B.Sc. PSYCHOLOGY – I YEAR

DJP1A : BASIC PSYCHOLOGY

SYLLABUS

UNIT I: INTRODUCTION

Definition - Nature, Characteristics and Scope - Scientific methods - Schools of Psychology

UNIT II: STATES OF MIND

Nature of Consciousness - Changes in consciousness: Day dreaming - sleep and dreaming - Extended states of consciousness: Hypnosis - Meditation - Hallucinations - Psychoactive drugs

UNIT III: COGNITIVE PROCESSES

Sensation: Visual, auditory and other senses - Structure and functions - Attention & attentional processes - Perception - Perceptual Organisation - Determinants of perception - Memory and Forgetting

UNIT IV: LEARNING & THOUGHT

Learning: Classical and Operant Conditioning - Basic principles of Conditioning - Verbal Learning - Cognition in Learning - Motivational and cognitive influences on Learning - Observational Learning - Thinking: Problem Solving - Decision Making - Creative thinking – Critical Thinking

UNIT V: MOTIVATION & EMOTION

Motivation: Biogenic and sociogenic motives: Intrinsic-Extrinsic framework - Defense motives - Conflict and frustration - Need hierarchy model - Emotions: Development, expression and control - Theories of emotion - Culture and emotions - Physiological correlates

TEXTBOOKS:

1. Robert A Baron (2002), Psychology, 5th Edition, Prentice Hall, India.
2. Morgan, C.T. and King, R.A. (1994) introduction to Psychology, Tata McGraw hill co, Ltd, New Delhi.

REFERENCE BOOKS:

3. Robert S. Feldman (2004) understanding Psychology 6th Edition Tata MrGram – Hill.
4. Ciccarelli, S. & Meyer, G.E. (2006). Psychology. New Delhi: Pearson Education.
5. Zimbardo, P.G. and Weber, A.L. (1997). Psychology. N.Y. Pearson. Edition.

UNIT - I : INTRODUCTION

Definition - Nature, Characteristics and Scope - Scientific methods - Schools of Psychology

INTRODUCTION

1.0.NATURE OF PSYCHOLOGY AND ITS DEFINITION

In simple words psychology is a systematic and scientific study of mental processes, experiences and behaviors - both overt and covert. The word 'psychology' has its origin in two Greek words 'psyche' and 'logos'. The word 'psyche' in Greek language refers to 'spirit' or 'soul' and the word 'logos' refers to 'discourse' or 'study'. During earlier times it was considered as a discipline which deals with the study of soul. In India the study of such questions was the main concern during Vedic and Upanishadic period. Various aspects of mental processes were analyzed. Subsequently the schools of Yoga, Samkhya, Vedant, Nyaya, Buddhism, and Jainism provided detailed accounts of mind, mental processes and methods to control mind. In modern period it started at Calcutta University in 1916 with establishment of the Department of Psychology.

In the western world, the formal beginning of psychology as an independent discipline goes back to 1879 when Wilhelm Wundt established the first experimental laboratory at the University of Leipzig, in Germany. Since then the growth of psychology has covered a long journey. Today it is one of the very popular subjects among social sciences. It studies all the shades of experiences, mental processes and behaviours. A comprehensive analysis of all these aspects provides a scientific understanding of human nature. In the following sections we will try to understand all the components which collectively define psychology.

(A) Study of experience

Psychologists study a variety of human experiences which are mainly personal or private in nature. They may range from experiences of dream, conscious experiences at different stages of life and experiences when the consciousness is altered through meditation or use of psycho active drugs. The study of such experiences helps the psychologist to understand the personal world of the individual.

(B) Study of mental processes

Psychology as the study of mental processes tries to investigate the activities happening in the brain which are primarily non physiological in nature. These mental processes include perception, learning, remembering and thinking. These are internal mental

activities which are not directly observed but inferred from the behavioural activities of the person. For example, we can say that somebody is thinking if he or she displays certain activities related to finding solution to a mathematical problem assigned to him or her.

(C) Study of behaviour

The range of behaviours studied in psychology is very broad. It includes simple reflexes (e.g. eye blinking), common response patterns such as talking to friends, verbal reports about feelings and internal states and complex behaviours such as handling computers, playing piano and addressing a crowd. These behaviours are either observed directly through naked eyes or are measured through instruments. They are generally exhibited verbally or nonverbally (e.g. facial expression) when an individual reacts to a stimulus in a given situation. Thus in psychology the main unit of investigation is the individual human being and his or her experiences, mental processes and behaviours.

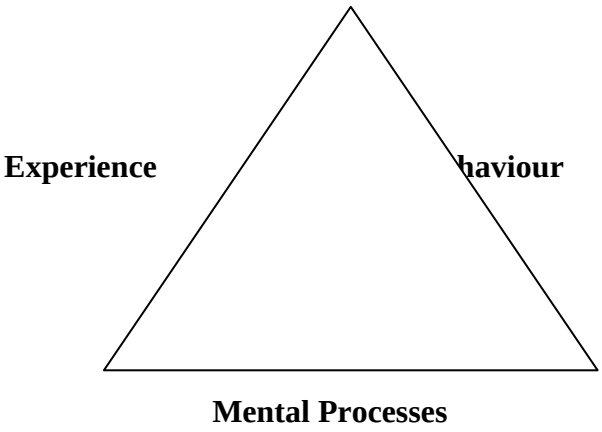


Fig. 1.1: Aspects of the subject matter of psychology

1.1. CHARACTERISTICS AND SCOPE OF PSYCHOLOGY

From the definition of psychology now it might be clear to you that psychology addresses a variety of issues related to mental and behavioural functioning of an individual. Such a study helps us to develop a basic understanding about human nature and facilitates us to deal with a number of personal and social problems. The study of human beings starts with the functioning of biological systems especially the nervous system. Under central nervous system psychology studies the functions of various parts of brain which regulate our feelings, emotions and thinking. Within autonomic nervous system the role of hormones and neurotransmitters in determining our behaviour is important. In addition psychology studies

as to how a given socio-cultural environment interacts with innate biological, intellectual and social attributes of the child and facilitates healthy development of the child.

As a living organism you encounter a lot of sensory input every moment. Your task is not only to process that information but to store and retrieve it when it is required to be used. Attention and perception help to process information. Memory helps us to register, retain and retrieve information, and thinking provides us the ability to manipulate and improve the stored information. Within psychology, all these are studied under the domain of higher mental processes or cognition.

In your life you must have come across many persons who have reached highest level of accomplishment. But such an accomplishment is not attained at once; it is the result of continuous learning in which the individual acquires the necessary skills and competencies through regular practice. Psychology helps us to understand the processes involved in reaching this high level of accomplishment.

In order to understand the purpose behind any kind of behaviour psychologists use the concept of motivation. It primarily focuses on the investment of mental energy and consistency of effort towards achieving the set goals. The various shades of feelings such as anger, fear, love, joy, and sadness which we experience during the course of our life are studied within the realm of emotion.

You will certainly agree that no two individuals are the same in terms of their physical attributes such as height, weight, skin colour or facial features as well as psychological attributes such as intelligence, personality, temperament and interest. An understanding of these and other aspects of individual differences facilitates the psychologist to select right person for the right job and to provide guidance and counseling for various matters of personal as well as professional concern. The understanding of individual differences also helps the psychologist to differentiate between normative (customary, accepted) and abnormal (deviant, unusual) behaviors.

Thus psychology as a discipline has a vast scope. It not only studies human beings across the life span but also tries to explore mental processes and potentials in order to facilitate achieving a better quality of life.

1.2. SCIENTIFIC METHODS AND APPROACHES (SCHOOLS OF PSYCHOLOGY) TO THE STUDY OF PSYCHOLOGICAL PROCESSES

Psychologists use a variety of approaches to describe, predict and control behaviour and mental processes. The main approaches are briefly described below.

1.Biological Approach:

This approach focuses on biological structures and phenomena such as brain, genes, hormones, endocrine system and neurotransmitters in order to understand the dynamics of behaviour. Its main focus is on the role of different parts of brain in regulating feelings, memories, emotions and other aspects of behaviour. Similarly the impact of over-secretion or under-secretion of different kinds of hormones in governing behaviour is studied. Behaviour genetics as one of the sub disciplines studies the genetic determinants of behaviour. Moreover, this approach looks for physiological basis of human behaviour.

2.Psychoanalytic Approach:

The father of psychoanalytic approach Sigmund Freud focused on unconscious libidinal energy in describing the present state of the individual. He studied mind in terms of hierarchical arrangements of experiences in the form of different layers of consciousness (e.g. conscious, preconscious, and unconscious). Freud explored the nature and quality of unconscious through analysis of dreams, slips of the tongue, neuroses, psychoses, work of art, and rituals. He assumed that majority of human behaviours are triggered by unconscious motivation. Thus to understand the present human behaviour the analysis of unconscious mental contents is considered most important.

3.Humanistic Approach:

Contrary to Freud, the father of humanistic approach Carl Rogers put greater emphasis on conscious experiences of the present situation, role of interpersonal experiences across the course of life, and people's capacity to grow toward psychological maturity. This approach basically assumes that a person is an active and self-actualizing agent and has a choice in deciding his behaviour. As a part of the self-actualizing process a person seeks to maintain a congruence between self and experience. However, because of past experiences with conditional positive regard, he may deny or distort the experiences that threaten one's self-system. Such a self-system can be changed in the therapeutic setting through genuineness, unconditional positive regard, and empathic understating of the client's problem by the therapist.

4.Behaviorist Approach:

The unit of analysis for this approach is explicit, objective and overt behaviour and its relationship with environmental stimulation. The father of behaviorism J. B. Watson emphasized on objective analysis of behaviour. He advocated that behaviour is largely

governed by the association between stimulus and response and the behaviour can be shaped in a desired direction by manipulating this association.

5. Cognitive Approach:

The cognitive approach emerged as an alternative to the mechanistic paradigm of behaviourism. This approach mainly focuses on the study of information processing capacity of the individual in terms of perception, remembering, thinking, language, reasoning, problem solving and decision making which are called higher mental processes. It proposes that we look out for information in the world and our behaviour depends upon the way we process this information. This approach largely relies on computational models and assumes that behaviour and mental processes can best be understood by treating them in terms of information processing.

1.3. METHODS TO UNDERSTAND PSYCHOLOGICAL PROCESSES

In order to understand human behaviour various scientific methods are used. The purpose of study or research is to develop principles and theories, test them and apply for solving different human problems. In this way we develop dependable understanding that helps us in guiding behaviour in various situations. Since human beings are complex living organisms their behaviours are shaped by many factors both intrinsic and extrinsic to him or her.

A psychological research carried out scientifically has the characteristics of Objectivity which means that such researches are free from any kind of biases. It is testable time and again and can be open to all. One can verify its authenticity by following the same method in terms of getting the same result. It has scope for self-correction. In other words the researcher corrects his or her understanding if there is some error and goes for revision. The scientific studies have also the characteristic of replication which means that the results of the study are consistently verified by similar other studies across different settings.Thus in psychology a number of methods are used to carry out scientific studies.

These methods are discussed below.

1.Observation:

While shopping in the market you must have noticed various activities of the people. When you observe their activities you also think about as to why they are doing those activities and probably you reach to a conclusion about the causes ofsuch activities. Such a way of knowing about others is called observation. However,the meaning of observation goes a little further as compared to discussed above. Observation as a method of enquiry is often

understood as a systematic registering of events without any deliberate attempt to interfere with variables operating in the event which is being studied.

Some Interesting Facts about Observational Method

Perhaps the most famous informal observations in the history of developmental psychology are the observations made by Jean Piaget on his three children when they were infants. These observations went on to become the empirical foundation for Piaget's developmental theory. You can also observe the

developmental patterns of your younger sibling or nephew, to understand the changes in sensori-motor development and other aspects of development. This method is used in natural as well as laboratory settings. When it is used to study the events happening in natural environment it is called naturalistic observation such as observing the behaviour of children on playground. In this case the observer (psychologist) has no control on the extraneous variables. He or she simply records the entire activities and then analyze them. On the contrary in the case of laboratory observation the event under study is controlled by the observer. For example, studying the effect of induced stress on task performance. Observation is also divided into participant and non-participant types depending on the role of observer. In the case of participant observation the researcher mixes up with the event under study and conducts the study. Where as in the case of non-participant observation the researcher maintains an optimum distance and has little impact on the events under study.

One of the most important advantages of observation is that it studies the range of behaviours in the form in which they are happening. However, this method requires more time and effort. It often becomes victim of the biases of researcher.

2. Experimentation:

In the case of experiment the experimenter studies the effect of one variable on the other by deliberately manipulating and controlling one variable. The variable which is controlled and manipulated by the experimenter is called independent variable (IV) and the variable on which the impact of independent variable is studied is known as dependent variable(DV). In a simple experiment two groups are formed. One is experimental group in which participants receive the independent variable. The other is control group in which behaviour is observed without giving the independent variable. By manipulating independent variable the experimenter is in a position to state that change induced in one variable brings change in another variable. Apart from these variables the experimenter has to also simultaneously take care of other variables which are beyond his or her control. Such

variables are called relevant variables and need to be controlled as they might confound the effect of independent variable.

In experimental studies three kinds of relevant variables are taken into account. These are organismic variables, situational variables and sequential variables. Organismic variables are related to personal characteristics of the participants such as age, sex, and personality features. Situational variables are concerned with the quality of physical environment during the conduct of experiment such as temperature, humidity and noise. Sequential variables are related to the very procedure of conducting the experiment when the participant is required to be tested across several conditions. Hence exposure of the participant to varied conditions may result either in attaining proficiency due to practice effects or in developing fatigue and monotony towards experiment.

Experimenters use following techniques to control the unwanted effect of relevant variables.

(i) Elimination:

In this technique extraneous variables are eliminated from the experimental setting.

(ii) Making Conditions Constant:

In this technique the extraneous variables which cannot be eliminated are kept constant in order to make their effect same during the entire experiment.

(iii)Matching:

Through this technique the relevant variables are equated or held constant across all the conditions of experiment.

(iv)Counter Balancing:

This technique is used to minimize the effect of order or sequence. This is usually done by dividing the participants in two groups. On first occasion half of the group (Group A) is given task 1 and the other half (Group B) is given task 2. On the second occasion Group A is given task 2 and Group B is given task 1.

(v) Random assignment:

In the case of random assignment all the participants have equal chance to be exposed to experimental and control conditions. It removes the systematic differences between groups. In addition to experiments carried out in controlled setting (laboratory experiment) experiments are also conducted in natural life conditions. They are called field experiments and quasi experiments. Like laboratory experiment independent variable is manipulated and participants are assigned to different groups. In quasi experiments independent variable is

manipulated in natural setting using naturally occurring groups to form experimental and control groups.

3.Case Study:

You must have seen a doctor asking personal details in addition to the information about the medical problem of the patient or a media person asking so many questions about various aspects of life while taking interview of a popular person. The purpose behind asking these questions is to know more about the person in terms of his experiences, relationships and interaction with others so as to prepare profile of the person. In psychology this method is called case study.

In the field of psychological enquiry case study method has its own importance and relevance. In this method the main unit of analysis is the individual and his experiences across different contexts in life. It focuses on the individual's interactional patterns with significant others as well as his personal experiences across different real life situations. In order to prepare a case history of data are taken from many sources for example his or her family history, educational life, medical history and social life. This method is very popular in clinical psychology and life span developmental psychology.

In order to prepare the case history usually interview, observation and psychological tests are used to obtain information about the individual. The data collected through these techniques are analyzed in detail. A comprehensive profile of the individual is developed which reflects the description of events in his or her life. Case study helps to locate unique experiences of life as well as the various emotional and adjustment problems of the individual. Though case study gives a detailed and in-depth description of individual's life we cannot make a very conclusive judgment about the individual without further establishing the reliability and validity of such information from various sources such as family members, friends and administration of some standardized psychological measures. Caution should be taken in planning data-collection from the individual and interpretation of the responses given by the individual.

4.Survey:

You might be aware that television news channels or newspapers ask you to send your view through SMS on current issues of national or international importance. While doing this they try to seek the opinion of people on those issues to communicate their view to the Government as well as to the society. For example they conduct opinion poll during the election as to which political party enjoys support of the majority of the people. Conducting

such a study is called survey research. It is one of the popular research methods not only in psychology but also in other disciplines such as sociology, political science, economics and management.

In psychology survey method is generally used to study the pattern of opinions, attitudes, beliefs and values of the people. This method is also used to test the hypothesis about the relationship of variables especially when some incident takes place. For example media tried to analyze the responses of the people across the country after the attack by terrorists on Mumbai. In order to collect the data from people a variety of sources are used such as directly contacting the participants with a set of questions and taking their interview, sending the questionnaire through email or through post and asking them to send SMS by their mobile phones. Thus in survey, research is generally conducted through questionnaire or interview. It can be conducted on a single individual as well as on a group.

1.4.PSYCHOLOGICAL TOOLS

While conducting psychological research a variety of tools are used to collect data and relevant information from the participants. These tools are in the form of paper, instruments or computer software. The administration of these tools helps the psychologist to obtain verbal, written, behavioural or physiological responses. In this section we will discuss some of the psychological tools which are frequently used in conducting research.

Psychological Tests:

You must have heard about psychological tests which measure intelligence, aptitude and interest. Development of test is a major area of activity in psychological research. The tests are designed and developed to assess various psychological attributes. They are developed on the basis of a theoretical framework. For example a test of intelligence is developed following a theory of intelligence. These tests are administered to the individual alone or in a group setting. The obtained score of the individual on the test reveals his or her position in relation to others who also respond to the same test. Thus a psychological test provides an objective assessment of different qualities and limitations of the individual. A standardized psychological test has properties of reliability and validity.

Reliability of a test refers to its consistency in terms yielding dependable scores. Validity of a test reveals the extent to which the test measures what it claims to measure. Depending on the nature and administration a test can be either Verbal or non-verbal (performance). In a verbal test the responses are taken in oral form. In non-verbal or performance test the responses are taken in the form of performance or certain behaviour.

Psychological tests are also categorized as objective and projective. An objective test contains direct items about the psychological construct. The individual has limited freedom to respond to the items of the objective test.

A projective test uses ambiguous, vague and unstructured stimuli such as pictures, inkblots, drawings, incomplete sentences etc. In this type of test the individual is free to give his/her responses. Thus a number of tests are used to assess psychological attributes of the individual. The score on the test reveals the extent to which the individual possesses those attributes. Such scores help the psychologist to decide about the future course of action.

1.Questionnaire:

A questionnaire consists of a set of questions to which the individual is required to respond. The items (questions) of the questionnaire can be either in closed-ended form or in open-ended form. In the case of closed-ended item the individual is provided with limited alternative and he or she has to choose only one alternative which reflects his or her view on the item. In open-ended items the individual is free to give his or her response the way he or she likes. The instruction as to how to respond to the items of the questionnaire is written on the first page. Data from a large number of individuals can be taken at a time as the questionnaire can be easily administered to a group of people. The items of questionnaire are written in simple and explicit language so that anyone can understand it. All the items tap various aspects of the construct which is measured. The items are often arranged in the sequence from general to specific.

2.Interview:

It is a techniques of data collection in which a face-to-face interaction occurs between two persons with a set objectives. The person who conducts interview is called interviewer and the person who give responses is called interviewee. The interviews are also conducted through telephone, internet and video conferencing. The main purpose of interview is to understand various personal characteristics such as attitudes, values, interests and preferences.

Two types of interviews are often used to obtain information. These are structured interview and unstructured interview . In the case of structured interview the questions are already framed with the possible response options. The interviewee is required to respond to the set of framed questions by choosing one option. For example the attribute of friendliness can be measured by giving the option ranging from ‘highly friendly’, ‘often friendly’ to ‘least friendly’. Unstructured interview is a little flexible. It comprises of a variety of open-ended

questions and the interviewee gives his or her responses as freely as possible. During the course of interview the interviewer also frames and reframes the questions and facilitates the entire process of interview. Conducting interview to recruit suitable candidates for a particular job is a good example of unstructured interview. In order to conduct an interview the interviewer should possess certain skills which help him/her to elicit maximum responses from the interviewee. A skilled interviewer easily establishes rapport with the interviewee by reliving his/her anxiety and making him comfortable during the course of interview. He has command over his language which helps him to put even difficult questions in simple and lucid way in order to probe at a deeper level. He has control over his feelings and emotions which does not give any cue to the interviewee during the interview. In the field of psychology interview is used for recruitment and selection, counseling, marketing and advertising, attitude survey etc.

