This pdf version of presentation is only for individualised and personal learning.

Educational Psychology

This pdf version of presentation is only for the purpose of individualised and personal learning.

Type text here

Definition and concept of Educational Psychology

- **Education:**

- **Pestalozzi** – "Education is natural, harmonious and progressive development of man's innate powers."

- Psychology is closely related to education. **Education is the modification of behaviour in a desirable direction or in a controlled environment** and **psychology is** the **study of behaviour or science of behaviour.** To modify the behaviour or to bring about some changes in the behaviour it is necessary to study the science of behaviour. Thus, education and psychology are logically related.

Definition and concept of Educational Psychology

- **Definitions of Educational Psychology:**
- **1. Skinner:**
- "Educational psychology is the branch of psychology which deals with teaching and learning".
- **2. Crow and Crow:**
- "Educational psychology describes and explains learning experience of an individual from birth to old age".
- **3. Peel:**
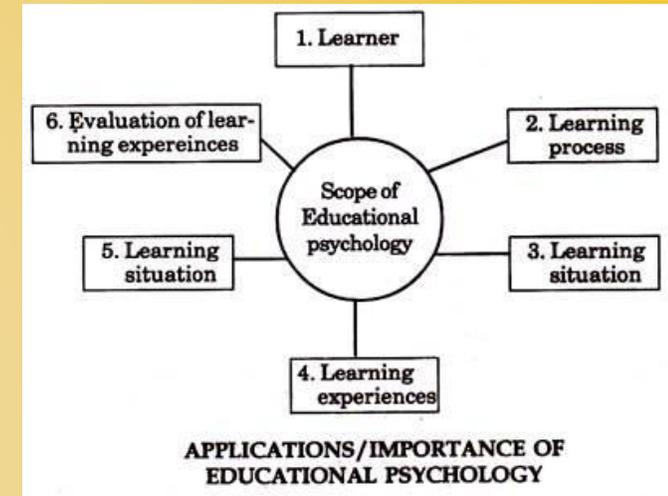- "Educational psychology is the science of education".
- Science?

Nature of Educational Psychology

- (Psychology as developing Positive Science)
- **Nature of Educational Psychology (ONAC-PoP)**
- **O**rganised body of knowledge
- **N**ot believe hearsay or speculations
- **A**pply scientific method (POHDES R)
- **C**ause and effect nature
- **Po**sitive science
- **P**redictability

Scope of educational Psychology

The scope of educational psychology is ever growing due

to constantly researches in this field. The following questions discussed in this subject indicate the scope of educational psychology:

1. **What are the characteristics of Learners?**

2. **What is the nature of students' Learning Experiences?**

3. **What is ideal Learning Process?**

4. **What Teachers should know and do to help students to achieve according to their talents?**

5. **What should be the learning content at different stages of child development?**

6. **What are students' Individual differences?**

7. **How we can accurately measure what students have learn?**

APPLICATIONS/IMPORTANCE OF EDUCATIONAL PSYCHOLOGY

Historical Background of Educational Psychology

- **1- William James (1842–1910)**

- *He defined psychology as the science of mental phenomena or states of consciousness. It limited the content of psychology to thoughts, and feelings.*

- He wrote the book Principles of Psychology in 1890.

- Delivered lecturer series "Talks to Teachers" (James, 1899/1993) and discussed the applications of psychology to educating children.

- James argued that laboratory psychology experiments often can't tell us how to effectively teach children.

- Emphasized the observing teaching and learning in classrooms for improving education.

Historical Background of Educational Psychology

- **2- John Dewey (1859–1952) he argued that human** *Thought is the means by which humans understand things around them. Therefore education should teach individual to think creatively.*

- *He* Established the first major educational psychology laboratory in University of Chicago in 1894.

