SUGGESTED READINGS

Gorman, P. (2004). *Motivation and Emotion*. Routledge.

Buck, R. (1988). *Human Motivation and Emotion*. John Wiley & Sons.

Edwards, D. C. (1998). *Motivation and Emotion: Evolutionary, Physiological, cognitive, and Social Influences* (Vol. 3). SAGE publications.

Hall, N. C., & Goetz, T. (2013). *Emotion, Motivation, and Self-regulation: A Handbook for Teachers*. Emerald Group Publishing.

Benjamin Jr, L. T. (2007). *A Brief History of Modern Psychology*. Blackwell publishing.

Baron, R.A.(2001). *Psychology*. 5th Edition. Pearson Education, New Delhi, India.

Esgate, A. & Groome, D. (2005). *An Introduction to Applied cognitive Psychology.* Hove: Psychology Press, USA.

Eysenck, M. W. (2013). *Simply Psychology*. New York: Psychology Press.

Feist, G. J and Rosenberg, E. L. (2015). *Psychology: Perspectives and Connections.* New York: McGraw- Hill Education.

Feldman, R. S. (2015). *Essentials of Understanding Psychology*. New York: McGraw- Hill Education.

Jack Ma. Retrieved August 9, 2018, from https://www.shoutmeloud.com/jack-ma-alibaba-founder.html

The Yerkes- Dodson law. Retrieved August 9, 2018, from https://en.wikipedia.org/wiki/Yerkes%E2%80%93Dodson_law

Maslow's hierarchy of needs. Retrieved August 9, 2018, from https://courses.lumenlearning.com/boundless-psychology/chapter/humanistic-perspectives-on-personality/