UNIT II: STATES OF MIND

Nature of Consciousness - Changes in consciousness: Day dreaming - sleep and dreaming - Extended states of consciousness: Hypnosis - Meditation - Hallucinations - Psychoactive drugs

STATES OF MIND

2.0. NATURE OF CONSCIOUSNESS

Definition of Consciousness

Consciousness is defined differently among psychologists. No particular definition of consciousness stands out or is widely accepted in the field of Psychology. However, for the purpose of briefly introducing and explaining a complex phenomenon like consciousness, here is Santrock's simple and easy-to-understand definition of consciousness: Consciousness is the awareness of external events, internal sensations, the self, and thoughts about experiences. Consequently, the different states of consciousness, as discussed below, correspond to differing qualities of awareness and information-processing.

Historical Development of the Study of Consciousness

The study of consciousness began in the 19th century from the ideas of Sigmund Freud and William James. Sigmund Freud, in his psychoanalytic theory, likens the mind to an iceberg, where a significant portion of the ice is hidden from consciousness. On the other hand, William James describes the mind as freely and continuously flowing, referring to it as the stream of consciousness. Although the conflict between these two fundamental theories on consciousness should have sparked controversies and debates similar to the early scientific approaches to psychology, interest in consciousness was shunned away in the 20th century when behaviorism dominated the scene of psychological research. It was only in the 21st century when psychologists developed renewed interest on the subject of consciousness, particularly subconsciousness. Today, large bodies of research have been made detailing the complex nature of consciousness.

States of Consciousness

As mentioned above, the different states of consciousness correspond to differing qualities of awareness and information-processing. The conscious state is a state of awareness where the mind knows exactly what it is thinking of. Thinking in the conscious state is serial, that is, following a sequence, and is therefore slower, but more productive, compared to the other states of consciousness. The conscious state operates under high- and low-level of

awareness. High-level of awareness in the conscious state involves controlled processing, where attention is most alert and selective, allowing us to focus. Low-level of awareness in the conscious state, on the other hand, involves automatic and semi-automatic processing, occurring simultaneously, thus dividing attention, as when you talk while eating, or when you daydream while listening to class instructions.

The subconscious state is a state of awareness involving parallel processing and binding, which are much faster than controlled, automatic and semi-automatic processing. Parallel processing and binding in the subconscious state are not conscious, producing sensations and perceptions as outputs, as when we see something but don't know how and why we see it. Often, we drop to a subconscious state when we are asleep, as when we are aware of external stimuli only to some degree. In an experiment by Ogilvie & Wilkinson (1998), participants are instructed to push hand-held buttons in response to hearing faint tones while asleep. Surprisingly, majority of the participants did the task well. In another experiment, Stickgold (2001) observed the brain activity of sleeping participants in response to different kinds of stimuli. He found that tones stimulate brain activity in the auditory processing regions of the brain, and that the participants' names stimulate the language areas of the brain, the amygdala and the prefrontal cortex. We can also function in a subconscious state when we are awake. This is often observed in people with neurological problems, particularly those with brain damages affecting the processes of sensations and perceptions. Milner and Goodale (1995) found that people with damaged visual cortex, but with fully-functioning sense of sight, are not aware, or conscious, of the physical dimensions of objects in their visual field, but are surprisingly able to precisely adjust their hands when instructed to reach for them. This means that visual sensory information somewhat reached the brain in a state where the mind is not conscious of it. A lot of far-reaching ideas are said to have emerged during a subconscious state, when the conscious mind is relaxed and unfocused. 20th century American engineer and inventor Frank Offner, who developed controls that made jet planes possible, and who invented the electrocardiogram (ECG) and electroencephalogram (EEG), said that most of his ideas spontaneously arise during the middle of the night. His doctoral dissertation on nerve excitation formula was even formulated while he was taking a shower. Renowned chemist August Kekule was also known to have developed the idea behind the benzene ring (1865) while he was asleep, when he dreamt of a snake that went in circles and bit his own tail. According to creativity expert

Mihaly Csikszentmihalyi (1995), these spontaneous thoughts come from incubated ideas that make strong connections during a subconscious state, and suddenly pop out to consciousness.

The unconscious state is a state of awareness filled with unacceptable wishes, feelings and thoughts. They fail to get admitted into consciousness due to threats of anxiety of negative emotions. The idea of the unconscious mind was developed by Sigmund Freud (1917). Although controversial, the idea of an unconscious mind is important for recognizing the complexity of consciousness.

Lastly, the altered state of consciousness is a state of awareness achieved under the influence of special secondary stimuli or situations, such as drugs, trauma, fatigue, self-deprivation.

2.1.CHANGES IN CONSCIOUSNESS

Altered Consciousness Defined

An **altered state of consciousness** is a temporary change in one's normal mental state without being considered unconscious. Altered states of consciousness can be created intentionally, or they can happen by accident or due to illness.

Do you remember the last time you had a very high fever? Sometimes during high fevers, sick people can feel dreamy, have hallucinations, or simply be unable to react to their environment in a normal way. Many illnesses can cause altered states of consciousness, such as those that cause sleep or oxygen deprivation. There are also many common experiences that can create altered states of consciousness, such as sleeping or daydreaming, childbirth, sleep deprivation, sexual euphoria, or panic.

Often, people intentionally try to alter their conscious state. There are many reasons people try to attain an altered state of consciousness, including religious and spiritual reasons, relaxation, and even hypnosis to increase health. Let's take a look at a few of the more common altered states of consciousness a person may experience.

Examples of Altered States

Everyone has experienced **dreams** and can relate to this common altered state of consciousness. Although we are not 'awake' during sleep, we are still conscious and can react to our surroundings. We may awaken from a loud noise or somebody shaking our leg. During sleep, we experience images, sounds, and feelings that are not real. Many dreams are forgotten after waking, but we all know that dreams can feel very real when we are in them.

If you have ever had a dream about falling, you can probably recall the influence of this altered state of consciousness.

Daydreaming is also considered an altered state of consciousness. Many people daydream when they are bored. Like dreaming, daydreaming can feel very real and cause realistic images, memories, and feelings, as well as the reactions that go with them.

Psychologists believe that **hypnosis** is an altered state of consciousness that allows a person to be more open to suggestion. Although people can perform hypnosis for comedy and magic shows, psychologists can also be trained in hypnosis. Psychologists can use hypnosis to help contain unmanageable feelings or to help a person reach a goal, such as losing weight or quitting smoking. Psychologists use hypnosis to suggest new feelings, thoughts, and behaviors to clients while they are in this altered state.

Scientists believe that **meditation** has been used for religious and spiritual purposes since prehistoric times. Different societies and cultures perform meditation in different ways and for different purposes. Meditation is a repetitive practice used to help people train their attention. People practice meditation for many reasons, but most commonly to reduce stress and gain better control over their minds.

Daydreams are the most common form of altered consciousness. **Consciousness** is simply our level of awareness of what's going on around us and in us at all times. It is a level of our alertness. However, our levels of consciousness are often changing throughout the day, most often without us even having a choice in the matter. The brain likes to do things on its own quite often.

Sleeping is an altered state of this alertness, and thus an altered state of consciousness. Whenever we enjoy an alcoholic beverage—yes, even just one—we have **altered our consciousness**. If we are addicted to nicotine in any of its forms (smoking, chew, vaporizing), we are altering our perceptions, and thus our consciousness, each time we use it or any mind-altering drug, for that matter.

It is our daydreams, though, that enable us to quickly move into an altered state at almost any time. As a matter of fact, we can quickly shift from alert consciousness to wandering daydream in the blink of an eye. All we have to do is remove some of our alert attention from the outside world and sail away into daydream and fantasy.

What Causes Daydreaming?

Psychology has many ways of defining human experience. When we developed the proper tools for imaging the brain while it functioned, scientists discovered that certain parts of the brain kicked in when the subject of the experiment was not focused, or concentrating, on the tasks required. It didn't take long for it to be recognized that certain parts of the brain (limbic system, frontal cortex, and sensory cortexes) lit up like holiday lights when the subject was allowed time to let his mind wander. In other words, scientists identified the **default network** that kicks in when the brain is not required to focus and concentrate on a task. This allows us to focus on internal factors such as planning and escaping pressures and stress.

So daydreaming has a biological component, as psychological elements seem to do, but there is also the mental component that defines it. Daydreams are not typically a complete exclusion from the outside world but are a focus inward on our thoughts and imagined experiences. They are an altered state of alertness/consciousness that takes us away from pressures and stress; some would call this escapism. Studies have determined that prisoners in penitentiaries and jails often use daydreaming as a means to retreat from the reality of prison life. Sometimes they do this willfully, and at other times, the mind just seems to want to wander away from reality all on its own.

Daydreams can incorporate sensory information as well. We can imagine how food smells and tastes, the sounds of our favorite band, or images of whatever fantasy we find suitable to the purpose of the daydream. A psychological term for this effect of detachment, of turning away from reality in favor of a daydream, is **dissociation**. Well-known psychologist Sigmund Freud referred to daydreams as a tool to experience repressed desires and instincts that weren't acceptable in our waking world.

Effects of Daydreaming

While there are those who may become **fantasy prone**, unable to stay away from the temptations of daydreams and fantasies to the detriment of regular life, the overwhelming majority of us find daydreaming a normal, relaxing, and actually helpful part of our mental life. To be fantasy prone is to be trapped in the *Secret Life of Walter Mitty* and find ourselves constantly losing track of what we were doing and what we should be doing. The attraction of being able to immerse ourselves in fantasy becomes so strong that real life concerns and issues become ignored and more stressful, thus encouraging us to escape more and more until

real life falls apart in a shamble. Many have worried that immersive virtual realities such as those found in games like 'The Sims,' 'Second Life,' and 'World of Warcraft' may be detrimental to those who are by nature fantasy prone.

2.2.SLEEP AND DREAMING

Dreams are images, ideas, emotions and sensations that occur **involuntarily** in the mind during sleep. They can last from as little as a few seconds to as long as 20 minutes, and the average person has at least three to five, and often many more, dreams a night (dreams typically occupy a total of about two hours of a normal night's sleep). Unfortunately, no-one has ever been able come up with a way to record or visualize dreams (although some recent research is beginning to show promise in that area), so we must resort to the low-tech and rather unscientific solution of waking people and asking them whether they were dreaming, and what about.

Dreams are usually story-like and **narrative**, and they often appear to us (rightly or wrongly) to connote something meaningful about our lives. They range in subject matter from the normal and ordinary to the illogical, bizarre and downright surreal. In fact, most dreams are surprisingly ordinary and unexciting, usually based on recent life events, but we are more likely to remember the more flamboyant, strange or alarming ones. The events in a dream still feel totally realistic and logical to us, however fantastical they may be.

Sexual fantasies can and do appear in dreams, but not to anything like the extent popularly thought (between 8%-10% according to some estimates, and more common in young to mid-teens). By some estimates, at least 40%, and perhaps as much as 75%, of normal dream content is **negative** in nature, although only a small minority of these would be characterized as nightmares (see the separate section on Nightmares). Whatever the subject matter, though, dreams are always **egocentric**, involving ourselves as a principal character. Despite this, we have **no control** over the story-line of a dream, and generally we are not even aware that we are dreaming (except in the case of lucid dreams - see the section on Other Kinds of Dreams).

Most people dream in **colour**, but some people do dream in black and white. Interestingly, much fewer people report dreaming in black and white now than did 50 years ago (when television was black and white), and most of those that do still claim to dream in black and white are of an age to remember black and white television. This has led some to conclude that media exposure as a child influences, or perhaps in some way reconstructs, our

dreams (or at least our memories of dreams). However, it is impossible to objectively verify such reports, and it is difficult to draw any firm conclusions about them.

Dreams can occur in almost all stages of sleep, but they are most common during REM sleep, particularly towards the end of the sleep period, and the dreams experienced during this sleep stage tend to be more vivid, detailed, memorable and often bizarre. During REM sleep, there is an almost complete loss of muscle tone and skeletal muscle activity (known as atonia), and it has been speculated that this paralysis may be a built-in mechanism to protect the dreamer from any injuries that might occur if they were to physically act out the vivid, and often violent, content of REM dreams. This may also account for the commonly-experienced dreams in which we feel unable to move or can only move sluggishly in response to a threat. Studies during the 1970s showed that, where REM sleep is denied to sleepers, dreams assert themselves anyway, either during other sleep stages or even intruding themselves into daytime wakefulness, suggesting that the urge to dream is so strong that the brain seeks to compensate for its loss.

There is also a phenomenon called dream **incorporation**, in which outside stimuli can be incorporated into the narrative of dream imagery. William C. Dement and others did many experiments on this subject back in the 1950s and 1960s. Examples might be a dream about braving Arctic conditions caused by the bedcovers slipping off, the incorporation of particular friends into a dream in response to the prompting of the friends' names, the incorporation of a phone or alarm clock's ringing into a dream, etc . Often the stimuli are changed or twisted in some way, but still recognizeable. Some scientists believe that this represents the body's way of protecting and extending REM sleep despite external interferences.

Everyone dreams every night, from early childhood until the day we die, regardless of whether or not they can remember those dreams. Memories of dreams are very **unstable**, and tend to disappear completely within a few minutes of waking, unless we make a deliberate attempt to remember them, or write them down. In experiments, up to 80% of adult sleepers woken during REM sleep can remember at least some of their dreams. Light sleepers tend to be able to remember their dreams more easily than deep sleepers. Some people can **never** remember their dreams, regardless of when they were woken.

Although it is known that **babies** spend long hours of the day and night in REM sleep (and even more *in utero*), it is still not known exactly when they actually start to dream.

Young children do definitely dream, although only about 20% of 7-year olds report dreams when woken from REM sleep, as compared to around 80% of adults, even though they spend substantially more time in REM sleep than adults.

2.3. EXTENDED STATES OF CONSCIOUSNESS

Hallucinations

The term hallucination comes from the Latin *alucinari*, meaning "to wander in the mind." When a person sees, hears, smells, or feels something or someone that is not really there, he or she has experienced a hallucination. Although the hallucinatory state is commonly confused with that of an illusion, the latter is caused by real sense perceptions that have been misinterpreted, whether by natural phenomena or in the case of a stage illusion, by someone deliberately misdirecting and tricking an audience.

Hallucinations result when certain situations have altered one's brain metabolism from its normal level. Common causes of hallucinations are a high fever, an adverse reaction or side effect of a drug, the deliberate ingestion of a psycho active drugs or hallucinogenic substance (LSD, peyote, opium), an adverse reaction to alcohol, or a post-traumatic stress disorder. The grief of suffering the recent death of a loved one sometimes prompts hallucinations of hearing or seeing the relative or close friend. Those individuals experiencing psychosis or delirium are also susceptible to the manifestations of hallucinations.

While people often associate a hallucination with dramatic circumstances, sleep deprivation can prompt the phenomenon, as can boredom, fatigue, and the frightening experience of "highway hypnosis," when people have been behind the wheel driving too long and the monotony of the road causes them to see things that aren't really there.

Many individuals who suffer from migraine attacks report certain kinds of hallucinations, especially those of colored, shimmering geometric shapes, quite likely induced by changes in the retina or the visual pathway. Some researchers suggest that some of the visions experienced by certain mystics and saints were set in motion by migrainous hallucinations.

Some people have hypnopompic episodes, a kind of hallucinatory experience, while either falling asleep or waking up. They may believe that some kind of supernatural being has entered the room and settled on their chest. They may even hear the entity speaking to them

in a peculiar language. Some researchers suggest that such hypnopompic hallucinations might explain the **incubus** and **succubus** phenomena of nighttime demonic attacks that have been reported since medieval times.

Hallucinations caused by sleep or sensory deprivation require no medical treatment unless the individual continues to abuse the normal bodily demands for rest. Those caused by substance and alcohol abuse may likely need medical help to allow the individual to establish normality. Hallucinatory manifestations that continue without an individual's being able to determine any physical or mental reason may require a psychiatric consultation.

Hypnosis

The process of hypnosis generally requires a hypnotist who asks a subject, one who has agreed to be hypnotized, to relax and to focus his or her attention on the sound of the hypnotist's voice. As the subject relaxes and concentrates on the hypnotist's voice, the hypnotist leads the person deeper and deeper into a trancelike altered state of consciousness. When the subject has reached a deep level of hypnotic trance, the hypnotist will have access to the individual's unconscious.

Many clinical psychologists believe that hypnotherapy permits them to help their clients uncover hidden or repressed memories of fears or abuse that will facilitate their cure. In certain cases, police authorities have encouraged the witnesses of crimes to undergo hypnosis to assist them in recovering details that may result in a speedier resolution of a criminal act. Increasing numbers of clinical or lay hypnotists employ hypnosis to explore cases suggestive of past lives or accounts of alien abductions aboard UFOs. There are also show business hypnotists who induce the trance state in their subjects for the general amusement of their audiences.

Skeptical scientists doubt that hypnosis is a true altered state of consciousness and contend that the people who are classified as good subjects by professional or lay hypnotists are really men and women who are highly suggestible, fantasy-prone individuals. While it may be true that some psychologists and hypnotherapists make rather extravagant claims regarding the powers inherent in the hypnotic state, what actually occurs during hypnosis with certain subjects remains difficult either to define or to debunk.

Throughout the ages, tribal shamans, witch doctors, and religious leaders have used hypnosis to heal the sick and to foretell the future. Egyptian papyri more than 3,000 years old describe the use of hypnotic procedures by Egyptian soothsayers and medical practitioners.

In the early 1500s, Swiss physician/alchemist Paracelsus (1493–1541) released his theory of what he called magnetic healing. Paracelsus used magnets to treat disease, believing that magnets, as well as the magnetic influence of heavenly bodies, had therapeutic effects. Magnetic treatment theories went through several stages of evolution and many successive scientists. It was during the latter part of the eighteenth century that Franz Anton Mesmer (1734–1815), acting upon the hypotheses of these predecessors, developed his own theory of "animal magnetism" and hypnosis.

Meditation

Meditation is generally defined as the act of extended thought or contemplation/reflection and is most often associated as being spiritual or devotional in nature. Interest in Eastern religions from the 1960s through the 1980s brought about a vast amount of scientific research regarding the benefits of meditation, which as a result has broadened its definition into two main categories: *mystical* and *secular*. Either type can include any of a variety of disciplines of mind and body, and although the techniques and desired goals of meditation are varied, the results are quite similar and include: achieving a higher state of consciousness, psychic powers, self-discovery, self-improvement, stress reduction, reduced anxiety, spiritual growth, better health, creativity, increased intelligence, and union with the Creator or God. Meditation *itself* doesn't directly provide or guarantee these benefits but somehow is believed to facilitate their cultivation.

Many have said there are only two ways to obtain a mystical state or altered state of consciousness and that is either through drugs or meditation. Hoping to achieve that altered state, there are those who take up meditation as the safe means to the more spectacular psychic experiences of visions, voices, out-of-body experiences, and travelling to an astral realm and to have the mystical "high" without inducing chemicals.

Throughout time, mystics, saints, and gurus have reported these expansive occurrences as commonplace amongst dedicated and longtime meditators; however, most of them caution against entering meditation in order to seek such incidents. Ancient texts caution that whatever the mind meditates on, it eventually takes the shape of or becomes the object habitually dwelled upon.

Zen Buddhism urges meditation practitioners to see the "extraordinary in the ordinary" or the "splendor in the simple" and warns that such mystical, supernatural experiences as those listed above are irrelevant to the process of spiritual development and

should they occur, they should not be given any special attention at all, as the ultimate goal is to achieve the state of nirvana, which is defined as the complete release from all physical limitations of existence.

Although the founder of Buddhism, Siddhartha Gautama, himself found spiritual enlightenment while meditating under a bodhi tree, the Buddhist approach to spiritual awakening does not only consist of meditation but of three ways believed to work together. Those ways are:

1. *Sila* or Purification
2. *Samadhi* or Concentration
3. *Punna* or Insight

Sila, or purification, is simply cleansing the body, mind, spirit. *Samadhi*, or concentration, involves fixing one's mind or attention on a single object that can be any object such as a colored wheel, a candle, reflections on attributes of Buddha or the elements of nature, etc. *Punna*, or insight, doesn't come until the student masters mindfulness of the body, feelings, mind, and mind objects, and even then it is said that there are many states in between that may *trick* one into rapturous states or feelings such as happiness, lucidity and the like, that might make the student believe the state of nirvana has been reached when in fact there may be many other levels yet to be mastered.

Once the three levels are achieved, meditation becomes effortless and consciousness ceases to have a need of any object of any kind, thus all attachments to the material world are severed to the "wakened being." This final stage is said to only be able to last for seven days as the person's pulse, metabolism, and all other physical functions drop so low that death would occur.

The process of meditation, whether spiritual or secular, is most often described as simply being a way of learning to still the mind— to slow it down, enabling one to listen within, to the "voice within." Although most individuals are not aware of the myriad of thoughts and chatter that rampage through the mind like a wild, untamed horse at each and any given moment, that is the challenge—to slow down all thoughts to a single thought or even to no thoughts at all—complete stillness, the unruly beast tamed at last.