- He contributed ideas that

1. Child is an active learner.

2. Education should focus on the whole child and emphasize the child's adaptation to the environment.

3. All children deserve to have a competent education

Historical Background of Educational Psychology

- **3- E. L. Thorndike (1874–1949) promoted** Behaviourism approach and was p*ioneer of*

1. *behaviorism*

2. *studying learning*

3. *Using animals in psychology experiments.*

- *He gave the law of effect and law of exercise in learning in his doctoral dissertation published in 1911 by name of Animal Intelligence.*

- He Focused on assessment and measurement and promoted the scientific underpinnings of learning and stressed that Educational psychology must focus strongly on measurement to have scientific grounds.

Historical Background of Educational Psychology

- **4- B. F. Skinner** 1904 – 1990 **was promoter of behaviourism.** *Skinner gave the : reinforcement concept . According to him there is nothing like human free will and believed that every human behaviour is a result of consequences of previous actions.*

- **Skinner** argued that the mental processes proposed by psychologists were not observable and appropriate subject matter for a scientific study of psychology,

- Skinner (1954) developed the **concept of programmed learning**,

- He created a teaching machine that reinforce for correct answers (Skinner, 1958)

Historical Background of Educational Psychology

- **5- Benjamin Bloom (1913 -1999)** presented the taxonomy of cognitive skills that included remembering, comprehending, applying, analysing, synthesizing, and evaluating, and cognitive psychology started to has its grounds in psychology.

- **6- Cognitive Revolution**

- In 1980s, the cognitive psychology gain importance and psychologists started to focus on memory, thinking, reasoning, and so on—to help students learn.

- Latter part of the twentieth century, was flooded by cognitive aspects of learning advocated by James and Dewey.

Methods of educational psychology

- **1. Introspection**
- *Behaviour is studied through a kind of self-examination of inner observation.*
- *Process of Introspection*
- *Merits of Introspection*
- *Demerits of introspection*
- **2. Observation**
- An individual's behaviour (i.e. a person's bodily gestures, facial expression and other bodily actions) can lead to guess the mental process and state of mind because an individual's overt behaviour is the result of his internal mental conditions.
- Types of observation
1. Natural observation
2. Participant observation
- Merits of Observation
- Demerits of observation

Methods of educational psychology

- **3. Experimental Method**
- The independent variable is manipulated to see its effects on dependent variable while controlling the extraneous variables to establish a cause and effect relationship between variables.
- Challenges in conducting experiments in educational psychology.
- Merits of Experiments
- Demerits of experiments
- **4. Case Study**
- Case study is in-depth study of the subject. It is the in-depth analysis of a person, group, or phenomenon.
- Procedure
- Limitations of case study method
- **5. Survey Method.**
- Definition
- Merits
- Demerits

Concept of Growth and Development

- **Growth**

1. These are all structural and physiological changes in humans during the process of maturation.

2. For example, the increase in weight, height, and different organs is called growth.

- **Development**

1. The Encyclopaedia Britannica defined word 'development' as the progressive change in size, shape, and function during the life an organism by which its genetic potentials are translated into functioning adult systems.

2. This means that development includes the increase not only in the size but also in the function of an organ.

- **Differences between Growth and development**

Concept of Growth and Development

- Principles of growth and development
1. Principle of individual differences
2. Principle of continuous process
3. Principle of uneven rate
4. Principle of uniform development process in humans
5. Principle of development from general to specific response
6. Principle of interrelation
7. Principle of integration
8. Principle of nature and nurture
9. Principle of development in specific directions.
10. Principle of spiral and non-linear

Characteristics and Stages of Development

I. ROUSSEAU'S (1712–1778) VIEWS

The earliest effort at marking out the stages of development was made by Rousseau. He attempted to divide the individual's development into four stages as given below:

Table 5.2: Rousseau's Views on Stages of Development

Stage	Approximate Age	Characteristics
1. Infancy	1 to 5 years	1. Free wandering stage 2. Play things/toys that are simple 3. Physical development
2. Childhood	Between 5 to 12 years	1. Development of senses 2. No verbal lessons 3. Activity and experience
3. Pre-adolescence	12 to 15 years	1. Period of developing intellect 2. Study of natural sciences 3. Manual work and industrial arts
4. Adolescence	15 to 20 years	1. Sexual instruction 2. Moral education through activities and occupation 3. Understanding of complex social relationships

Characteristics and Stages of Development

Period	Approximate Age Range
Infancy and toddlerhood	Birth–2 years
Early childhood	2–6 years
Middle childhood	6–11 years
Adolescence	11–18 years
Early adulthood	18–40 years
Middle adulthood	40–65 years
Late adulthood	65 years–death

Physical development

Broadly there are hree broad stages of development: early childhood, middle childhood, and adolescence.

Early Childhood (Birth to Eight Years)

Please see the source :
https://education.stateuniversity.com/pages/1826/Child-Development-Stages-Growth.html

Cognitive Development
Jean Piaget's theory

- *What is cognitive development?*

Cognitive Development is **acquisition of the ability to think, reason, and problem solving**.

- *Jean Piaget's theory.*

- concept of **schemas** *(knowledge structures)*.

Schemas are **categories of knowledge that help us to interpret and understand the world**.

- *How schema develops*

- *1- Assimilation:*

- *2- Accommodation*

- *3- Equilibration*

Cognitive Development
Jean Piaget's theory

➡ **Piaget Four stages of Cognitive Development**

1. **Sensorimotor birth to two years**
2. **Preoperational 02 to seven years**
3. **Concrete Operational seven to twelve years**
4. **Formal Operational plus twelve years**

Piaget's Theory of Cognitive Development

Age Range	Description of Stage	Developmental Phenomena
Birth-2	Sensorimotor – Experiencing the world through senses and actions	Object permanence Stranger anxiety
2-6 years	Preoperational – Representing things with words and images	Pretend play Egocentrism Language development
7-11 years	Concrete Operational – Thinking logically about concrete events and grasping concrete analogies	Conservation Mathematical transformation
12 – adulthood	Formal Operational – Thinking about hypothetical scenarios and processing abstract thoughts	Abstract logic Potential for mature moral reasoning

Psycho-Social development Erikson's *theory*

Please see the following link for further detail:

https://www.simplypsychology.org/Erik-Erikson.html

Stage	Psychosocial Crisis	Basic Virtue	Age
1.	Trust vs. Mistrust	Hope	0 - 1½
2.	Autonomy vs. Shame	Will	1½ - 3
3.	Initiative vs. Guilt	Purpose	3 - 5
4.	Industry vs. Inferiority	Competency	5 - 12
5.	Identity vs. Role Confusion	Fidelity	12 - 18
6.	Intimacy vs. Isolation	Love	18 - 40
7.	Generativity vs. Stagnation	Care	40 - 65
8.	Ego Integrity vs. Despair	Wisdom	65+

Source: https://www.simplypsychology.org/Erik-Erikson.html

LEARNING

- **Learning is a relatively enduring or permanent change in behavior or knowledge that results from previous experience with certain stimuli and responses.**

- **The term behavior includes any observable response (fainting, salivating, vomiting).**

LEARNING

- **Learning is a relatively enduring or permanent change in behavior or knowledge that results from experience.**

- **What is behaviour ?**

- **The term behavior includes any observable response (fainting, salivating, vomiting).**

- **What is experience?**

- An event or occurrence which leaves an impression on someone.

kinds of learning

Three different kinds of learning:

1. **classical conditioning,**
2. **operant conditioning**
3. **cognitive learning.**

Classical conditioning is a kind of learning in which a neutral stimulus acquires the ability to produce a response that was originally produced by a different stimulus.

Operant conditioning refers to a kind of learning in which the consequences that follow some behavior increase or decrease the likelihood of that behavior's occurrence in the future.

Cognitive learning is a kind of learning that involves mental processes, such as attention and memory; may be learned through observation or imitation; and may not involve any external rewards or require the person to perform any observable behaviors.

classical conditioning,

- **Classical conditioning is a kind of learning in which a neutral stimulus acquires the ability to produce a response that was originally produced by a different stimulus.**
- Stimulus is a change in an organism's surrounding that causes the organism to react.
- Response is an organism's reaction to a change in their surroundings.