Another analogy often used to describe the process of meditation is to compare the human mind to a lake that contains great treasures deep within, but an intense storm agitates

and stirs the waters—clouding the view of the treasures below. Even if an occasional glimpse of the treasures is possible through the windswept waters, the view would be distorted. Here again, to gain mental control and focus is the aim of slowing down the raging storm or the "mental tapes" that continually play in one's head.

Some say that even the descriptions themselves of meditation are a misnomer by definition. Experts say it is not a manipulation of the mind, but a going beyond mind, beyond thought—to the total absence of thought. That "beyond mind" state—much like a calm, clear reflective pool—that not only mirrors the mind's surface, but also reveals its depths. Accomplishing this mental/spiritual state isn't something that occurs in a one-time meditation and sitting; it is an achievement of much discipline and consistency.

In the early 1970s and 1980s, the National Institutes of Health conducted a series of experiments to determine the efficacy of the reported abilities of gurus from India to slow down their heartbeat, pulse rate, and even to raise and lower their body temperature to extremes through meditative states. Medically, this had been considered impossible, as it was believed that the autonomic nervous system was responsible and it could not be manipulated or controlled by mind or thought. Research proved this to be untrue and a whole bevy of human possibilities began to emerge which gave rise to the secular use of meditation.

PSYCHOACTIVE DRUGS

Psychoactive drugs are substances that can alter the consciousness, mood, and thoughts of those who use them. Examples include tobacco, alcohol, cannabis, amphetamines, ecstasy, cocaine, and heroin.

Tobacco smoking is spreading rapidly in developing countries and among women. The average consumption of cigarettes is particularly high in Asia and the Far East, with the Americas and Eastern Europe following closely behind. Whereas the consumption of **alcohol** is decreasing in developed countries, it is increasing in countries of the former Soviet Union and in developing countries, especially in the Western Pacific Region. Worldwide, about 200 million people use some type of **illicit drug**, most commonly cannabis, but also others such as amphetamines, opioids, and cocaine. The use of illicit drugs is more frequent among males and younger people. The number of people who inject drugs is also increasing, which contributes to spreading HIV

Psychoactive drugs impose a substantial health burden on society. Tobacco and alcohol in particular are major causes of death and disability in developed countries, and the

impact of tobacco is expected to increase in other parts of the world. Using psychoactive drugs, be it to find pleasure or to avoid pain, can harm health and cause social problems both in the short and longer term. Health effects can include diseases of the liver or the lungs, cancer, deaths and injuries caused by accidents, overdoses, suicide, and assaults. Examples of social effects include arrests, the breaking up of relationships, as well as neglect of work and family duties.

Drug addiction, also referred to as drug dependence, is a disorder of the brain caused by the use of psychoactive drugs. A drug-dependent person may experience cravings for the drug and difficulty in controlling its consumption, suffer from withdrawal symptoms when use of the drug is reduced or discontinued, and need increasing doses of the drug to feel its effects (tolerance). The person may come to neglect other pleasures or interests, spend more and more time getting or using the drug or recovering from it, and persist in using the drug despite clear evidence that it is causing harm.

Psychoactive drugs affect communication between brain cells in certain regions of the brain. For instance, some drugs mimic and others block the effects of naturally occurring molecules that carry specific messages from one brain cell to another (neurotransmitters).

Based on the different ways in which they affect the brain, psychoactive drugs can be divided into four main groups: depressants (e.g., alcohol and sedatives), stimulants (e.g., nicotine and ecstasy), opioids (e.g., morphine and heroin), and hallucinogens (e.g., PCP and LSD). Despite their differences, all of them affect regions of the brain involved in motivation, which plays a role in drug dependence. Drug addiction is more common among people with mental disorders than among the general population. For example, people with mental disorders are more likely to be alcohol dependent at some stage in their lives than people without a mental illness.

Conversely, drug-dependent people are more likely to suffer from mental disorders than non-dependent people. For instance, people who are dependent on alcohol, tobacco, or cocaine are more likely to suffer from depression than non-dependent people. This indicates either a common basis for both afflictions, or an interaction of effects at some level. Drug use may either bring about mental illness, or it may be a way of easing some of the symptoms of a mental disorder or the side effects of medication. Also, since many drugs produce effects typical of some mental illnesses, drug dependence and mental illness may have the same neurobiological causes.

UNIT III: COGNITIVE PROCESSES

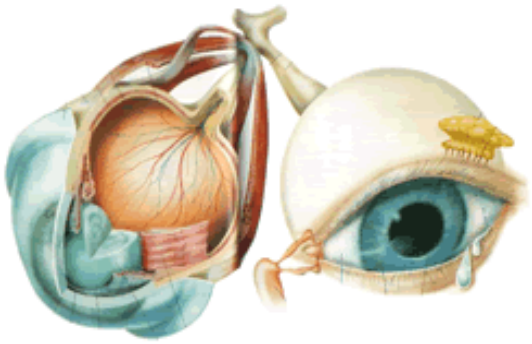
Sensation: Visual, auditory and other senses - Structure and functions - Attention & attentional processes - Perception - Perceptual Organisation - Determinants of perception - Memory and Forgetting

COGNITIVE PROCESSES

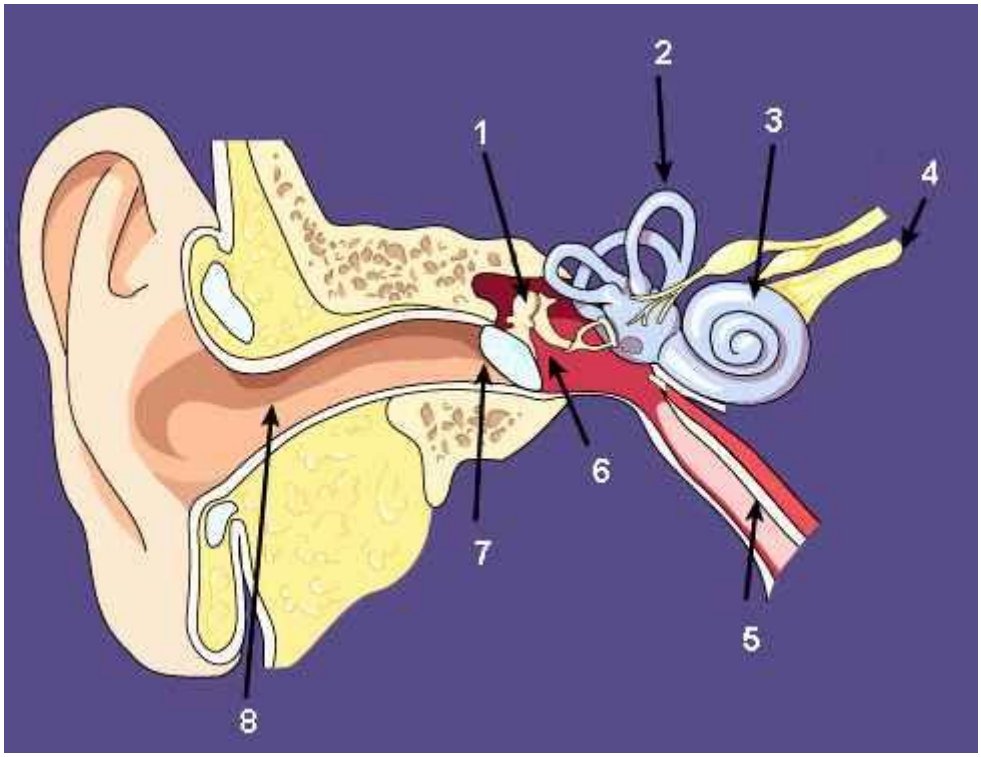
3.0.SENSATION – STRUCTURE AND FUNCTIONS

A knowledge of perception not only allows us to understand ourselves better, but is essential to the design of systems that interact with humans. In this paper I want to review the other senses, taste, smell and touch, which are really the fundamental and ancient ones, and draw some inferences from the similarities and differences between all the senses.

TheAuditoryandVisualSenses



Light enters the front of the eye through the pupil and is focussed by the lens onto the retina. Rod cells on the retina respond to the light and send a message through the optic nerve fibre to the brain.

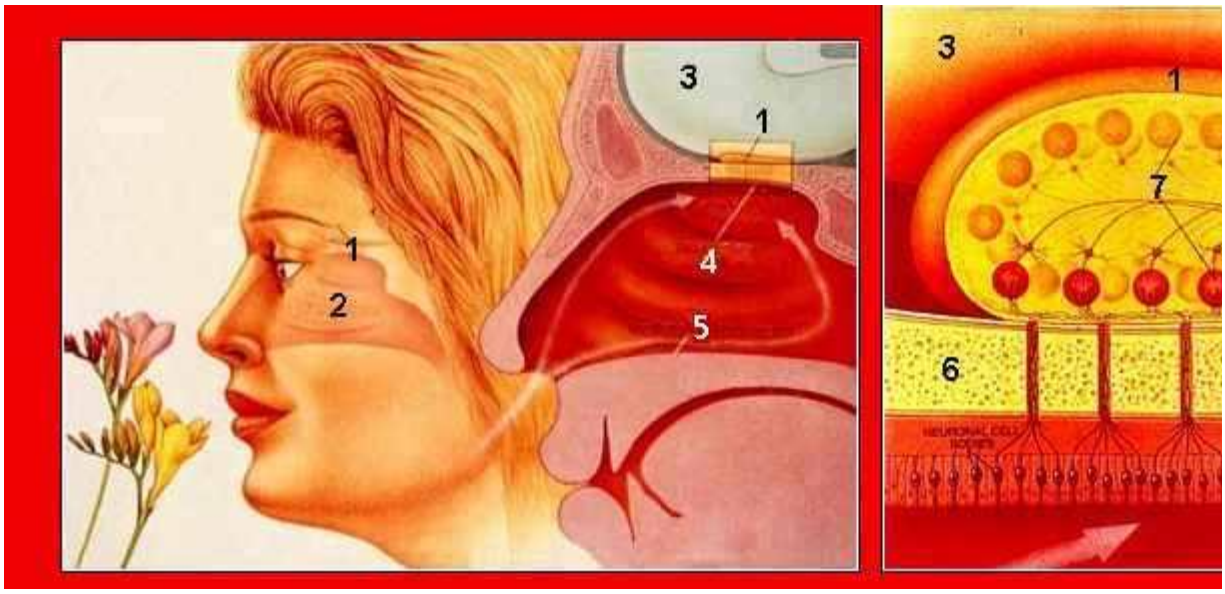


Auditory system 1.Ossicle. 2. Semicircular canal. 3. Cochlea. 4. Auditory nerve 5. Eustachian tube 6.Midle ear. 7. Ear drum 8. External ear canal

Sound waves funnel into the outer ear - the flap of skin and cartilage on the side of the head. They pass along a narrow tube, the ear canal, to a small patch of rubbery skin at its end, the eardrum. The sound waves bounce off the eardrum and make it shake to and fro, or vibrate. The eardrum is connected to a row of three tiny bones linked together, the hammer, anvil and stirrup. The vibrations pass along these bones. The stirrup presses against a small, fluid-filled, snail-shaped part, the cochlea, deep inside the ear. The vibrations pass as ripples into the fluid inside the cochlea. Here, they shake thousands of tiny hairs that stick into the fluid from hair cells. As the hairs shake, the hair cells make nerve signals, which go along the auditory nerve to the hearing centre of the brain.

Seeing and hearing are 'remote' senses that tell us about distant parts of our environment by receiving waves. The other 'contact' senses all involve physical contact with the things that are sensed. They are chemical and mechanical. The chemical senses are the olfactory (smell) and gustatory (taste) sensations.

TheOlfactorySense



Olfactory system. 1. Olfactory bulb. 2. nasal cavity. 3. Brain. 4. Olfactory epithelium 5. Vomeronasal organ. 6. Ions. 7 Glomeruli. *. Axon. 9. To olfactory cortex

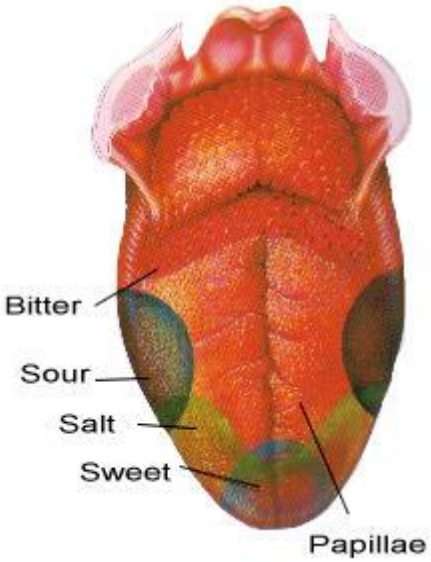
Inside each side of the nose is an air chamber, the nasal cavity. Air comes in through the nostril and flows down, around the rear of the roof of the mouth, into the throat. But when you sniff, air swirls up into the top of the cavity. Here is a small patch of about 10 million specialised olfactory (smelling) cells. They have long micro-hairs, or cilia, sticking out from them. Odour particles in the air stick on to the cilia and make the olfactory cells produce nerve signals, which travel to the olfactory bulb. This is a pre-processing centre that partly sorts the signals before they go along the olfactory tract to the brain where they are

The olfactory sensors are located in yellow pigmented areas on each side of the inner nose. These areas are about 2.5 cm^2 in area each, and contain *chemoreceptors*, which are nerve cells responding to certain chemicals that are carried to the sensors as gases. The detailed functioning of these cells does not appear to be known. The axons of these nerves apparently are received in *olfactory bulbs* under the front part of the brain, on both sides. Here there are *glomeruli*, each receiving signals from some 26 000 receptors. The olfactory bulbs on either side are cross-connected. Finally nerve fibres reach the olfactory areas in the anterior lobes of the brain. The types of olfactory sensations are given as fruity, flowery, resinous, spicy, foul, and burned. The olfactory sense is some 10 000 times as sensitive as taste, and is primarily responsible for the flavours of food. There is strong adaptation, in which one soon becomes accustomed to an odour and unaware of it, as well as masking of one odour by another, the theory of perfume. An increase of some 20% in concentration is necessary to cause a perceptible increase in the strength of the perception.

In insects, the olfactory sense seems to be located on the antennae. Snakes and lizards possess a *Jacobson's organ* in the front of the mouth that is directly connected to the olfactory centre in the brain. The flicking tongue transfers scents to this organ for analysis. Scents seem to have a strong influence on the social interactions of all kinds of animals, from bees and ants to the sexual *pheromones* of mammals. Birds have a well-developed olfactory sense, which was not appreciated until recently. The scents and colours of flowers are probably not accidental, nor designed for our pleasure, but for very practical purposes of identification by co-operating insects.

Dr Le Fanu, in the Sunday Telegraph (21 May 2000) comments on how vigorously an odour calls up memory. Smell is the only sense with direct access to the amygdala, the 'emotional centre' of the brain. It is a double sense, like seeing and hearing, and the two nostrils control the relative rate of air flow between them to receive slightly different chemical signatures, which allows finer discrimination of odours. The receptors also saturate or accommodate, and this is traded side for side, so that a sensitive receptor is always available.

TheGustatorySense



The tongue is covered with dozens of pimple-like projections called papillae. These grip and move food when you chew. Around the sides of the papillae are about 10,000 microscopic taste buds. Different parts of the tongue are sensitive to different flavours: sweet, salt, sour and bitter.

The gustatory sense is mediated by *taste buds*, small onion-shaped bags on the papillae of the tongue and elsewhere that contain 50 to 75 sensitive cells each. Liquids can pass through a small *pore* to reach the sensitive cells. Remarkably, the taste-sensitive cells have a limited lifetime, and are constantly being replaced. The kinds of taste sensation are usually termed sweet and sour, located on the tongue, and sour and bitter, located on the roof and back of the mouth. The "tongue map" so often seen is erroneous, a result of the passion in physiologists for creating spatial specialization where there is none ("brain maps" are a similar delusion). The lingual papillae are quite a various gang, including filliform that are touch sensors, and fungiform, foliate and circumvallate, active in taste. The name of the latter, which are at the rear of the tongue, is misinterpreted in Reference 1 as "wall-like" when really it means "surrounded by a ditch," which they so obviously are.

The taste fibres proceed along several pathways to the *medulla oblongata* or *brain stem*, then to the *thalamus*, and finally to the taste area on the anterior cortex. There are synaptic connections between neighbouring cells, as in the case of vision and hearing. The taste sense exhibits adaptation and masking, like the other senses. Taste and smell are not reliable guides to poisons, only to identification of known substances. Some quite innocuous substances taste terrible, while some poisons can taste delightful. Lead acetate, or sugar of lead, tastes pleasantly sweet, but is a powerful cumulative poison. The aromatic compounds benzene and toluene are fragrant, but benzene is dangerously carcinogenic, while toluene is relatively safe. The chemical senses are sometimes associated with vivid mental images and recollections, showing an unexpected connection to higher mental processes.

TheTouchSense

Touch is one aspect of the important and varied *mechanoreceptive* senses. Touch, posture or kinesthetic sense, the vestibular or equilibrium sense, and sound all involve sensitive cells that react to a mechanical stimulus. Deformation of the cell causes a change in electric potentials and the initiation of a nerve impulse. Many of these cells have tactile hairs, such as the hair cells of the semicircular canals and the cochlea. Mammals, notably cats, have *vibrissae*, 'whiskers', that are very sensitive. Subcutaneous receptors, another kind of sensor, seem to possess sensitive nerve endings. Clusters of such receptors make up the *pain spots* that differ in density over the skin. Two prongs 2 mm apart can be separately detected on the fingertip, but not on the back. The tip of the tongue has some 200 such points per square centimetre, and can detect two points only 1 mm apart. Fishes have a *lateral line* down their sides that is a very sensitive touch organ, capable of detecting pressure pulses before actual contact takes place. Other receptors are sensitive to heat. Many

touch organs communicate with ganglia in the spinal cord, and may be part of a *reflex arc* that does not involve processing by the brain.

Although touch may seem to involve less mental processing than the other senses, large volumes of the brain are associated with parts of the body, and touch may play a large role, especially in learning and memory. The sensation of pain is closely related to touch, but is obviously a subjective perception like those of sound and vision, involving higher mental processes and consciousness. There is an important sense of equilibrium that uses the semicircular canals in the ear to detect motions of the head, that partly has an involuntary output, as well as an effect on conciousness. The contact senses are important in the development of the infant, especially the visual sense. I believe that motions of the hand and fingers aid learning and the memory. Touch is also subject to 'illusions' that show mental processing is involved. The best-known is probably the pencil between crossed fingers, that is sensed as two pencils. Temperature is often wrongly judged, the sensation depending on contrasts and comparisons. Objects of different materials but at the same temperature may feel variously cooler or warmer.

Studying the Senses

Our knowledge of all the senses is very incomplete and unsatisfactory, especially with regard to the neural and mental processes that are an essential, perhaps the major, keys to understanding consciousness. Anatomical and physiological knowledge of the structures of the nervous system is detailed and rather complete, but furnishes only the slightest clues to the operation of the senses. Empirical knowledge of how the senses behave is extensive, but it only describes and does not explain. There seem to be few areas of modern science so important and interesting to us in which the fundamental knowledge is so incomplete. The senses should not be studied in isolation from one another, since there are surprising connections as the result of the mental processes of consciousness. The senses do not interact solely with consciousness, but also with subconscious and involuntary responses to the environment.

Most of the sensory cells seem to be descended from ciliated primitive cells that would have been unusually active and became included in associations to take advantage of their responsiveness. The rod and cone cells of the retina have lost all apparent characteristics of these primitive sensory cells except perhaps the overall shape, while the chemical and

mechanical sensors retain cilia and hairs because of their functionality. The nerve impulses from these cells do not reach the brain directly, but only through many synaptic connections involving cross connections, coding and processing, that result in complex messages carried by far fewer fibres. These trunk nerves enter intermediate bodies, with connections to both hemispheres of the brain, and pass on their signals to further bundles of fibres to distribute the signals to the cortex and the centres of consciousness, wherever they may be. Sensory perception will not be understood until all these pathways are elucidated. There are no simple senses that directly interact with consciousness. The two hemispheres of the brain appear to share sensory information equally and impartially. In vision and hearing, both halves of the brain are essential to the complete sensation. There is no support whatsoever for the view that there are two brains with different characteristics as far as the senses are involved. The senses also involve the central and old parts of the brain, the brain stem and its associated regions. Consciousness is probably located here, not in the peripheral cortex that seems chiefly devoted to information storage. Simpler psychologists so want the large cortex to be what confers humanity and consciousness that conflicting evidence is overlooked. The functioning of the brain will never be revealed by the scalpel, balance and microelectrode.

The senses cannot be understood except by careful separation of the physical and objective stimulus from the mental and subjective perception. We cannot be directly aware of the properties and qualities of external objects, though our language and thinking often identifies an object with its perception. An object cannot, of itself, be red, nor a solution of sugar sweet: these are essential perceptions within ourselves, not properties of matter.

All the senses appear to depend more or less on differences between the states of neighbouring sensors. This is strongest in the visual and aural senses, perhaps weakest in touch, but even here the co-operation of several neighbouring cells is probably necessary to launch a sensation. All senses have the widest dynamic range possible, which is greatest in hearing, and least in touch or taste, made possible by a logarithmic response. All senses communicate only by electrical pulses travelling down nerve axons, and are subject to noise. All senses exhibit *adaptation*, in which a continued steady stimulus has an effect decreasing with time, as well as *masking*, in which one stimulus increases the threshold for the detection of another. There is no straightforward, universal connection between the intensity of a stimulus and the strength of its perception. Sensation can judge equality with some precision, but ratios cannot be accurately estimated, even approximately.

Another common property of the senses is shown by Fechner's Law, first recognized in vision. The psychophysical quantity brightness is related to the physical quantity energy flux or intensity logarithmically, not linearly. If you cast a shadow on a piece of white paper in the moonlight, then turn on a bright electric light, the shadow will disappear, even though the difference in illumination between the shadow and its surroundings does not change. Fechner observed that the delicate shadows and contrasts of a cloud were unchanged when the cloud was observed through a dark glass. Experiment showed that a minimum fractional change in intensity was observed as a just detectable change in brightness over a wide range, though failing for illumination that was too strong or too feeble. The old system of classifying stars by magnitude in a uniform series of equal steps of brightness was found to be logarithmic, the ratio of intensities being about 2.5 in each step. The loudness of a sound has a similar relation to the intensity, and remarkably, so does pitch. The even-tempered scale of frequency ratios of $2^{1/12}$ gives equal steps of pitch, as well as frequency ratios close to those that are found harmonic. Fechner's Law is, of course, approximate and inexact, but still expresses a remarkable property of the senses.

3.2. ATTENTION AND ATTENTIONAL PROCESSES

Definition of Attention

Attention is a topic that has been studied often by cognitive psychologists. It refers to focusing and processing information from our surroundings. While it involves our tending to facets of our environment, the nature of our attention can vary from event to event. There are four main types of attention that we use in our daily lives: selective attention, divided attention, sustained attention, and executive attention.

Types of Attention

Selective attention

Have you ever been at a loud concert or a busy restaurant, and you are trying to listen to the person you are with? While it can be hard to hear every word, you can usually pick up most of the conversation if you're trying hard enough. This is because you are choosing to focus on this one person's voice, as opposed to say, the people speaking around you. **Selective attention** takes place when we block out certain features of our environment and focus on one particular feature, like the conversation you are having with your friend.

Divided attention

Do you ever do two things at once? If you're like most people, you do that a lot. Maybe you talk to a friend on the phone while you're straightening up the house. Nowadays,

there are people everywhere texting on their phones while they're spending time with someone. When we are paying attention to two things at once, we are using **divided attention**.

Some instances of divided attention are easier to manage than others. For example, straightening up the home while talking on the phone may not be hard if there's not much of a mess to focus on. Texting while you are trying to talk to someone in front of you, however, is much more difficult. Both age and the degree to which you are accustomed to dividing your attention make a difference in how adept at it you are.

Sustained attention

Are you someone who can work at one task for a long time? If you are, you are good at using **sustained attention**. This happens when we can concentrate on a task, event, or feature in our environment for a prolonged period of time. Think about people you have watched who spend a lot of time working on a project, like painting or even listening intently to another share their story.

Sustained attention is also commonly referred to as one's attention span. It takes place when we can continually focus on one thing happening, rather than losing focus and having to keep bringing it back. People can get better at sustained attention as they practice it.

Executive attention

Do you feel able to focus intently enough to create goals and monitor your progress? If you are inclined to do these things, you are displaying executive attention. **Executive attention** is particularly good at blocking out unimportant features of the environment and attending to what really matters. It is the attention we use when we are making steps toward a particular end.

For example, maybe you need to finish a research project by the end of the day. You might start by making a plan, or you might jump into it and attack different parts of it as they come. You keep track of what you've done, what more you have to do, and how you are progressing. You are focusing on these things in order to reach the goal of a finished research paper. That is using your executive attention.

Attention Changes in Life

Researchers have studied how attention changes over our lifetime, especially our sustained attention. Lucy is five years old. Her mother puts Barney on the television for her while she makes lunch in the kitchen. Her mother hopes that Lucy will stay interested and seated long enough for her to finish up. But as usual, Lucy is not able to stay focused for

more than 15 minutes. At first, she was mesmerized with the show, but then she loses interest and comes over to tug at her mom.

Lucy's attention span is typical for her age. Researchers tell us that in order to find a child's sustained attention, we should take their age and multiply it by two or three. Then we will have the approximate amount of minutes they can be attentive. Since Lucy is five years old, we take three times five, which equals the fifteen minutes she watched Barney.

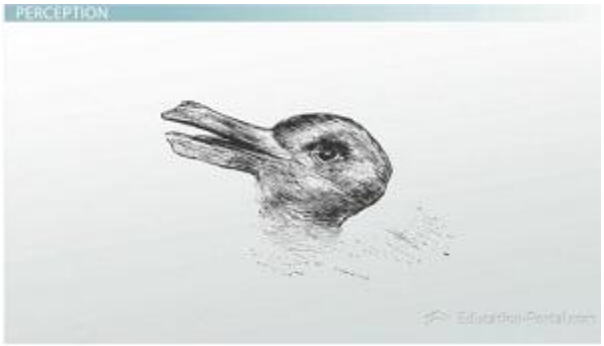
3.3. PERCEPTION

Perception

After an electrical and chemical signal has gone all the way from a sensory neuron to the brain, perception occurs. **Perception** is when your brain transforms sensory experiences into meaningful ideas that can be processed and understood.

For example, when something touches your skin, the process of sensation sends a signal to your brain, but perception is when you realize what just happened. What is it that touched you? Was it something gentle, like a feather? Was it something hot, burning you? What part of your body was touched? Another example of perception is with vision. On the sensation level, all that happens is that the rods and cones inside your eyeball process light and color. But on the perception level, your brain recognizes images, such as what your mother looks like compared to your cat or when you look inside your fridge to decide what to eat. Perception is when your mind decides what just happened to you, and what it means.

The sensation and perception processes occur so quickly and automatically that we don't need to consciously think about them or even realize that they're happening. When your mind does something so often that it occurs without your conscious thought process, it's called **automaticity**. We have automaticity for certain well-practiced motions, like how to walk or even how to drive after years of practice. We also have automaticity for sensation and perception. However, this automaticity can lead to certain interesting mistakes, as well.



When viewing this optical illusion, you could perceive the image in different ways

For example, look again at this optical illusion. At first glance, your perception of it might be that you interpret it in one way. However, when you look at it more closely, you can realize that there's another way to see the same image. In the early 1900s, a group of psychologists decided to identify some basic ways that our minds automatically process stimuli. Typically, these tendencies help us understand the world, but sometimes they lead to interesting illusions. These psychologists are called **Gestalt psychologists**, and they identified several rules or principles of perception organization. The word *Gestalt* can be translated as *essence*, or sometimes people refer to the Gestalt idea using the phrase, 'The whole is greater than the sum of its parts.' The rules identified by the Gestalt psychologists are usually called the **Gestalt principles of organization**.

Principles of Perceptual Organisation:

William James American psychologist has said if we understand the world as it appears to us, it will be a big booming- buzzing confusion. Hence, we do not see the things as they appear, but we see them as we want, i.e. more meaningfully.

In perceptual process we select a particular stimulus with our attention and interpret it. In the same way whenever it is necessary many discrete stimuli in our visual field are organised into a form and perceived more meaningfully than they appear.

This phenomenon was well explained by Gestalt psychologists. They believed that the brain creates a coherent perceptual experience by perceiving a stimulus as a whole than perceiving discrete entities. This is more meaningfully stated in the gestalt principle as 'the whole is better than sum total of its parts'. This is explained under many sub-principles of perception.

Figure-ground Relationship:

According to this principle any figure can be perceived more meaningfully in a background and that figure cannot be separated from that background. For example, letters written with a white chalk piece are perceived clearly in the background of a blackboard.

Fig. 3.2: Reversible configurations

In the Figure 3.2, two faces can be seen in the background of a white colour. So also the white background can be perceived as a vessel in the background of two faces.

Grouping of Stimuli in Perceptual Organisation

As said above, according to gestalt principle, the objects can be perceived meaningfully when they are grouped together. There are some principles which are followed by us in order to make our perception more meaningful.

They are as follows:

a. Proximity:

Proximity means nearness. The objects which are nearer to each other can be perceived meaningfully by grouping them. For example, the word 'Man', here though the letters are discrete, when grouped together gives some meaning. The stars in the Figure 3.3 which are nearer to each other are perceived together as groups/single figure.

Fig. 3.3: Proximity

b. Similarity:

Stimuli need not be nearer to each other for perception. If there is similarity in these objects, they are grouped together and perceived, even if they are away. For example, in this Figure 3.4 grouping will be done according to similarity, i.e. all circles, squares and triangles are grouped separately.

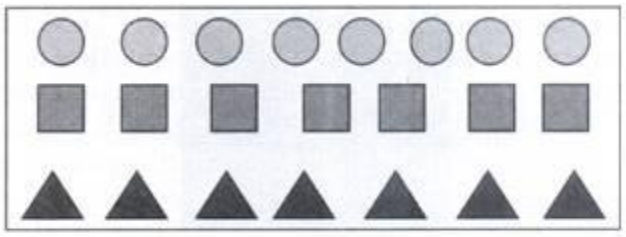
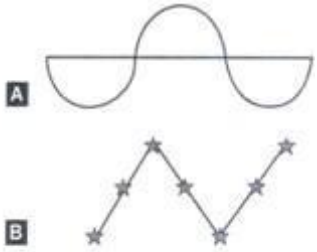


Fig. 3.4: Similarity

c. Continuity:

Any stimulus which extends in the same direction or shape will be perceived as a whole Figure 3.5A and B. For example, (A) in this figure though the curved line is broken, it is perceived as a continuous line, so also straight line is not seen with semicircles but as a

continuous line (B) the dots are perceived as existing in the same line of direction continuously.



Figs 3.5A and B: Continuity

d. Closure:

When a stimulus is presented with gaps, the human tendency is to perceive that figure as complete one by filling the gaps psychologically. For example, in the Figure 3.6, the gaps are filled psychologically and perceived as letters M and A, circle and a rectangle.

Fig. 3.6: Closure

e. Symmetry:

Objects which are having symmetrical shape are perceived as groups. For example, the brackets of different shapes shown in the Figure 3.7 perceived meaningfully, because they are grouped together and perceived as brackets.

Fig. 3.7: Symmetry

Perceptual Constancy:

This refers to stableness in perception. We have a tendency to perceive the objects as relatively stable and unchanging in shape and size, inspite of a change in the image that we receive.

For example, when we see a person from 5′ distance, the size of the image in our eyes differs from the image of the same person from 100′ distance.

Even then we perceive him as the same person. When we see people and houses from the top of hill, the images will be very small like Lillyputs. But we do not get confused by this. We perceive them correctly according to their actual size.

Perceptual constancy depends upon several factors like past experience, expectancy, habits, motivations, cognitive styles, learning, imagination, etc.

Types of perceptual constancy:

There are different types of perceptual constancies. They are shape and size, brightness and colour, size constancy, etc.

Depth Perception:

Ability of a person to perceive the distance is known as depth perception. This is very important ability to judge the distance between us and other people, objects and vehicles moving particularly when we are on roads. This is also known as third dimension. The other two dimensions are left and right, and above and below.

Cues:

Depth perception is possible due to certain cues. These cues help us to understand the distance between one person and the other person or object.

These are of two types:

a. Monocular cues:

These are the cues that can operate when only one eye is looking. Some of such cues are:

Linear perspective:

The distances separating the images of far objects appear to be smaller. For example, imagine that you are standing between railway tracks and looking off into the distance. It appears that the tracks would seem to run closer and closer together at the other end.

Aerial perspective:

The nearer objects appear clearer than the distant objects. For example, a hill in far of distance appears farther away because the details do not seem clearly.

Interposition:

When one object obstructs our view of another, the front one appears nearer than the partly covered one. For example, in the Figure 3.8—the hill which appears full is definitely nearer than the partly seen.

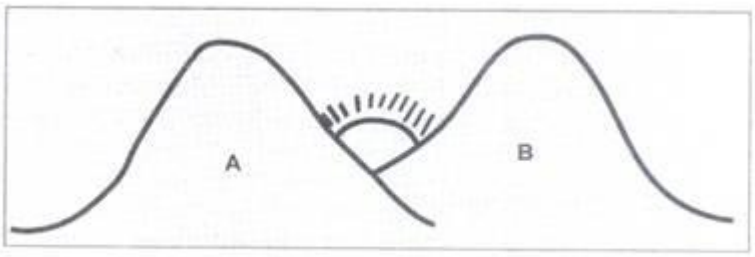


Fig. 3.8: A is positioned infront of B

Gradient structure:

A gradient is a continuous change in something- a change without abrupt transitions. Usually the regions closer to the observer have a coarse texture and many details. As the distance increases, the texture becomes finer and finer.

This happens very gradually and gives a cue about the depth or distance. In Figure 3.9 the structures which are nearer appear larger than the distant one which appear smaller as the move away.

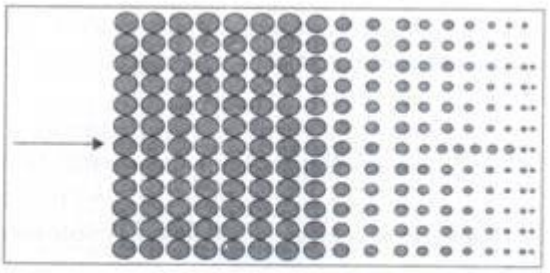


Fig. 3.9: The structures appear larger when closer and smaller as they move away

There are some other monocular cues also viz., movement, shadow, etc.

b. Binocular cues:

Sometimes the depth can be perceived when both eyes are used. This is called binocular cue. There are 2 binocular cues:

1. Retinal disparity:

The image of the object which falls on both the retinas differs. Disparity will be more when the object is closer than when it is far away. Depending upon the correspondence between the distance and the amount of disparity, the depth can be perceived.

2. Convergence or divergence of eyeballs:

When the object moves nearer and nearer to our eyes, our eyeballs converge, and as the object moves away from us the eyeballs diverge. This process acts as a binocular cue to perceive the depth.

Perception of Movement:

When a particular object appears in different places at different times we understand that the object is in movement. This process is called perception of movement. Such an ability to perceive movement is gained from birth itself as a natural process.

This is a most important ability. It is only by this ability the organism can understand the world around and can perceive the dangers / threats in the movement, so that it can easily escape from such dangers.

Apparent motion:

Sometimes we perceive that the objects are moving. In fact the objects are stationary, i.e. they will not be moving. Hence the perception of an object which is not moving, as an object moving is an illusion. For example, when we are moving fast in a bus, the trees, plants and other non-moving objects appear to move in the opposite direction.

In the same way, even the movements of figures in a film appear to move, though they remain without movement. Since moving pictures are taken continuously and the film reel is run very fast, it produces a movement feeling called stroboscopic motion or phi phenomenon.

Factors Affecting Perception:

There are individual differences in perceptual abilities. Two people may perceive the same stimulus differently.

The factors affecting the perceptions of people are:

a. Perceptual learning:

Based on past experiences or any special training that we get, every one of us learns to emphasise some sensory inputs and to ignore others. For example, a person who has got training in some occupation like artistry or other skilled jobs can perform better than other untrained people. Experience is the best teacher for such perceptual skills.

For example, blind people identify the people by their voice or by sounds of their footsteps.

b. Mental set:

Set refers to preparedness or readiness to receive some sensory input. Such expectancy keeps the individual prepared with good attention and concentration. For example, when we are expecting the arrival of a train, we listen to its horn or sound even if there is a lot of noise disturbance.

c. Motives and needs:

Our motives and needs will definitely influence our perception. For example, a hungry person is motivated to recognise only the food items among other articles. His attention cannot be directed towards other things until his motive is satisfied.

d. Cognitive styles:

People are said to differ in the ways they characteristically process the information. Every individual will have his or her own way of understanding the situation. It is said that the people who are flexible will have good attention and they are less affected by interfering influences and to be less dominated by internal needs and motives than or people at the constricted end.

Extrasensory Perception (ESP):

Is there any way of knowing about the world in which the information does not come through the senses? Some people believe that is possible. But there are some instances reported by people that they have experienced some perceptions without the aid of their sense organs. Psychologists have named the perception that occurs without sensory stimulation as 'Extrasensory perception' (ESP).

This is otherwise known as sixth sense in common man's view. Some of the common phenomena in ESP are clairvoyance, telepathy, meeting the souls, precognition, psycho-kinesis, reincarnation, etc.

Though research is going on, the researchers are unable to confirm them, because these experiences are not repeatable for verification. In many instances they remain as coincidences.

Errors in Perception:

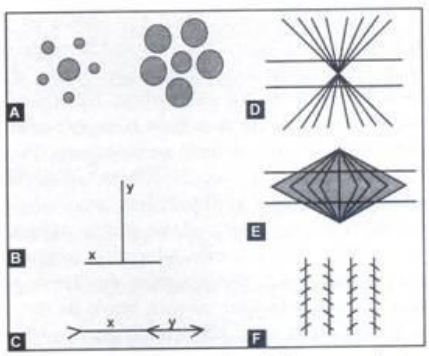
As seen above perception is process of analysing and understanding a stimulus as it is. But it may not be always possible to perceive the stimuli as they are. Knowingly or unknowingly, we mistake the stimulus and perceive it wrongly.

It may be due to defect in our sense organs or defective functioning of the brain. Many times the prejudices in the individual, time of perception, unfavourable background, lack of clarity of stimulus, confusion, conflict in mind and such other factors are responsible for errors in perception. There are two kinds of errors:

a. Illusion:

Illusion is a false perception. Here the person will mistake a stimulus and perceive it wrongly. For example, in the dark, a rope is mistaken as a snake or vice versa. The voice of an unknown person is mistaken as a friend's voice. A person standing at a distance who is not known may be perceived as a known person.

Most of our illusions are visual and auditory. But illusions pertaining to other senses are also possible. See Figure 3.10 for some of the examples of visual illusions.



Figs 3.10A to F: (A) both the circles in the middle are same in size, but appear to vary. (B) Both horizontal and vertical lines are equal in length. (C) Both feather headed and arrow headed lines are equal in length. (D & E) The horizontal lines are straight. (F) The space between vertical lines, is equal

b. Hallucination:

Sometimes we come across instances where the individual perceives some stimulus, even when it is not present. This phenomenon is known as hallucination. The person may see an object, person, etc. or he may listen to some voice though there are no objects and sounds in reality.

Hallucinations pertain to all the sensations appear in people, but visual and auditory hallucinations are more common. Usually persons with unsound mind, emotionally disturbed, alcoholics and those who are in confused states may experience hallucinations. However, among abnormal people and intoxicated persons hallucinations are very common.

In addition to these errors, there are some abnormalities in our sense perceptions called anaesthesia (no sensation), hyperesthesia (excessive sensitivity) and paraesthesia (distorted or wrongly localised sensation). In these cases the tactile (skin) sensation is wrongly perceived.

Observation and Nurse:

Good and keen observational ability is an essential characteristic of a nurse. The most important activities of a nurse include observation of changes in pulse, respiration, heart beat and blood pressure because they indicate general condition of a patient. The condition of the postoperative case, the emergency cases also require accurate observation.

Observation involves attention and perception. The nurse should always concentrate her attention on duties.

Distraction of attention may lead to serious consequences like death of a patient. Attention helps to understand the problems of patient. At the same time, accurate perception helps the nurse to have a clear picture of the condition of the patient.

While attending the emergency cases, during operations and other serious conditions accurate perception of the situations help the nurse to deal with the situation in an effective manner.

DETERMINANTS OF PERCEPTION

Determinants of perception are basically divided into two categories:

1. Structural
2. Behavioral

Structural determinants refer to those qualities that stem from the stimulus itself such as its size, shape, color, amount, intensity, continuity, distance, depth etc. Behavioral determinants refer to attention, past experiences, needs, values, learning of a person.