Sam's salivating when he hears a bell, Pavlov called a conditioned reflex.

Step 1. Selecting Stimulus and Response

Step 2. Establishing Classical Conditioning
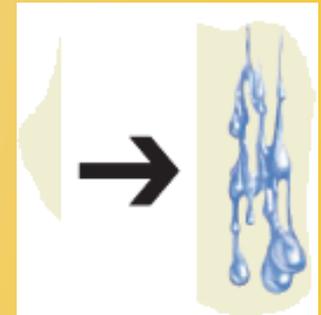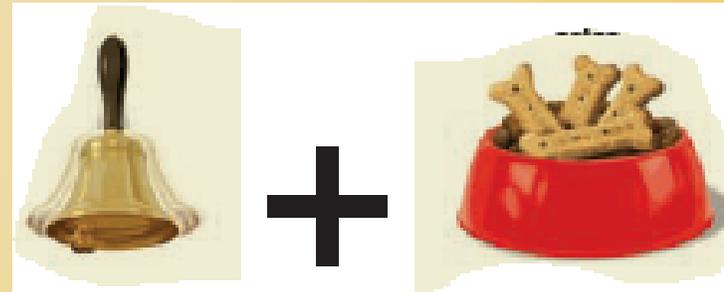
Step 3. Testing for Conditioning

Pavlov's Experiment

- **Step 1. Selecting Stimulus and Response**

a) Neutral stimulus.

- **You need to choose a neutral stimulus.**

- **A neutral stimulus is some stimulus that causes a sensory response, such as being seen, heard, or smelled, but does not produce the reflex being tested.**

- **Your neutral stimulus will be a tone (bell), which Sam the dog hears but which does not normally produce the reflex of salivation.**

Selecting Stimulus and Response

- **b) Unconditioned stimulus.**

- **You need to choose an unconditioned stimulus, or UCS.**

- **An unconditioned stimulus, or UCS, is some stimulus that triggers or elicits a physiological reflex, such as salivation or eye blink.**

- **Your unconditioned stimulus will be food, which when presented to Sam will elicit the salivation reflex—that is, will make Sam salivate.**

Selecting Stimulus and Response

- **C) Unconditioned response.**

- **Finally, you need to select and measure an unconditioned response, or UCR.**

- **The unconditioned response, or UCR, is an unlearned, innate, involuntary physiological reflex that is elicited by the unconditioned stimulus.**

- **For instance, salivation is an unconditioned response that is elicited by food. In this case, the sight of food, which is the unconditioned stimulus, will elicit salivation in Sam, which is the unconditioned response.**

Step 2. Establishing Classical Conditioning

- **A) Trial.**

- **A common procedure to establish classical conditioning is for you first to present the neutral stimulus and then, a short time later, to present the unconditioned stimulus. the presentation of both stimuli is called a trial.**

- **B) Neutral stimulus.**

- **In a typical trial, you will pair the neutral stimulus, the tone, with the unconditioned stimulus, the food.**

- **Generally, you will first present the neutral stimulus (tone) and then, a short time later, present the unconditioned stimulus (food).**

Step 2. Establishing Classical Conditioning

- **C) Unconditioned stimulus (UCS).**

- **Some seconds (but less than a minute) after the tone begins, you present the unconditioned stimulus, a piece of food, which elicits salivation. this trial procedure is the one most frequently used in classical conditioning.**

d) Unconditioned response (UCR).

- **The unconditioned stimulus, food, elicits the unconditioned response, salivation, in Sam. Food and salivation are said to be unconditioned because the effect on Sam is inborn and not dependent on some prior training or learning.**

Step 3. Testing for Conditioning

- **A) Only CS.**

- **After you have given Sam 10 to 100 trials, you will test for the occurrence of classical conditioning. You test by presenting the tone (conditioned stimulus) without showing Sam the food (unconditioned stimulus).**

- **B) Conditioned stimulus.**

- **If Sam salivates when you present the tone alone, it means that the tone has become a conditioned stimulus.**

- **A conditioned stimulus, or CS, is a formerly neutral stimulus that has acquired the ability to elicit a response that was previously elicited by the unconditioned stimulus.**

- **In this example, the tone, an originally neutral stimulus, became the CS.**

Step 3. Testing for Conditioning

- C) Conditioned response.