Besides these two basic categories another important determinant of perception is stimulus organization, that is, object arrangement. Perceptual organization is governed by the Gestalt laws of organization: Proximity, Similarity, Closure and Continuity.

3.4.MEMORY AND FORGETTING

Memory

Human memory, like memory in a computer, allows us to store information for later use. In order to do this, however, both the computer and we need to master three processes involved in memory. The first is called encoding; the process we use to transform information so that it can be stores. For a computer this means transferring data into 1’s and 0’s. For us, it means transforming the data into a meaningful form such as an association with an existing memory, an image, or a sound.

Next is the actual storage, which simply means holding onto the information. For this to take place, the computer must physically write the 1' and 0's onto the hard drive. It is very similar for us because it means that a physiological change must occur for the memory to be stored. The final process is called retrieval, which is bringing the memory out of storage and reversing the process of encoding. In other words, return the information to a form similar to what we stored.

The major difference between humans and computers in terms of memory has to do with how the information is stored. For the most part, computers have only two types; permanent storage and permanent deletion. Humans, on the other hand are more complex in that we have three distinct memory storage capabilities (not including permanent deletion). The first is Sensory memory, referring to the information we receive through the senses. This memory is very brief lasting only as much as a few seconds.

Short Term Memory(STM) takes over when the information in our sensory memory is transferred to our consciousness or our awareness (Engle, Cantor, & Carullo, 1993; Laming, 1992). This is the information that is currently active such as reading this page, talking to a friend, or writing a paper. Short term memory can definitely last longer than sensory memory (up to 30 seconds or so), but it still has a very limited capacity. According to research, we can remember approximately 5 to 9 (7 +/- 2) bits of information in our short term memory at any given time (Miller, 1956)

If STM lasts only up to 30 seconds, how do we ever get any work done? Wouldn't we start to lose focus or concentrate about twice every minute? This argument prompted researchers to look at a second phase of STM that is now referred to as Working Memory. Working Memory is the process that takes place when we continually focus on material for longer than STM alone will allow (Baddeley, 1992).

What happens when our short term memory is full and another bit of information enters? Displacement means that the new information will push out part of the old information. Suddenly some one says the area code for that phone number and almost instantly you forget the last two digits of the number. We can further sharpen our short term memory skills, however, by mastering chunking and using rehearsal (which allows us to visualize, hear, say, or even see the information repeatedly and through different senses).

Finally, there is long term memory (LTM), which is most similar to the permanent storage of a computer. Unlike the other two types, LTM is relatively permanent and practically unlimited in terms of its storage capacity. Its been argued that we have enough

space in our LTM to memorize every phone number in the U.S. and still function normally in terms of remembering what we do now. Obviously we don't use even a fraction of this storage space.

There are several subcategories of LTM. First, memories for facts, life events, and information about our environment are stored in declarative memory. This includes semantic memory, factual knowledge like the meaning of words, concepts, and our ability to do math (Lesch & Pollatsek, 1993, Rohrer et al., 1995) and episodic memory, memories for events and situations (Goldringer, 1996; Kliegel & Lindberger, 1993). The second subcategory is often not thought of as memory because it refers to internal, rather than external information. When you brush your teeth, write your name, or scratch your eye, you do this with ease because you previously stored these movements and can recall them with ease. This is referred to as nondeclarative (or implicit) memory. These are memories we have stored due to extensive practice, conditioning, or habits.

Forgetting

Forgetting is the apparent loss or modification of information already encoded and stored in an individual's long term memory. It is a spontaneous or gradual process in which old memories are unable to be recalled from memory storage.

Theories of forgetting include:

- The forgetting curve: Hermann Ebbinghaus
- Retrieval failure theory
- Interference theory
- Motivated forgetting: Sigmund Freud
- Decay theory

Forgetting refers to the inability to retrieve information from a memory store. It does not necessarily mean that the information is forever lost, just that the individual is incapable of retrieving it at that particular time.

The forgetting curve: Hermann Ebbinghaus

Hermann Ebbinghaus proposes that all individuals tend to forget new information in a similar manner, at a similar rate, regardless of its complexity. According to Ebbinghaus' forgetting curve (shown below), most information is forgotten in the initial period of learning, particularly in the first twenty minutes. After about one hour, the majority of information learned has been forgotten. After this period, forgetting occurs at a much slower rate.

Note that the diagram is not to scale.

Forgetting may be due to a number of reasons:

Retrieval failure theory

The retrieval failure theory refers to one's incapacity to utilise internal or external cues to retrieve previously-stored information. That is, whilst the information is stored in memory and is, theoretically, available, the necessary prompts are not present. This is often exemplified by the 'tip-of-the-tongue' phenomenon.

The retrieval failure theory does not appear to apply to procedural memory.

Tip-of-the-tongue (TOT) phenomenon

The tip-of-the-tongue phenomenon is a significant part of the retrieval failure theory. It refers to the sensation where an individual believes that they know the answer or a particular piece of information, but is unable to retrieve it from their memory store. Experiencing this sensation can, understandably, be particularly frustrating.

One theory explaining the TOT phenomenon is that information we sometimes have great difficulty in retrieving was not encoded and/or consolidated in an effective manner.

Limitations of the retrieval failure theory

- Does not apply to procedural memory

Interference theory

The interference theory refers to the sensation of one memory interfering with the retrieval of another memory. The interference theory comes into great relevance when the two memories – the one doing the interfering and the one being interfered with – are similar. There are two parts to the interference theory: proactive interference and retroactive interference.

Proactive interference

Proactive interference refers to a previously-encoded memory interfering with the retrieval of a *more recently* encoded memory. For example, a student who learned Spanish in primary school and French in secondary school (two similar 'romance' languages) may find themselves only being able to remember the Spanish word (and not the French word) for 'red.'

In this case, the previously-encoded information of the Spanish word for 'red' is interfering with the memory of the French word for 'red,' which was encoded at a later date.Younger siblings may be quite accustomed to proactive interference if their parents ever call them the name(s) of their older sibling(s).

Retroactive interference

Conversely, retroactive interference refers to newly-encoded memory interfering with the retrieval of a *less recently* encoded memory. For example, a Year 12 Psychology teacher may consistently call one of their ex-students by the name of a similar-looking student they are currently teaching.

In this case, the newly-encoded information of the name of the current student is interfering with the previously-encoded memory of the name of the old student.

Limitations of the interference theory

- The interference theory is only relevant for declarative memories; it does not apply to procedural memories, which we appear to be capable of retaining regardless of interference
- The methods used to test the theory may be artificial (i.e. conducted in a lab setting, which may skew the results)

Motivated forgetting: Sigmund Freud

It is human nature to try to protect ourselves and our feelings. Motivated forgetting refers to the process of doing just that: consciously or unconsciously blocking out negative, painful or threatening memories. The work of Sigmund Freud has revealed two types of motivated forgetting: repression and suppression.

To remember which of repression and suppression is conscious, and which is unconscious, try thinking of the acronym RUSC:

Repression

Unconscious

Suppression

Conscious.

Repression

Repression refers to the *unconscious* process of blocking negative memories to the point where the individual is blissfully unaware that they exist.

Suppression

Conversely, suppression refers to the *conscious* process of blocking negative memories. In suppression, and individual may entirely ignore or refuse to acknowledge that such memories are real.

Limitations of the motivated forgetting theory

Although the motivated forgetting theory partially explains why we may 'lose' memories, it does not:

- Cater for the possibility of reconstructed or 'false' memories
- Explain why memories may return after being either repressed or suppressed

Decay theory

The decay theory suggest, simply, that our memories may biologically degenerate over time. It results in the incapacity of an individual to retrieve information due to the infrequency of that memory trace's use.

Over time, an individual's central nervous system is likely to slow in effectiveness and efficiency, which affects the quality of memories being stored.

Limitations of the decay theory

- Episodic memories appear to be unaffected

UNIT IV: LEARNING & THOUGHT

Learning: Classical and Operant Conditioning - Basic principles of Conditioning - Verbal Learning - Cognition in Learning - Motivational and cognitive influences on Learning - Observational Learning - Thinking: Problem Solving - Decision Making - Creative thinking – Critical Thinking

LEARNING AND THOUGHT

4.0. LEARNING

Learning can be defined as the process leading to relatively permanent behavioral change or potential behavioral change. In other words, as we learn, we alter the way we perceive our environment, the way we interpret the incoming stimuli, and therefore the way we interact, or behave. John B. Watson (1878-1958) was the first to study how the process of learning affects our behavior, and he formed the school of thought known as Behaviorism. The central idea behind behaviorism is that only observable behaviors are worthy of research since other abstraction such as a person's mood or thoughts are too subjective. This belief was dominant in psychological research in the United Stated for a good 50 years.

Perhaps the most well known Behaviorist is B. F. Skinner (1904-1990). Skinner followed much of Watson's research and findings, but believed that internal states could influence behavior just as external stimuli. He is considered to be a Radical Behaviorist because of this belief, although nowadays it is believed that both internal and external stimuli influence our behavior.

Behavioral Psychology is basically interested in how our behavior results from the stimuli both in the environment and within ourselves. They study, often in minute detail, the behaviors we exhibit while controlling for as many other variables as possible. Often a grueling process, but results have helped us learn a great deal about our behaviors, the effect our environment has on us, how we learn new behaviors, and what motivates us to change or remain the same.

4.1.CLASSICAL AND OPERANT CONDITIONING

Classical Conditioning

One important type of learning, Classical Conditioning, was actually discovered accidentally by Ivan Pavlov (1849-1936). Pavlov was a Russian physiologist who discovered this phenomenon while doing research on digestion. His research was aimed at better understanding the digestive patterns in dogs. During his experiments, he would put meat powder in the mouths of dogs who had tubes inserted into various organs to measure bodily

responses. What he discovered was that the dogs began to salivate before the meat powder was presented to them. Then, the dogs began to salivate as soon as the person feeding them would enter the room. He soon began to gain interest in this phenomenon and abandoned his digestion research in favor of his now famous Classical Conditioning study.

Basically, the findings support the idea that we develop responses to certain stimuli that are not naturally occurring. When we touch a hot stove, our reflex pulls our hand back. It does this instinctually, no learning involved. It is merely a survival instinct. But why now do some people, after getting burned, pull their hands back even when the stove is not turned on? Pavlov discovered that we make associations which cause us to generalize our response to one stimuli onto a neutral stimuli it is paired with. In other words, hot burner = ouch, stove = burner, therefore, stove = ouch.

Pavlov began pairing a bell sound with the meat powder and found that even when the meat powder was not presented, the dog would eventually begin to salivate after hearing the bell. Since the meat powder naturally results in salivation, these two variables are called the unconditioned stimulus (UCS) and the unconditioned response (UCR), respectively. The bell and salivation are not naturally occurring; the dog was conditioned to respond to the bell. Therefore, the bell is considered the conditioned stimulus (CS), and the salivation to the bell, the conditioned response (CR).

Many of our behaviors today are shaped by the pairing of stimuli. Have you ever noticed that certain stimuli, such as the smell of a cologne or perfume, a certain song, a specific day of the year, results in fairly intense emotions? It's not that the smell or the song are the cause of the emotion, but rather what that smell or song has been paired with…perhaps an ex-boyfriend or ex-girlfriend, the death of a loved one, or maybe the day you met you current husband or wife. We make these associations all the time and often don't realize the power that these connections or pairings have on us. But, in fact, we have been classically conditioned.

Operant Conditioning

Another type of learning, very similar to that discussed above, is called Operant Conditioning. The term "Operant" refers to how an organism operates on the environment, and hence, operant conditioning comes from how we respond to what is presented to us in our environment. It can be thought of as learning due to the natural consequences of our actions.

Let's explain that a little further. The classic study of Operant Conditioning involved a cat who was placed in a box with only one way out; a specific area of the box had to be pressed in order for the door to open. The cat initially tries to get out of the box because freedom is reinforcing. In its attempt to escape, the area of the box is triggered and the door opens. The cat is now free. Once placed in the box again, the cat will naturally try to remember what it did to escape the previous time and will once again find the area to press. The more the cat is placed back in the box, the quicker it will press that area for its freedom. It has learned, through natural consequences, how to gain the reinforcing freedom.

Operant conditioning involves changing voluntary behaviors. A behavior response is followed by either reinforcement or punishment. Reinforcement following a behavior will cause the behavior to increase, but if behavior is followed by punishment the behavior will decrease.

There are *two types of reinforcement*. **Positive reinforcement** refers to the addition of something positive. Examples would be offering praise or a treat when a desired behavior is displayed. **Negative reinforcement** occurs when something undesirable is removed when a behavior is displayed. Examples of this are taking aspirin to get rid of a headache or doing the dishes to avoid a fight with your roommate.

Because of its name, negative reinforcement is often confused with punishment. The key difference is that negative reinforcement involves the removal of a negative consequence to increase the likelihood of a response. Reinforcement always increases the occurrence of a response, while punishment always decreases the occurrence of a response.

Now, let's think about the example of the kiss again. What would happen if, when you attempted to kiss someone, the person became angry and pushed you away? This would be an example of punishment and would probably decrease the likelihood that you would seek a kiss from the person again.

There are also *two types of punishment* that occur in operant conditioning. **Positive punishment** is the addition of something undesirable. Examples would be a child receiving a spanking or receiving extra chores for misbehaving. The other type of punishment is negative punishment. **Negative punishment** is the removal of something pleasing. Examples would be a child being placed in timeout or losing video game privileges for misbehavior.

Reinforcement

The term reinforce means to strengthen, and is used in psychology to refer to anything stimulus which strengthens or increases the probability of a specific response. For example, if you want your dog to sit on command, you may give him a treat every time he sits for you. The dog will eventually come to understand that sitting when told to will result in a treat. This treat is reinforcing because he likes it and will result in him sitting when instructed to do so.

This is a simple description of a reinforcer (Skinner, 1938), the treat, which increases the response, sitting. We all apply reinforcers everyday, most of the time without even realizing we are doing it. You may tell your child "good job" after he or she cleans their room; perhaps you tell your partner how good he or she look when they dress up; or maybe you got a raise at work after doing a great job on a project. All of these things increase the probability that the same response will be repeated.

There are four types of reinforcement: positive, negative, punishment, and extinction. We'll discuss each of these and give examples.

Positive Reinforcement - The examples above describe what is referred to as positive reinforcement. Think of it as adding something in order to increase a response. For example, adding a treat will increase the response of sitting; adding praise will increase the chances of your child cleaning his or her room. The most common types of positive reinforcement or praise and rewards, and most of us have experienced this as both the giver and receiver.

Negative Reinforcement - Think of negative reinforcement as taking something negative away in order to increase a response. Imagine a teenager who is nagged by his mother to take out the garbage week after week. After complaining to his friends about the nagging, he finally one day performs the task and to his amazement, the nagging stops. The elimination of this negative stimulus is reinforcing and will likely increase the chances that he will take out the garbage next week.

Punishment - Punishment refers to adding something aversive in order to decrease a behavior. The most common example of this is disciplining (e.g. spanking) a child for misbehaving. The reason we do this is because the child begins to associate being punished with the negative behavior. The punishment is not liked and therefore to avoid it, he or she will stop behaving in that manner.

Extinction - When you remove something in order to decrease a behavior, this is called extinction. You are taking something away so that a response is decreased.

Research has found positive reinforcement is the most powerful of any of these. Adding a positive to increase a response not only works better, but allows both parties to focus on the positive aspects of the situation. Punishment, when applied immediately following the negative behavior can be effective, but results in extinction when it is not applied consistently. Punishment can also invoke other negative responses such as anger and resentment.

Reinforcement Schedules

Know that we understand the four types of reinforcement, we need to understand how and when these are applied (Ferster & Skinner, 1957). For example, do we apply the positive reinforcement every time a child does something positive? Do we punish a child every time he does something negative? To answer these questions, you need to understand the schedules of reinforcement.

Applying one of the four types of reinforcement every time the behavior occurs (getting a raise after every successful project or getting spanked after every negative behavior) is called a Continuous Schedule. Its continuous because the application occurs after every project, behavior, etc. This is the best approach when using punishment. Inconsistencies in the punishment of children often results in confusion and resentment. A problem with this schedule is that we are not always present when a behavior occurs or may not be able to apply the punishment.

There are two types of continuous schedules:

Fixed Ratio - A fixed ratio schedule refers to applying the reinforcement after a specific number of behaviors. Spanking a child if you have to ask him three times to clean his room is an example. The problem is that the child (or anyone for that matter) will begin to realize that he can get away with two requests before he has to act. Therefore, the behavior does not tend to change until right before the preset number.

Fixed Interval - Applying the reinforcer after a specific amount of time is referred to as a fixed interval schedule. An example might be getting a raise every year and not in between. A major problem with this schedule is that people tend to improve their performance right before the time period expires so as to “look good” when the review comes

around.When reinforcement is applied on an irregular basis, they are called variable schedules.

Variable Ratio - This refers to applying a reinforcer after a variable number of responses. Variable ratio schedules have been found to work best under many circumstances and knowing an example will explain why. Imagine walking into a casino and heading for the slot machines. After the third coin you put in, you get two back. Two more and you get three back. Another five coins and you receive two more back. How difficult is it to stop playing?

Variable Interval - Reinforcing someone after a variable amount of time is the final schedule. If you have a boss who checks your work periodically, you understand the power of this schedule. Because you don't know when the next 'check-up' might come, you have to be working hard at all times in order to be ready.

In this sense, the variable schedules are more powerful and result in more consistent behaviors. This may not be as true for punishment since consistency in the application is so important, but for all other types of reinforcement they tend to result in stronger responses.

4.2.VERBAL LEARNING

I. GENERAL ISSUES

A. Verbal Learning is typically associated with the memorization and retention of lists of words, in order to describe basic elements of associative learning.

B. Verbal learning tends to involve more than just the memorization of words.

1. Many stimuli such as pictures, odors, locations, etc. can be studied

2. The types of mental events that occur in verbal learning studies go beyond passive memorization, as learners can play a very active role in manipulating experimental stimuli.

II. THE EBBINGHAUS LEGACY

A. Early work on verbal learning--Herman Ebbinghaus.

B. Ebbinghaus served as his own subject, and his procedure involved the serial learning of nonsense syllables.

1. Ebbinghaus would memorize lists of these syllables until he could recall them perfectly, setting different accuracy criteria for different experiments.

C. Savings-- comparing the number of trials required to learn a list during an initial session to the number of trials required during a second session.

D. Forgetting curve--the amount of forgetting that occurs immediately after learning is substantial, but after that initial drop in performance, memory loss is very gradual.

III. SERIAL LEARNING

A. Serial Learning involves having subjects learn a list of items according to the order in which the items appear in the list.

B. Serial Position Effect-- lower recall error rates for the first (primacy effect) and last few (recency effect) items on the list, with higher recall error rates for items appearing in the middle of the list.

1. Starting and ending points may possess some type of distinctiveness to set them apart from the rest of the list.

2. Early and late items may not have to compete as much for rehearsal resources as the middle items.

3. Middle items have more of a likelihood of being interfered with from earlier and later items, while the initial and terminal items do not have to face as much interference.

4. Some have argued that the serial position effect is due to the working of different memory systems.

IV. PAIRED ASSOCIATE LEARNING

A. Paired Associate (PA) learning involves having 2 items (a Stimulus and Response item) paired as stimuli (e.g., BOAT-CHAIR)

B. When the items pairs are committed to memory, the presentation of the first word (the stimulus word) should evoke the second word (the response word). So presenting BOAT should elicit a response of CHAIR.

C. Certain difficulties can arise in PA learning.

1. If the items used as Stimulus words in a PA task are too similar, discrimination ability decreases, leading to errors in recall. *boat-dog, barge- table , canoe-light*

2. Learning of Response items--Meaningful responses are learned easier than non-meaningful responses.

verde- ____ is easier than green- _____

3. The connections between individual stimulus and response items is also mediated by certain factors.

a. Preexisting associations between the stimulus and response items can either help or hinder the association process. *pre-existing table-kitchen, whistle-train make it more difficult to learn table-train, whistle-kitchen*

b. Cognitive Elaboration can aid in the association process. The Relationship Construction Hypothesis suggests that increasing the number of connections between items to be remembered can also aid recall; (e.g., pictorial and verbal representation of a stimulus is better than either of these alone. *table-aardvark*

c. Associations between stimulus and response items also tend to move only in the forward direction

if learn *baby-boy*, may not get *boy-*_____

D. An important application of paired-associate learning involves language acquisition—in particular, learning foreign languages.

V. FREE RECALL

A. Free Recall is very unstructured; one can recall words in any order they'd like.

B. Although different from serial learning, free recall tasks will also show a serial position effect similar to that obtained with serial learning.

C. In addition, recall is mediated by several factors.

1. The more an item is rehearsed, the greater the likelihood that the item will be recalled.

2. Organizing to-be-recalled information into some type of meaningful system also enhances recall ability. Some organizational heuristics:

a. Associative Clustering involves putting presented stimuli together in a manner that utilizes preexisting associations. *black, table, stop, white, chair, go*

b. Categorical Clustering--breaking a large number of specific words down into several smaller groups organized by conceptual similarity, such as COLORS, ANIMALS, PLANTS, etc. *daisy, red, pansy, black, aqua, rose*

c. Subjective Organization involves using idiosyncratic associations that are relevant only to individuals.

VI. RELATIONSHIPS AMONG THE SEVERAL TASKS

A. The evidence that has been collected on the different verbal learning tasks suggests that verbal learning is not a single process--many different strategies result in verbal learning.

B. Research shows that if one wants to obtain a valid representation of one's memory skills, different tests must be used to tap different memory abilities.

VII. APPLICATION: MNEMONICS

A. Mnemonic devices are different methodologies to aid in the encoding and retrieval of information.

B. Acronym mnemonics--list of initial letters of critical words that allows one to retrieve information (e.g., representing the Great Lakes as HOMES).

C. Another general class of mnemonics are referred to as Keyword Mnemonics.

1. The Keyword Method involves a type of paired-associate learning, where a mediating word is used to associate two to-be-remembered items.

2. The Narrative Story Method involves creating a story that contains all of the words in a to-be-remembered list.

D. Imagery Mnemonics are another way to learn critical information.

1. The Method of Loci

2. The Peg Word Method

4.3.COGNITION IN LEARNING

COGNITION

We've all seen a classroom of students sitting and watching their teacher impart upon them the ancient wisdom of their elders (or teaching them state capitals; both are important). Did you ever wonder what was going on inside their heads? Just how does the information they are taking in become actual knowledge? Well, wonder no more, because today we're going to walk through the process of how we learn through cognition.

The first thing we need to do is define two key words: cognition and learning. **Cognition** is the process of acquiring and understanding knowledge through our thoughts,

experiences, and senses. **Learning** involves acquiring knowledge through experience, study, or being taught. If you think that these two concepts are awfully similar, you're right. Both are inexorably linked - learning requires cognition and cognition involves learning. Whenever you see or hear something new, you go through a series of **cognitive processes**, which are the processes that result in learning.

The Different Cognitive Processes

The first step in the cognitive learning process is attention. In order to begin learning, a student must be paying attention to what they are experiencing. As anyone who has been in a class full of children knows, attention isn't unlimited and can be quite fleeting. Educational psychologists have come to the conclusion that the average person can hold approximately two or three learned tasks in their attention at the same time. This means that if you are trying to dust and vacuum simultaneously you may be able to pull it off, but throw in eating a sandwich and odds are good you'll take a bite out of your duster and smear lunchmeat on the walls.

We also know the average person can only attend to one complex task at a time. Trying to drive and do long division? Not going to happen. Talk on the phone while waltzing? Unlikely. In case you're wondering, this is also a compelling reason to not talk on the phone and drive - you just don't have enough attention to do each task completely.

Next, the information that you are paying attention to has to be put into memory in a process called storage. There are three levels of memory through which information must travel to be truly learned. Let's say that for the first time you hear that the capital of the state of Oregon is Salem. This information is now in your **sensory register**, which holds everything you are exposed to for just a second or two. By the end of this sentence, you may have already forgotten the capital of Oregon.

If you pay attention and reread the sentence, however, that information will move from the sensory register into **short-term memory**. This area of your memory will hold information anywhere from 20 seconds up to a minute. If you rehearse the information, such as repeating it to yourself, taking notes or studying it, it has the chance to move to your **long-term memory**. This area will hold information indefinitely and has an unlimited capacity. The challenge, as we shall see, can be in finding things in there.

Now that you've paid attention and moved the information into memory, it's important that your brain organize this information so it can be retrieved later. **Encoding** can work

through a number of processes, such as developing verbal mnemonics or the delightfully named method of loci, but the ultimate goal is to assign a specific meaning to something you have learned. The mnemonic for remembering the planet's order comes to mind: 'My Very Educated Mother Just Served Us Nachos.' Remember this and you can quickly recall the names and order of all the planets. **Retrieval** goes hand-in-hand with encoding by simply reversing the process of encoding. If you want to remember which planet is fourth from the sun, just run through your mnemonic and you have your answer. Since the fourth word is mother, the fourth planet is Mars!

Cognitive Learning Theories

No discussion of cognition and learning would be complete without at least a brief mention of two of the main theories behind cognition in learning. One of the oldest theories comes from psychologist Jean Piaget, who based much of his work on studying his own children as they developed. Piaget was a **constructivist**, which is to say that he believed all knowledge is built like you would build anything, piece by piece. The pieces Piaget used were referred to as schemata (the plural for schema), which represent anything one might know, from an object to a process. He theorized that children learn by encountering new information and either finding an existing schema into which they can incorporate the new information or constructing a new schema.

For example, a child may encounter a cat for the first time. If the child has a dog, they may refer to the cat as a dog, because in their mind, they have a schema of a dog and the cat is close enough. Four legs? Check. Tail? Check. Furry? Double check. Only when taught that there is a difference between the two can the child create a new schema for cats and differentiate between the two types of animal.

Cognitive Learning Theory implies that the different processes concerning learning can be explained by analyzing the mental processes first. It posits that with effective cognitive processes, learning is easier and new information can be stored in the memory for a long time. On the other hand, ineffective cognitive processes result to learning difficulties that can be seen anytime during the lifetime of an individual.

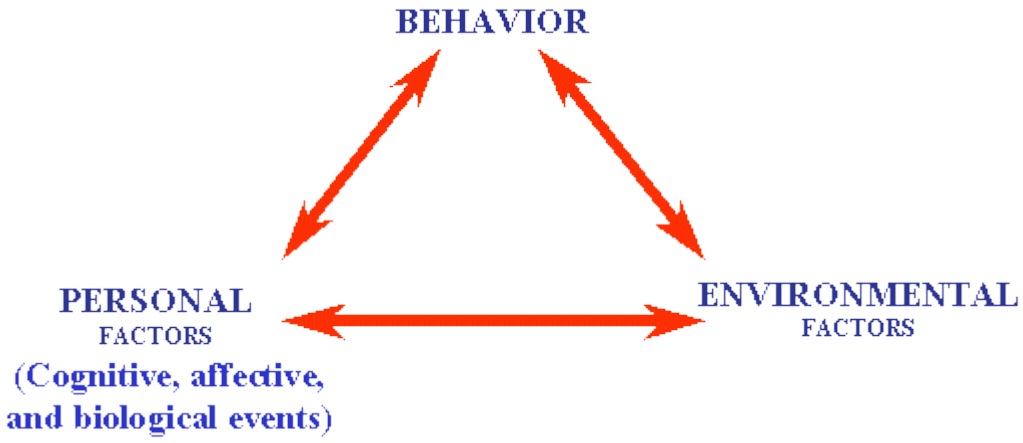
A. Social Cognitive Theory

In the Social Cognitive Theory, we are considering 3 variables:

- behavioral factors

- environmental factors (extrinsic)
- personal factors (intrinsic)

These 3 variables in Social Cognitive Theory are said to be interrelated with each other, causing learning to occur. An individual's personal experience can converge with the behavioral determinants and the environmental factors.



Social Cognitive Theory Illustration (Pajares, 2002)

In the person-environment interaction, human beliefs, ideas and cognitive competencies are modified by external factors such as a supportive parent, stressful environment or a hot climate. In the person-behavior interaction, the cognitive processes of a person affect his behavior; likewise, performance of such behavior can modify the way he thinks. Lastly, the environment-behavior interaction, external factors can alter the way you display the behavior. Also, your behavior can affect and modify your environment. This model clearly implies that for effective and positive learning to occur an individual should have positive personal characteristics, exhibit appropriate behavior and stay in a supportive environment.

In addition, Social Cognitive Theory states that new experiences are to be evaluated by the learner by means of analyzing his past experiences with the same determinants. Learning, therefore, is a result of a thorough evaluation of the present experience versus the past.

Basic Concepts

Social Cognitive Theory includes several basic concepts that can manifest not only in adults but also in infants, children and adolescents.

1. **ObservationalLearning**

   Learning from other people by means of observing them is an effective way of gaining knowledge and altering behavior.

2. **Reproduction**

   The process wherein there is an aim to effectively increase the repeating of a behavior by means of putting the individual in a comfortable environment with readily accessible materials to motivate him to retain the new knowledge and behavior learned and practice them.

3. **Self-efficacy**

   The course wherein the learner improves his newly learned knowledge or behavior by putting it into practice.

4. **Emotionalcoping**

   good coping mechanisms against stressful environment and negative personal characteristics can lead to effective learning, especially in adults.

5. **Self-regulatorycapability**

   ability to control behavior even within an unfavorable environment.

B. Cognitive Behavioral Theory

Cognitive Behavioral Theory describes the role of cognition (knowing) to determining and predicting the behavioral pattern of an individual. This theory was developed by Aaron Beck.The Cognitive Behavioral Theory says that individuals tend to form self-concepts that affect the behavior they display. These concepts can be positive or negative and can be affected by a person's environment.

The Cognitive Triad

Cognitive Behavioral Theory further explains human behavior and learning using the cognitive triad. This triad includes negative thoughts about:

1. The self (i.e., I am rubbish)
2. The world/environment (i.e., the world is irrational)
3. The future (i.e., my future is doomed)

4.4. Motivation Affects Learning and Behavior

Motivation has several effects on students' learning and behavior.

- *Motivation directs behavior toward particular goals*. Motivation determines the specific goals toward which learners strive (Maehr & Meyer, 1997; Pintrich et al., 1993). Thus, it affects the choices students make—for instance, whether to enroll in physics or studio art, whether to spend an evening completing a challenging homework assignment or playing videogames with friends.
- *Motivation leads to increased effort and energy.* Motivation increases the amount of effort and energy that learners expend in activities directly related to their needs and goals (Csikszentmihalyi & Nakamura, 1989; Maehr, 1984; Pintrich et al., 1993). It determines whether they pursue a task enthusiastically and wholeheartedly or apathetically and lackadaisically.
- *Motivation increases initiation of and persistence in activities.* Learners are more likely to begin a task they actually *want* to do. They are also more likely to continue working at it until they've completed it, even if they are occasionally interrupted or frustrated in the process (Larson, 2000; Maehr, 1984; Wigfield, 1994). In general, then, motivation increases students' time on task, an important factor affecting their learning and achievement (Brophy, 1988; Larson, 2000; Wigfield, 1994).
- *Motivation affects cognitive processes.* Motivation affects what learners pay attention to and how effectively they process it (Eccles & Wigfield, 1985; Pintrich & Schunk, 2002; Pugh & Bergin, 2006). For instance, motivated learners often make a concerted effort to truly understand classroom material—to learn it meaningfully—and consider how they might use it in their own lives.
- *Motivation determines which consequences are reinforcing and punishing.* The more learners are motivated to achieve academic success, the more they will be proud of an A and upset by a low grade. The more learners want to be accepted and respected by peers, the more they will value membership in the "in" group and be distressed by the ridicule of classmates. To a teenage boy uninterested in athletics, making or not making the school football team is no big deal, but to a teen whose life revolves around football, making or not making the team may be a consequence of monumental importance.
- *Motivation often enhances performance.* Because of the other effects just identified—goal-directed behavior, effort and energy, initiation and persistence, cognitive processing, and the impact of consequences—motivation often leads to improved performance. As you might guess, then, students who are most motivated to learn and

excel in classroom activities tend to be our highest achievers (A. E. Gottfried, 1990; Schiefele, Krapp, & Winteler, 1992; Walberg & Uguroglu, 1980). Conversely, students who have little interest in academic achievement are at high risk for dropping out before they graduate from high school (Hardré & Reeve, 2003; Hymel et al., 1996; Vallerand, Fortier, & Guay, 1997).

Extrinsic Versus Intrinsic Motivation

Not all forms of motivation have exactly the same effects on human learning and performance. Consider these two students in an advanced high school writing class:

Sheryl doesn't enjoy writing and is taking the class for only one reason: Earning an A or B in the class will help her earn a scholarship at State University, where she desperately wants to go.Shannon has always liked to write. The class will help her get a scholarship at State University, but in addition, Shannon truly wants to become a better writer. She sees its usefulness for her future profession as a journalist. Besides, she's learning many new techniques for making what she writes more vivid and engaging.

Sheryl exhibits extrinsic motivation: She is motivated by factors external to herself and unrelated to the task she is performing. Learners who are extrinsically motivated may want the good grades, money, or recognition that particular activities and accomplishments bring. Essentially, they are motivated to perform a task as a means to an end, not as an end in itself.

In contrast, Shannon exhibits intrinsic motivation: She is motivated by factors within herself and inherent in the task she is performing. Learners who are intrinsically motivated may engage in an activity because it gives them pleasure, helps them develop a skill they think is important, or seems to be the ethically and morally right thing to do. Some learners with high levels of intrinsic motivation become so focused on and absorbed in an activity that they lose track of time and completely ignore other tasks—a phenomenon known as flow (Csikszentmihalyi, 1990, 1996; Schweinle, Turner, & Meyer, 2006).

Learners are most likely to show the beneficial effects of motivation when they are *intrinsically* motivated to engage in classroom activities. Intrinsically motivated learners tackle assigned tasks willingly and are eager to learn classroom material, more likely to process information in effective ways (e.g., by engaging in meaningful learning), and more likely to achieve at high levels. In contrast, extrinsically motivated learners may have to be

enticed or prodded, may process information only superficially, and are often interested in performing only easy tasks and meeting minimal classroom requirements (A. E. Gottfried, Fleming, & Gottfried, 2001; Reeve, 2006; Schiefele, 1991; Tobias, 1994).

In the early elementary grades, students are often eager and excited to learn new things at school. But sometime between Grades 3 and 9, their intrinsic motivation to learn and master school subject matter declines (Covington & Müeller, 2001; Lepper, Corpus, & Iyengar, 2005; Otis, Grouzet, & Pelletier, 2005). This decline is probably the result of several factors. As students get older, they are increasingly reminded of the importance of good grades (extrinsic motivators) for promotion, graduation, and college admission, causing them to focus their efforts on earning high grade point averages. Furthermore, they become more cognitively able to set and strive for long-term goals, and they begin to evaluate school subjects in terms of their relevance to such goals, rather than in terms of any intrinsic appeal. In addition, students may grow increasingly impatient with the overly structured, repetitive, and boring activities that they often encounter at school (Battistich, Solomon, Kim, Watson, & Schaps, 1995; Larson, 2000).

Extrinsic motivation is not necessarily a bad thing, however; often learners are simultaneously motivated by *both* intrinsic and extrinsic factors (Cameron & Pierce, 1994; Covington, 2000; Lepper et al., 2005). For example, although Shannon enjoys her writing course, she also knows that a good grade will help her get a scholarship at State U. Furthermore, good grades and other external rewards for high achievement may confirm for Shannon that she is mastering school subject matter (Hynd, 2003). And over the course of time, extrinsic motivation may gradually move inward, as we'll discover in Chapter 12 in our discussion of *internalized motivation*.

In some instances, extrinsic motivation—perhaps in the form of extrinsic reinforcers for academic achievement or productive behavior—may be the only thing that can get students on the road to successful classroom learning and productive behavior. Yet intrinsic motivation is ultimately what will sustain students over the long run. It will encourage them to make sense of and apply what they are studying and will increase the odds that they will continue to read and learn about writing, science, history, and other academic subject matter long after they have left their formal education behind.

COGNITIVE INFLUENCES IN LEARNING

Researchers once thought of conditioning as automatic and not involving much in the way of higher mental processes. However, now researchers believe that conditioning does involve some information processing.

The psychologist **Robert Rescorla** showed that in classical conditioning, pairing two stimuli doesn't always produce the same level of conditioning. Conditioning works better if the conditioned stimulus acts as a reliable signal that predicts the appearance of the unconditioned stimulus. **Example:** Consider the earlier example in which Adam's professor, Professor Smith, pulled out a revolver in class and shot it into the air, causing Adam to cringe. If Adam heard a gunshot only when Professor Smith pulled out her revolver, he would be conditioned to cringe at the sight of the revolver. Now suppose Professor Smith sometimes took out the revolver as before and fired it. Other times, she played an audio recording of a gunshot without taking out the revolver. The revolver wouldn't predict the gunshot sound as well now, since gunshots happen both with and without the revolver. In this case, Adam wouldn't respond as strongly to the sight of the revolver.

The fact that classical conditioning depends on the predictive power of the conditioned stimulus, rather than just association of two stimuli, means that some information processing happens during classical conditioning. Cognitive processes are also involved in operant conditioning. A response doesn't increase just because satisfying consequences follow the response. People usually think about whether the response caused the consequence. If the response did cause the consequence, then it makes sense to keep responding the same way.

4.5. OBSERVATIONAL LEARNING

People and animals don't learn only by conditioning; they also learn by observing others. **Observational learning** is the process of learning to respond in a particular way by watching others, who are called models. Observational learning is also called "vicarious conditioning" because it involves learning by watching others acquire responses through classical or operant conditioning. **Example:** Brian might learn not to stand too close to a soccer goal because he saw another spectator move away after getting whacked on the head by a wayward soccer ball. The other spectator stopped standing close to the soccer goal because of operant conditioning—getting clobbered by the ball acted as positive punishment for standing too close. Brian was indirectly, or vicariously, conditioned to move away.

Bandura and the Bobo Dolls

The person best known for research on observational learning is psychologist Albert Bandura, who did some landmark experiments showing that children who watched adults behaving aggressively were more likely to behave aggressively themselves. His most famous experiment was the Bobo doll study. Bandura let a group of kindergarteners watch a film of an adult violently attacking an inflatable plastic toy shaped like Bobo the Clown by hitting it, sitting on it, hammering it, and so forth. He then let the children into a room with Bobo dolls. The children precisely imitated the adult's behavior, gleefully attacking Bobo. Their behavior was a type of observational learning.

4.6.THINKING

NATURE OF THINKING

Thinking is perhaps one aspect of our mental activity which continues even when we are asleep. The difference between what is thinking and what is not thinking is just our awareness about the particular thinking process. Hence thinking is a complex mental process which involves manipulation of information. Such information is collected through our senses (such as vision, hearing, smelling etc) from the environment, as well as the information which is stored in our memory because of our encounter with many events and situations in the past. Thinking is a constructive process in the sense that it helps us to form a new representation of any object or event by transforming available information. It involves a number of mental activities, such as inferring, abstracting, reasoning, imagining, judging, problem solving, and creative thinking. Such activities take place in our mind and can be inferred from our behaviours. Thinking is usually initiated by a problem and goes through a sequence of steps such as judging, abstracting, inferring, reasoning, imagining, and remembering. These steps are often directed towards solution of the problem. The example given below will help you to understand this in a better way.

In order to reach your new school on time suppose you are trying to find out the shortest route from your home to your new school. Your choice will be guided by many factors such as condition of the road, the density of traffic during your school time, safety while walking on the road etc. Finally you take a decision about the best possible shortest route after considering all these factors. Thus, a simple problem like this also requires thinking. The solution to this problem emerges after processing information that is available to us from the environment and our past experience.

Thinking relies on a variety of mental structures such as concepts and reasoning.

Concepts:

Concepts are one of the key elements of thinking. Concepts represent objects, activities, ideas, or living organisms. They also represent properties (such as "sour" or "brave"), abstractions (such as "anger" or "fear"), and relations (such as "smaller than" or "more intelligent than"). Concepts are mental structures which allow us to organize knowledge in systematic ways. We cannot observe them directly, but we can infer them from behaviour.

We as human beings have the capacity to abstract the essential characteristics of objects, events or whatever we perceive. For example, when we see a Potato we categorize it as 'vegetable', and when we see a towel we categorize it as 'cloth'. Whenever we encounter a new stimulus we tend to treat it as a member of a familiar or remembered category and take the same action toward it and give it the same label.

Reasoning:

Reasoning is also one of the key aspects of thinking. It is a process that involves inference. Reasoning is used in logical thinking and problem solving. It is goal directed, and the conclusions or judgments are drawn from a set of facts. In reasoning, information from the environment and the stored information in the mind are used following certain rules. There are two types of reasoning: deductive and inductive. In deductive reasoning we try to deduce or draw conclusion from a set of initial assertions or premises; where as in inductive reasoning we start from available evidence to generate a conclusion about the likelihood of something. Most cases of scientific reasoning are inductive in nature. Scientists and even lay people consider a number of instances and try to determine what general rule covers them all. For example, the person is a priest, because he is wearing plain cloth, prays and eats simple food.

PROBLEM SOLVING

Problem solving is part and parcel of our daily life. Every day we solve a number of problems ranging from simple to complex. Some problems take little time where as some take much time to solve. We look for alternative solutions if do not get the right kind of resources to solve the problem in hand. In the case of solving any type of problem our thinking becomes directed and focused and we try to use all the resources, both internal

(mind) and external (support and help of others) to arrive at the right and appropriate decision. For example if you want to score good marks in an exam, you study hard, take the help of teachers, friends, and parents and finally you score good marks. Thus problem

solving is directed thinking focused towards dealing with a specific problem. This thinking has three elements: the problem, the goal, and the steps to reach the goal. There are two methods which are used prominently in problem solving. These are- "Means-end-analysis" and"Algorithms". In the case of Means-end-analysis a specific step-by-step procedure is followed for solving certain types of problems. In the case of 'heuristics' the individual is free to go for any kind of possible rules or ideas to reach the solution. It is also called rule of thumb.

Problem Solving and Mental Set:

Sometimes we use a particular strategy/technique to solve a problem but we may or may not succeed in our effort to solve the problem.This creates a set to approach future problems that are incountered by a person. The set continues even if the problem is different. Despite this, we use the same strategy/technique when ever we come across the same problem and again fail to reach the solution. Such phenomenon in problem solving is called mental set. A mental set is a tendency on the part of an individual to respond to a new problem in the same manner that he or she has used earlier to solve a problem. Previous success with a particular rule produces a kind of mental rigidity/fixedness/set, which hinders the process of generating new ideas to solve a new problem. A mental set inhibits or affects the quality of our mental activities. However, in solving our real life problems we often rely on past learning and experience with similar or related problems.

CREATIVE THINKING

Do you know whatever you see around you, the things which you use for work in

everyday life, the transport you use for commuting from one place to another etc are all the products of human thinking? Creativity is a particular kind of thinking which involves reaching out to the solution of a problem in a unique and novel way which was nonexistent earlier. Creativity is the mother of all inventions and discoveries in the world. Unlike routine solutions to the problems, creative solutions are novel, original, and unique, that others have not thought of before. The creative solutions or productions are sudden or spontaneous and are the outcome of a lot of work and preparation already done consciously and

unconsciously. The sudden appearance of new ideas is called insight. The creative thinker can be any more such as an artist, musician, writer, scientist or sports person.

Stages of Creative Thinking:

Graham Wallas , one of the leading psychologists of early twentieth century stated that there are five stages of creative thinking. These are Preparation, incubation, illumination, evaluation, and revision.

We briefly discuss these five steps of creative thinking in the subsequent section.

1. Preparation:

This is the first stage in which the thinker formulates the problem and collects facts and materials necessary for the solution. He/she finds that the problem cannot be solved after days, weeks, or months of concentrated effort. Unable to solve the problem the thinker deliberately or involuntarily turns away from the problem, initiating stage two i.e. incubation. At this stage of problem solving, it is important to overcome negative consequences of mental set and any kind of mental set or bias.

2. Incubation:

This is a stage of no solution and involves a number of emotional and cognitive complexities. However, the negative effects of mental set, functional fixedness, and other ideas that interfere with the solution tend to fade. Perhaps, fatigue and too much of concern with the problem also mount up during this period. Further, the unconscious thought processes involved in creative thinking are at work during this stage.

3. Illumination:

In this stage a potential solution to the problem seems to be realized as if from nowhere. It is about having the insight about the possible solution. Illumination occurs with its “aha” experience when a sudden idea or solution appears into consciousness.

4. Evaluation:

In this stage the obtained solution is verified or tested to see if it works. Frequently, the insight may turn out to be unsatisfactory, and may need some modification in the strategy of approaching the problem.

5. Revision:

Revision is required in the case a solution which is not satisfactory. It has been found that creative people are generally talented (e.g. artists, musicians, mathematicians etc.), and have specific abilities. Creative people have been found to have some specific personality characteristics such as they are independent in their judgments, self-assertive, dominant, impulsive, prefer complexity, etc

DECISION MAKING

We make several decisions in our day-to-day life, such as decisions pertaining to our personal life, social life, education, career etc. When we take a decision which gives us success where as our faulty decisions do not yield the desired result. Decision making is also related with another term 'judgment'. Let us discuss these two aspects of thinking separately.

Decision Making:

Decision- making is a kind of problem solving in which we select an appropriate alternative out of a number of alternatives available to us. For example, you have the option to choose between History and Psychology courses in your eleventh grade. You attend classes in both the subjects to decide upon the course to choose. Suppose you find that the contents of psychology are relevant, interesting and new and the teacher is intelligent, friendly, knowledgeable, and having good verbal ability; all qualities that you value in a teacher. So, on the basis of judgment about the subject and qualities of the teacher you decide to choose the psychology course.

Judgment:

Judgment is a process of forming opinions, arriving at conclusions, and making critical evaluations about objects, events and people on the basis of available information. The process of judgment is often automatic and spontaneous. It does not require any prompting. Some judgmental choices are habitual like need for going for a morning walk before getting ready. Judgments involve evaluating information about the world (objects, events, persons, etc.), while decisions require making choices.

CRITICAL THINKING

Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered

from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness.

It entails the examination of those structures or elements of thought implicit in all reasoning: purpose, problem, or question-at-issue; assumptions; concepts; empirical grounding; reasoning leading to conclusions; implications and consequences; objections from alternative viewpoints; and frame of reference. Critical thinking — in being responsive to variable subject matter, issues, and purposes — is incorporated in a family of interwoven modes of thinking, among them: scientific thinking, mathematical thinking, historical thinking, anthropological thinking, economic thinking, moral thinking, and philosophical thinking.

Critical thinking can be seen as having two components: 1) a set of information and belief generating and processing skills, and 2) the habit, based on intellectual commitment, of using those skills to guide behavior. It is thus to be contrasted with: 1) the mere acquisition and retention of information alone, because it involves a particular way in which information is sought and treated; 2) the mere possession of a set of skills, because it involves the continual use of them; and 3) the mere use of those skills ("as an exercise") without acceptance of their results.

Critical thinking varies according to the motivation underlying it. When grounded in selfish motives, it is often manifested in the skillful manipulation of ideas in service of one's own, or one's groups', vested interest. As such it is typically intellectually flawed, however pragmatically successful it might be. When grounded in fairmindedness and intellectual integrity, it is typically of a higher order intellectually, though subject to the charge of "idealism" by those habituated to its selfish use.

Critical thinking of any kind is never universal in any individual; everyone is subject to episodes of undisciplined or irrational thought. Its quality is therefore typically a matter of degree and dependent on, among other things, the quality and depth of experience in a given domain of thinking or with respect to a particular class of questions. No one is a critical thinker through-and-through, but only to such-and-such a degree, with such-and-such insights and blind spots, subject to such-and-such tendencies towards self-delusion. For this reason, the development of critical thinking skills and dispositions is a life-long endeavor.

UNIT V: MOTIVATION & EMOTION

Motivation: Biogenic and sociogenic motives: Intrinsic-Extrinsic framework - Defense motives - Conflict and frustration - Need hierarchy model - Emotions: Development, expression and control - Theories of emotion - Culture and emotions - Physiological correlates

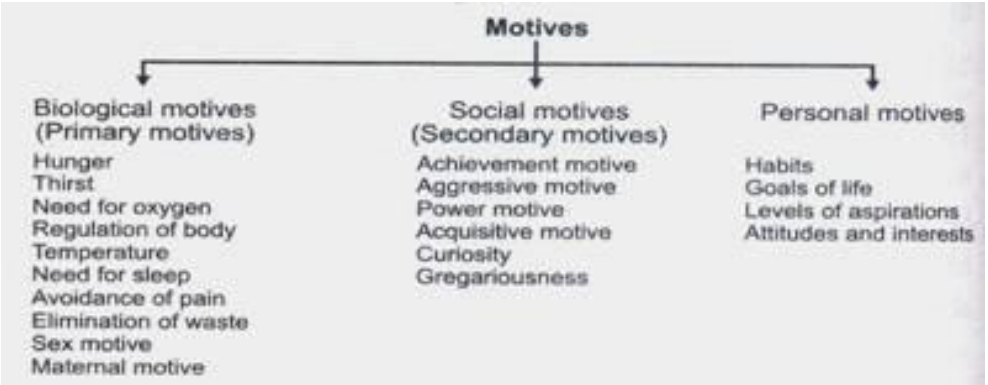
MOTIVATION AND EMOTION

5.0. MOTIVATION

The goal here may be fulfillment of a want or a need. Whenever a need arises the organism is driven to fulfil that want or need. If there is no need in the organism, there will be no behaviour. For example, Horse and water. Horse does not drink water unless it has thirst or if it is not motivated. Unlike the external stimuli, the motives are limited. The behaviour to fulfil such needs is mechanical and alike in all the organisms. Hunger is a motive which stimulates the organism to have food. We develop hunger when the food that was taken earlier is exhausted.

The need for food drives us to go in search of food and to have it. Here the hunger motive not only initiated the action, but also continued until the goal (having food) is reached. The motives are powerful forces.They do not allow us to stop our action or behaviour until the need is satisfied. Hence, they are called the 'dynamos' of behaviour.

5.1. Types of Motives:



Biological Motivation and Homeostasis:

Biological motives are called as physiological motives. These motives are essential for the survival of the organism. Such motives are triggered when there is imbalancement in the body. The body always tends to maintain a state of equilibrium called "Homeostasis"- in many of its internal physiological processes.

This balance is very essential for the normal life. Homeostasis helps to maintain internal physiological processes at optimal levels. The nutritional level, fluid level, temperature level, etc., are maintained at certain optimal level or homeostasis levels. When there is some variation in these levels the individual is motivated for restoring the state of equilibrium.

I) Physiological Motives:

a. Hunger motive:

We eat to live. The food we take is digested and nutritional substances are absorbed. The biochemical processes get their energy from the food in order to sustain life. When these substances are exhausted, some imbalancement exists. We develop hunger motive in order to maintain homeostasis. This is indicated by contraction of stomach muscles causing some pain or discomfort called hunger pangs. Psychologists have demonstrated this phenomenon by experiments.

b. Thirst motive:

In our daily life regularly we take fluids in the form of water and other beverages. These fluids are essential for our body tissues for normal functioning. When the water level in the body decreases we develop motive to drink water.Usually thirst motive is indicated by dryness of mouth. Experiments by psychologists have shown that just dried mouth getting wetted is not enough. We need to drink sufficient quantity of water to satiate our thirst.

c. Need for oxygen:

Our body needs oxygen continuously. We get it through continuous respiration. Oxygen is necessary for the purification of blood. We cannot survive without regular supply of oxygen. Lack of oxygen supply may lead to serious consequences like damage to brain or death.

d. Motive for regulation of body temperature:

Maintenance of normal body temperature (98.6°F or 37.0°C) is necessary. Rise or fall in the body temperature causes many problems. There are some automatic mechanisms to regulate body temperature, like sweating when the temperature rises above normal or, shivering when it falls below normal. These changes motivate us to take necessary steps. For example, opening of windows, put on fans, take cool drinks, remove clothes, etc., when the temperature increases to above normal level; and closing doors and windows, wear sweaters,

take hot beverages when temperature falls down. In this way we try to regulate the body temperature.

e. Need for sleep:

Sleep is an essential process for normal functioning of body and mind. When our body and mind are tired they need rest for rejuvenation of energy. It is observed that there is excess accumulation of a toxin called 'Lactic acid' when tired. After sleep it disappears and the person becomes active. Sleep deprivation also leads to psychological problems like confusion, inability to concentrate, droopy eyelids, muscle tremors, etc.

f. Need for avoidance of pain:

No organism can continue to bear pain. Whenever we experience pain we try to avoid it. We are motivated to escape from painful stimulus. For example, when we are under hot sun we go to shade. When something is pinching we avoid it.

g. Drive for elimination of waste:

Our body cannot bear anything excess or anything waste. Excess water is sent out in the form of urine or sweat. So also digested food particles after absorption of nutritional substances are sent out in the form of stools. We experience discomfort until these wastes are eliminated.

h. Sex motive:

This is a biological motive, arises in the organism as a result of secretion of sex hormones-like androgens and estrogens. Sex need is not essential for the survival of the individual, but it is essential for the survival of the species. However, fulfillment of the sex need is not like satisfying hunger or thirst.

The society and the law exercise certain codes of conduct. Human being has to adhere to these rules. Usually this need is fulfilled through marriage.

i. Maternal drive:

This is an instinct or an inborn tendency. Every normal woman aspires to become a mother. Psychologists have motivation, emotion and attitudinal Processes learnt from related studies that, this is a most powerful drive. That is why in many cases the women who cannot bear children of their own, will sublimate that motive and satisfy it through socially acceptable ways, like working in orphan schools, baby sittings or adopting other's children.

II) Social Motives:

Physiological motives discussed above pertain to both animals as well as human beings, but the social motives are specific only to human beings. These are called social motives, because they are learnt in social groups as a result of interaction with the family and society. That is why their strength differs from one individual to another. Many social motives are recognised by psychologists. Some of the common social motives are:

a. Achievement motive:

Achievement motivation refers to a desire to achieve some goal. This motive is developed in the individual who has seen some people in the society attaining high success, reaching high positions and standards. He/she develops a concern to do better, to improve performance. David C Mc Clelland who conducted a longitudinal study on characteristics of high and low achievers found that the high achievers choose and perform better at challenging tasks, prefers personal responsibility, seeks and utilizes feedback about the performance standard, having innovative ideas to improve performance.

On the other hand, low achievers do not accept challenges, puts on average standards and accepts failures easily. Parents must try to inculcate leadership qualities in children for better achievement in their future life. They must allow children to take decisions independently, and guide them for higher achievement from the childhood, so that the children develop high achievement motivation.

b. Aggressive motive:

It is a motive to react aggressively when faced frustrations. Frustration may occur when a person is obstructed from reaching a goal or when he is insulted by others. Even in a fearful and dangerous do or die situation the individual may resort to aggressive behaviour. Individual expresses such behaviour to overcome opposition forcefully, which may be physical or verbal aggression.

c. Power motive:

People with power motive will be concerned with having an impact on others. They try to influence people by their reputation. They expect people to bow their heads and obey their instructions. Usually people with high power motive choose jobs, where they can exert their powers. They want people as followers. They expect high prestige and recognition from

others. For example, a person may aspire to go for jobs like Police Officer, Politician, Deputy Commissioner, etc.

d. Acquisitive motive:

This motive directs the individual for the acquisition of material property. It may be money or other property. This motive arises as we come across different people who have earned a lot of money and leading a good life. It is a human tendency to acquire all those things which appear attractive to him.

e. Curiosity motive:

This is otherwise called stimulus and exploration motive. Curiosity is a tendency to explore and know new things. We see people indulge in a travelling to look at new places, new things and new developments taking place outside their environment. People want to extend their knowledge and experiences by exploring new things. Curiosity motive will be very powerful during childhood. That is why they do not accept any toy or other articles unless they examine them from different angles, even at the cost of spoiling or breaking the objects.

f. Gregariousness:

This is also known as affiliation need. Gregariousness is a tendency to associate oneself with other members of the group or same species. The individual will be interested in establishing, maintaining and repairing friendly relationships and will be interested in participating in group activities. Individual will conform to social norms, mores and other ethical codes of the groups in which he/she is interested. To the greater extent gregariousness is developed because many of the needs like basic needs, safety and security needs are fulfilled. In addition to the above there are some other social motives like need for self-esteem, social approval, self-actualization, autonomy, master motive, combat, defense, abasement, etc.

III) Personal Motives:

In addition to the above said physiological and social motives, there are some other motives which are allied with both of the above said motives. These are highly personalized and very much individualized motives. The most important among them are:

a. Force of habits:

We see different people having formed different habits like chewing tobacco, smoking, alcohol consumption, etc. There may be good habits also like regular exercising, reading newspapers, prayers, meditations, etc. Once these habits are formed, they act as drivers and compel the person to perform the act. The specialty of habits is that, they motivate the individual to indulge in that action automatically.

b. Goals of life:

Every normal individual will have some goals in the life. They may be related to education, occupation, income, sports, acquisition of property, public service, social service, etc. Once a goal is set, he will be motivated to fulfil that goal. The goals people set, depend upon various factors like knowledge, information, guidance, support, personality, facilities available, aspirations, family and social background, etc.

c. Levels of aspirations:

Aspiration is aspiring to achieve or to get something or a goal. But such achievement depends upon the level of motivation the individual has. Every individual will have a goal in his life and strive to reach that goal. But the effort to attain that goal varies from one individual to another. The amount of satisfaction he gains depends upon his level of aspiration.

For example, if a student is expecting 80% of marks in examination, gets only 75%, he may be unhappy. On the other hand, a student expecting failure may feel very happy if he gets just 35% passing marks, because, the student with high level of aspiration works hard, whereas the student with low level may not.

Hence, always higher level of aspiration is advisable. However, it should be on par with his abilities also. Because, if an individual aspires for higher level of achievement without possessing required ability, he will have to face frustration and disappointment.

d. Attitudes and interests:

Our attitudes and interests determine our motivation. These are specific to individual. For example, a person within the family, may have positive attitude towards family planning and all others having negative attitudes.

So also, interests differ from one individual to another. Example, interest in sports, T.V, etc. Whenever we have a positive attitude, we will have motivation to attain. In negative attitude, we will be motivated to avoid. If a person is interested in music, he will be motivated to learn it. In this way, our personal motives determine our behaviour.

Unconscious motivation:

Sigmund Freud, the famous psychologist has explained elaborately about unconscious motivation. According to him, there are certain motives of which we are unaware, because they operate from our unconscious.

These motives or desires which are repressed by our conscious remain in our unconscious and will be influencing our behaviour.

Our irrational behaviour, the slip of tongue, slip of pen, amnesia, multiple personality, somnambulism, etc., are some examples of such behaviours for which we do not have answers apparently.

These motives can be delineated only by psychoanalysis. Many times psychosomatic disorders like paralysis, headaches, gastric ulcers, etc., also may be due to unconscious motivation.

Intrinsic Motivation

Intrinsic motivation means that the individual's motivational stimuli are coming from within. The individual has the desire to perform a specific task, because its results are in accordance with his belief system or fulfills a desire and therefore importance is attached to it.

Our deep-rooted desires have the highest motivational power. Below are some examples:

- **Acceptance:** We all need to feel that we, as well as our decisions, are accepted by our co-workers.
- **Curiosity:** We all have the desire to be in the know.
- **Honor:** We all need to respect the rules and to be ethical.
- **Independence:** We all need to feel we are unique.
- **Order:** We all need to be organized.
- **Power:** We all have the desire to be able to have influence.
- **Social contact:** We all need to have some social interactions.

- **Social Status:** We all have the desire to feel important.

Extrinsic Motivation

Extrinsic motivation means that the individual's motivational stimuli are coming from outside. In other words, our desires to perform a task are controlled by an outside source. Note that even though the stimuli are coming from outside, the result of performing the task will still be rewarding for the individual performing the task.

Extrinsic motivation is external in nature. The most well-known and the most debated motivation is money. Below are some other examples:

- Employee of the month award
- Benefit package
- Bonuses
- Organized activities

5.2. NATURE OF MOTIVATION

The concept of motivation focuses on explaining what "moves" behaviour. In fact, the term motivation is derived from the Latin word 'movere', referring to movement of activity. Most of our everyday explanation of behaviour is given in terms of motives. Why do you come to the school or college? There may be any number of reasons for this behaviour, such as you want to learn or to make friends, you need a diploma or degree to get a good job, you want to make your parents happy, and so on. Some combination of these reasons and/or others would explain why you choose to go in for higher education. Motives also help in making predictions about behaviour. A person will work hard in school, in sports, in business, in music, and in many other situations, if s/he has a very strong need for achievement. Hence, motives are the general states that enable us to make predictions about behaviour in many different situations. In other words, motivation is one of the determinants of behaviour. Instincts, drives, needs, goals, and incentives come under the broad cluster of motivation.

Psychologists now use the concept of need to describe the motivational properties of behaviour. A need is lack or deficit of some necessity. The condition of need leads to drive. A drive is a state of tension or arousal produced by a need. It energises random activity. When one of the random activities leads to a goal, it reduces the drive, and the organism stops being active. The organism returns to a balanced state.

Are there different types of motives? Are there any biological bases explaining different kinds of motives? What happens if your motive remains unfulfilled? These are some of the questions we will discuss in the following sections.

5.3. TYPES OF MOTIVES

Basically, there are two types of motives : biological and psychosocial. Biological motives are also known as physiological motives as they are guided mostly by the physiological mechanisms of the body. Psychosocial motives, on the other hand, are primarily learned from the individual's interactions with the various environmental factors. However, both types of motives are interdependent on each other. That is, in some kind of situations the biological factors may trigger a motive whereas in some other situations, the psychosocial factors may trigger the motive. Hence, you should keep in mind that no motive is absolutely biological or psychosocial per se, rather they are aroused in the individual with varying combinations.

Biological Motives

The biological or physiological approach to explain motivation is the earliest attempt to understand causes of behaviour. Most of the theories, which developed later, carry traces of the influence of the biological approach. The approach adhering to the concept of adaptive act holds that organisms have needs (internal physiological imbalances) that produce drive, which stimulates behaviour leading to certain actions towards achieving certain goals, which reduce the drive. The earliest explanations of motivation relied on the concept of instinct. The term instinct denotes inborn patterns of behaviour that are biologically determined rather than learned. Some common human instincts include curiosity, flight, repulsion, reproduction, parental care, etc. Instincts are innate tendencies found in all members of a species that direct behaviour in predictable ways. The term instinct most approximately refers to an urge to do something. Instinct has an "impetus" which drives the organism to do something to reduce that impetus. Some of the basic biological needs explained by this approach are hunger, thirst, and sex, which are essential for the sustenance of the individual.

Hunger

When someone is hungry, the need for food dominates everything else. It motivates people to obtain and consume food. Of course we must eat to live. But, what makes you feel hungry? Studies have indicated that many events inside and outside the body may trigger hunger or inhibit it. The stimuli for hunger include stomach contractions, which signify that

the stomach is empty, a low concentration of glucose in the blood, a low level of protein and the amount of fats stored in the body. The liver also responds to the lack of bodily fuel by sending nerve impulses to the brain. The aroma, taste or appearance of food may also result in a desire to eat. It may be noted that none of these alone gives you the feeling that you are hungry. All in combination act with external factors (such as taste, colour, by observing others eating, and the smell of food, etc.) to help you understand that you are hungry. Thus, it can be said that our food intake is regulated by a complex feeding- satiety system located in the hypothalamus, liver, and other parts of the body as well as the external cues available in the environment.

Some physiologists hold that changes in the metabolic functions of the liver result in a feeling of hunger. The liver sends a signal to a part of the brain called hypothalamus. The two regions of hypothalamus involved in hunger are - the lateral hypothalamus (LH) and the ventro-medial hypothalamus (VMH). LH is considered to be the excitatory area. Animals eat when this area is stimulated. When it is damaged, animals stop eating and die of starvation. The VMH is located in the middle of the hypothalamus, which is otherwise known as hunger-controlling area which inhibits the hunger drive. Now can you guess about people who overeat and become obese, and people who eat very little or who are on a diet?

Thirst

What would happen to you, if you were deprived of water for a long time? What makes you feel thirsty? When we are deprived of water for a period of several hours, the mouth and throat become dry, which leads to dehydration of body tissues. Drinking water is necessary to wet a dry mouth. But a dry mouth does not always result in water drinking behaviour. In fact processes within the body itself control thirst and drinking of water. Water must get into the tissues sufficiently to remove the dryness of mouth and throat. Motivation to drink water is mainly triggered by the conditions of the body: loss of water from cells and reduction of blood volume. When water is lost by bodily fluids, water leaves the interior of the cells. The anterior hypothalamus contains nerve cells called ‘osmoreceptors’, which generate nerve impulses in case of cell dehydration. These nerve impulses act as a signal for thirst and drinking; when thirst is regulated by loss of water from the osmoreceptors, it is called cellular-dehydration thirst. But what mechanisms stop the drinking of water? Some researchers assume that the mechanism which explains the intake of water is also responsible for stopping the intake of water. Others have pointed out that the role of stimuli resulting from the intake of water in the stomach must have something to do with stopping of drinking

water. However, the precise physiological mechanisms underlying the thirst drive are yet to be understood.

Sex

One of the most powerful drives in both animals and human beings is the sex drive. Motivation to engage in sexual activity is a very strong factor influencing human behaviour. However, sex is far more than a biological motive. It is different from other primary motives (hunger, thirst) in many ways like, (a) sexual activity is not necessary for an individual's survival; (b) homeostasis (the tendency of the organism as a whole to maintain constancy or to attempt to restore equilibrium if constancy is disturbed) is not the goal of sexual activity; and (c) sex drive develops with age, etc. In case of lower animals, it depends on many physiological conditions; in case of human beings, the sex drive is very closely regulated biologically, sometimes it is very difficult to classify sex purely as a biological drive. Physiologists suggest that intensity of the sexual urge is dependent upon chemical substances circulating in the blood, known as sex hormones. Studies on animals as well as human beings have mentioned that sex hormones secreted by gonads, i.e. testes in males and the ovaries in females are responsible for sexual motivation. Sexual motivation is also influenced by other endocrine glands, such as adrenal and pituitary glands. Sexual drive in human beings is primarily stimulated by external stimuli and its expression depends upon cultural learning.

Psychosocial Motives

Social motives are mostly learned or acquired. Social groups such as family, neighbourhood, friends, and relatives do contribute a lot in acquiring social motives. These are complex forms of motives mainly resulting from the individual's interaction with her/his social environment.

Need for Affiliation

Most of us need company or friend or want to maintain some form of relationship with others. Nobody likes to remain alone all the time. As soon as people see some kinds of similarities among themselves or they like each other, they form a group. Formation of group or collectivity is an important feature of human life. Often people try desperately to get close to other people, to seek their help, and to become members of their group. Seeking other human beings and wanting to be close to them both physically and psychologically is called

affiliation. It involves motivation for social contact. Need for affiliation is aroused when individuals feel threatened or helpless and also when they are happy. People high on this need are motivated to seek the company of others and to maintain friendly relationships with other people.

Need for Power

Need for power is an ability of a person to produce intended effects on the behaviour and emotions of another person. The various goals of power motivation are to influence, control, persuade, lead, and charm others and most importantly to enhance one's own reputation in the eyes of other people. David McClelland (1975) described four general ways of expression of the power motive. First, people do things to gain feeling of power and strength from sources outside themselves by reading stories about sports stars or attaching themselves to a popular figure. Second, power can also be felt from sources within us and may be expressed by building up the body and mastering urges and impulses. Third, people do things as individuals to have an impact on others. For example, a person argues, or competes with another individual in order to have an impact or influence on that person. Fourth, people do things as members of organisations to have an impact on others as in the case of the leader of a political party; the individual may use the party apparatus to influence others. However, for any individual, one of these ways of expressing power motivation may dominate, but with age and life experiences, it varies.

Need for Achievement

You might have observed some students work very hard and compete with others for good marks/grades in the examination, as good marks/grades will create opportunities for higher studies and better job prospects. It is the achievement motivation, which refers to the desire of a person to meet standards of excellence. Need for achievement, also known as n-Ach, energises and directs behaviour as well as influences the perception of situations. During the formative years of social development, children acquire achievement motivation. The sources from which they learn it, include parents, other role models, and socio-cultural influences. Persons high in achievement motivation tend to prefer tasks that are moderately difficult and challenging. They have stronger-than-average desire for feedback on their performance, that is to know how they are doing, so that they can adjust their goals to meet the challenge.

Curiosity and Exploration

Often people engage in activities without a clear goal or purpose but they derive some kind of pleasure out of it. It is a motivational tendency to act without any specific identifiable goal. The tendency to seek for a novel experience, gain pleasure by obtaining information, etc. are signs of curiosity. Hence, curiosity describes behaviour whose primary motive appears to remain in the activities themselves. What will happen if the sky falls on us? Questions of this kind (What will happen if...) stimulate intellectuals to find answers. Studies show that this curiosity behaviour is not only limited to human beings, animals too show the same kind of behaviour. We are driven to explore the environment by our curiosity and our need for sensory stimulation. The need for varied types of sensory stimulations is closely related to curiosity. It is the basic motive, and exploration and curiosity are the expressions of it. Our ignorance about a number of things around us becomes a powerful motivator to explore the world. We get easily bored with repetitive experiences. So we look for something new. In the case of infants and small children, this motive is very dominant. They get satisfaction from being allowed to explore, which is reflected in their smiling and babbling. Children become easily distressed, when the motive to explore is discouraged

Frustration and Conflict

So far we have taken a look at the various theoretical perspectives on motivation. They explain the process of motivation and what leads to motivated action and what are the reasons for different motives. Now we will try to understand what happens when motivated action is blocked or it fails due to certain reasons. We will also try to understand what happens when one is faced with more than one motive or need at the same time. These two concerns can be explained in the form of two important concepts related to motivation, namely frustration and conflict.

Frustration

We come across many occasions when things go in an unexpected direction and we fail to realise our goal. The blocking of a desired goal is painful, but all of us experience it in life in different degrees. Frustration occurs when an anticipated desirable goal is not attained and the motive is blocked. It is an aversive state and no one likes it. Frustration results in a variety of behavioural and emotional reactions. They include aggressive behaviour, fixation, escape, avoidance, and crying. In fact frustration-aggression is a very famous hypothesis proposed by Dollard and Miller. It states that frustration produces aggression.

Aggressive acts are often directed towards the self or blocking agent, or a substitute. Direct aggressive acts may be inhibited by the threat of punishment. The main sources or causes of frustration are found in: (i) environmental forces , which could be physical objects, constraining situations or even other people who prevent a person from reaching a particular goal, (ii) personal factors like inadequacies or lack of resources that make it difficult or impossible to reach goals, and (iii) conflicts between different motives.

Conflict

Conflict occurs whenever a person must choose between contradictory needs, desires, motives, or demands. There are three basic forms of conflicts, for example, approach-approach conflict, avoidance-avoidance conflict, and approach-avoidance conflict. Approach-approach conflict comes from having to choose between two positives and desirable alternatives. Avoidance-avoidance conflict comes from choosing between two negatives, or mutually undesirable alternatives. In real life, these double avoidance conflicts involve dilemmas such as choosing between the dentist and tooth decay, roadside food and starvation, etc. Approach- avoidance conflict comes from being attracted to and repelled by the same goal or activity. These types of conflicts are also difficult to resolve, as they are more troublesome than avoidance conflicts. A central characteristic of approach-avoidance conflict is ambivalence — a mix of positive and negative conflicts. Some examples of approach-avoidance conflicts are: a person wanting to buy a new motorbike but not wanting to make monthly payments, wanting to eat when one is overweight, and planning to marry someone her/his parents strongly disapprove of. Many of life's important decisions have approach-avoidance dimensions.

A major source of frustration lies in motivational conflict. In life, we are often influenced by a number of competing forces that propel us in different directions. Such situations demonstrate the condition of conflict. Hence, the simultaneous existence of multiple wishes and needs characterise conflict. In all the cases of conflicts, the selection of one option against the other depends on the relative strength/importance of one over the other, and environmental factors. Conflicting situations should be resolved after due consideration of the pros and cons of each of the choices. A point to note here is that conflicts cause frustration, which in turn, can lead to aggression. For instance, a young man who wants to be a musician but is pursuing a course in management due to parental pressure and is not

able to perform as per the expectations of his parents may turn aggressive upon being questioned on his poor performance in the course.

5.4. PHYSIOLOGICAL BASES OF EMOTIONS

Divya is desperate to get a job. She has prepared well for the interview and feels confident. As she enters the room and the interview begins, she becomes extremely tense. Her feet go cold, her heart starts pounding, and she is unable to answer appropriately'. Why did this happen? Try thinking about a similar situation that you have faced sometime in your life. Can you describe probable reasons for this? As we will see, a great deal of physiological changes happen when we experience emotion. When we are excited, afraid or angry, these bodily changes might be relatively easy to note. All of you must have noted the increase in heart rate, throbbing temples, increased perspiration, and trembling in your limbs when you are angry or excited about something. Sophisticated equipment has made it possible to measure the exact physiological changes that accompany emotions. Both autonomic as well as somatic nervous system play important roles in the emotional process. The experience of emotions is a result of a series of neurophysiological activations in which thalamus, hypothalamus, limbic system, and the cerebral cortex are involved significantly. Individuals with extensive injury in these brain areas have been known to demonstrate impaired emotional abilities. Selective activation of different brain areas has been experimentally shown to arouse different emotions in infants and adults.

One of the earliest physiological theories of emotion was given by James (1884) and supported by Lange, hence, it has been named the James-Lange theory of emotion. The theory suggests that environmental stimuli elicit physiological responses from viscera (the internal organs like heart and lungs), which in turn, are associated with muscle movement. For example, startling at an unexpected intense noise triggers activation in visceral and muscular organs followed by an emotional arousal. Put in other words, James-Lange theory argues that your perception about your bodily changes, like rapid breathing, a pounding heart, and running legs, following an event, brings forth emotional arousal. The main implication made by this theory is that particular events or stimuli provoke particular physiological changes and the individual's perception of these changes results in the emotion being experienced. However, this theory faced a lot of criticism and fell in disuse. Another theory was proposed by Cannon (1927) and Bard (1934).The Cannon-Bard theory claims that the entire process of emotion is mediated by thalamus which after perception of the emotion-provoking stimulus, conveys this information simultaneously to the cerebral cortex and to the

skeletal muscles and sympathetic nervous system. The cerebral cortex then determines the nature of the perceived stimulus by referring to past experiences. This determines the subjective experience of the emotion. At the same time the sympathetic nervous system and the muscles provide physiological arousal and prepare the individual to take action.The ANS is divided into two systems, sympathetic and parasympathetic. These twosystems function together in a reciprocal manner. In a stressful situation the sympathetic system prepares the body to face the situation. It strengthens the internal environment of the individual by controlling the fall in heart rate, blood pressure, blood sugar, etc. It induces a state of physiological arousal that prepares the individual for fight or flight response in order to face the stressful situation. As the threat is removed the parasympathetic system gets active and restores the balance by calming the body. It restores and conserves energy and brings the individual back to a normal state.

Though acting in an antagonistic manner, the sympathetic and parasympathetic systems are complementary to each other in completing the process of experience and expression of emotion.

5.5. COGNITIVE BASES OF EMOTIONS

Most psychologists today believe that our cognitions, i.e. our perceptions, memories, interpretations are essential ingredients of emotions. Stanley Schachter and Jerome Singer have proposed a two-factor theory in which emotions have two ingredients: physical arousal and a cognitive label. They presumed that our experience of emotion grows from our awareness of our present arousal. They also believed that emotions are physiologically similar. For example, your heart beats faster when you are excited or scared or angry. You are physiologically aroused and look to the external world for explanation. Thus, in their view an emotional experience requires a conscious interpretation of the arousal. If you are aroused after physical exercise and someone teases you, the arousal already caused by the exercise may lead to provocation. To test this theory, Schachter and Singer (1962) injected subjects with epinephrine, a drug that produces high arousal. Then these subjects were made to observe the behaviour of others, either in a neuphoric manner (i.e. shooting papers at a waste basket) or in an angry manner (i.e. stamping out of the room). As predicted, the euphoric and angry behaviour of others influenced the cognitive interpretation of the subjects' own arousal.

5.6. CULTURALBASESOFEMOTIONS

Till now we have been discussing the physiological and the cognitive bases of emotions. This section will examine the role of culture in emotions. Studies have revealed that the most basic emotions are inborn and do not have to be learned. Psychologists largely have a notion that emotions, especially facial expressions, have strong biological ties. For example, children who are visually impaired from birth and have never observed the smile or seen another person's face, still smile or frown in the same way that children with normal vision do. But on comparing different cultures we see that learning plays an important role in emotions. This happens in two ways. First, cultural learning influences the expression of emotions more than what is experienced, for example, some cultures encourage free emotional expression, whereas other cultures teach people, through modeling and reinforcement, to reveal little of their emotions in public. Second, learning has a great deal to do with the stimuli that produce emotional reactions. It has been shown that individuals with excessive fears (phobia) of elevators, automobiles, and the like learnt these fears through modeling, classical conditioning or avoidance conditioning.

5.7. EXPRESSION OF EMOTIONS

Do you get to know that your friend is happy or sad or indifferent? Does s/he understand your feelings? Emotion is an internal experience not directly observable by others. Emotions are inferred from verbal and non-verbal expressions. These verbal and non-verbal expressions act as the channels of communication and enable an individual to express one's emotions and to understand the feelings of others. The verbal channel of communication is composed of spoken words as well as other vocal features of speech like pitch and loudness of the voice. These non-verbal aspects of the voice and temporal characteristics of speech are called 'paralanguage'. Other non-verbal channels include facial expression, kinetic (gesture, posture, movement of the body) and proximal (physical distance during face-to-face interaction) behaviours. Facial expression is the most common channel of emotional communication. The amount and kind of information conveyed by the face is easy to comprehend as the face is exposed to the full view of others. Facial expressions can convey the intensity as well as the pleasantness or unpleasantness of the individual's emotional state. Facial expressions play an important role in our everyday lives. There has been some research evidence supporting Darwin's view that facial expressions for basic emotions (joy, fear, anger, disgust, sadness, and surprise) are inborn and universal. Bodily movements further facilitate the communication of emotions. Can you feel the difference

between your body movements when you feel angry and movements when you feel shy? Theatre and drama provide an excellent opportunity to understand the impact of body movements in communicating emotions. The roles of gestures and proximal behaviours are also significant. You must have seen how in Indian classical dances like Bharatanatyam, Odissi, Kuchipudi, Kathakand others, emotions are expressed with the help of movements of eyes, legs, and fingers. The dancers are trained rigorously in the grammar of body movement and non-verbal communication to express joy, sorrow, love, anger, and various other forms of emotional states. The processes involved in emotions have been known to be influenced by culture. Current research has dealt more specifically with the issue of universality or culture specificity of emotions. Most of this research has been carried out on the facial expression of emotions as the face is open to easy observation, is relatively free from complexity and provides a link between subjective experience and overt expression of an emotion. Still it must be emphasised that emotions are conveyed not only via face. A felt emotion maybe communicated through other non-verbal channels as well, for example, gaze behaviour, gestures, paralanguage, and proximal behaviour. The emotional meaning conveyed via gestures (body language) varies from culture to culture. For example, in China, a handclap is an expression of worry or disappointment, and anger is expressed with laughter. Silence has also been found to convey different meanings for different cultures. For example, in India, deep emotions are sometimes communicated via silence. This may convey embarrassment during communication in Western countries. Cultural differences have also been found in the gaze behaviour. It has been observed that the Latin Americans and the Southern Europeans direct their gaze to the eyes of the interactant. Asians, in particular, Indians and Pakistanis, prefer a peripheral gaze (looking away from the conversational partner) during an interaction. The physical space (proximity)also divulges different kinds of emotional meaning during emotional exchanges. The Americans, for example, do not prefer an interaction too close; the Oriental Indians consider a close space comfortable for an interaction. In fact, the touching behaviour in physical proximity is considered reflective of emotional warmth. For example, it was observed that the Arabs experience alienation during an interaction with the North Americans who prefer to be interacted from outside the olfactory (too close) zone.

5.8. MANAGING NEGATIVE EMOTIONS

Try living a day in which you do not feel any emotion. You would realise that it is difficult even to imagine a life without emotions. Emotions are a part of our daily life and existence. They form the very fabric of our life and interpersonal relations. Emotions exist on

a continuum. There are various intensities of an emotion that can be experienced by us. You can experience extreme elation or slight happiness, severe grief or just pensiveness. However, most of us usually maintain a balance of emotions.hen faced with a conflicting situation, individuals attempt to adjust and derive a coping mechanism either with task or defense-oriented reactions. These coping patterns help them prevent abnormal emotional reactions may convey embarrassment during communication in Western countries. Cultural differences have also been found in the gaze behaviour. It has been observed that the Latin Americans and the Southern Europeans direct their gaze to the eyes of the interactant. Asians, in particular, Indians and Pakistanis, prefer a peripheral gaze (looking away from the conversational partner) during an interaction. The physical space (proximity)also divulges different kinds of emotional meaning during emotional exchanges. The Americans, for example, do not prefer an interaction too close; the Oriental Indians consider a close space comfortable for an interaction. In fact, the touching behaviour in physical proximity is considered reflective of emotional warmth. For example, it was observed that the Arabs experience alienation during an interaction with the North Americans who prefer to be interacted from outside the olfactory (too close) zone. Emotional expressions vary in their intensity as well as variety. In your spare time, try collecting from old magazines or newspapers as many pictures of different individuals expressing various emotions. Make picture cards pasting each photograph on a piece of cardboard and number them. You can make a set of such cards that represent different emotional expressions. Involve a group of your friends in the activity. Display these cards one by one to your friends and ask them to identify the emotions being portrayed. Note down the responses and notice how your friends differ from each other in labelling the same emotion. You can also try to categorise the pictures using categories like positive and negative, intense and subtle emotions, and so on.

Prepared by
Dr. SMITHA BABOO
Assistant Professor of Psychology
Jain University, Bangalore.