- When Sam salivates to the tone alone, this response is called the conditioned response.

- The conditioned response, or CR, which is elicited by the conditioned stimulus, is similar to, but not identical in size or amount to, the unconditioned response.

- One thing to remember is that the conditioned response is usually similar in appearance but smaller in amount or magnitude than the unconditioned response. #is means that Sam's conditioned response will involve less salivation to the tone (conditioned stimulus) than to the food (unconditioned stimulus).

USE OF CLASSICAL CONDITIONING

- **Classical conditioning helps animals and humans predict what's going to happen and thus provides information that may be useful for their survival (D. A. Lieberman, 2004).**

OPERANT CONDITIONING

- **A kind of learning in which the consequences that follow some behaviour increase or decrease the likelihood that the behaviour will occur again is called operant conditioning.**

- **Skinner** used the term **operant response** to describe something that can be modified by its consequences.

- In operant conditioning, **the term consequences refers to what happens after the occurrence of a behavior**. If a consequence increases the likelihood that a behavior will occur again, it is called a reinforcer, . If a consequence decreases the likelihood that a behavior will occur again, it is called a punishment.

- **If a stimulus increases the chances that a response will occur again, that stimulus is called a positive reinforcer . If the removal of an aversive stimulus increases the chances that a response will occur again, that aversive stimulus is called a negative reinforcer . Both positive and negative reinforcements increase, the frequency of the response they follow. In contrast, punishment is a consequence that decreases the likelihood that a behavior will occur again.**

- The stimuli of food, water, are innately satisfying and require no learning to become pleasurable, are called primary reinforcers . The stimuli of praise, money, and good grades have acquired their reinforcing properties through experience; these stimuli are called secondary reinforcers.

Cognitive learning

- **Cognitive learning, which involves mental processes such as attention and memory, says that learning can occur through observation or imitation and such learning may not involve any external rewards or require a person to perform any observable behaviors.**

Three Theories of Cognitive learning

## 1- Köhler's insightful problem solving,

- **Insight is a mental process marked by the sudden and unexpected solution to a problem: a phenomenon often called the "ah-ha!" experience.**

- Köhler (1925) hang a banana from the ceiling in a room that had a box placed off to one side. The banana was too high for the chimp to grab by reaching or jumping. When chimp first entered the room, he paced restlessly for about 5 minutes. then he got the box, moved it toward the banana, climbed onto the box, jumped up, and seized the banana. On his second try, Sultan quickly moved the box directly beneath the banana and jumped up to get it.

AH-HA!

Flash of insight

Chimp stood on a box and jumped up to reach the banana.

After observing the fearless model, the woman may learn not to fear spiders.

2- Bandura's theory of observational learning,
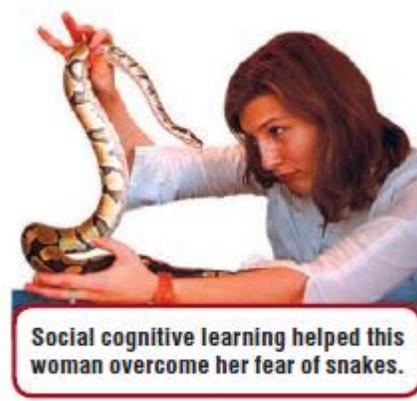
Social cognitive learning helped this woman overcome her fear of snakes.

- **Social cognitive learning results from watching, imitating, and modeling and does not require the observer to perform any observable behavior or receive any observable reward.**

- **Observational learning, which involves numerous cognitive processes, is a 180- degree change from Skinner's position, which had emphasized observable, noncognitive behaviors.**

- **Bandura (1986) has focused on how humans learn through observing things. For example, Bandura says that a child can learn to hate spiders simply by observing the behaviors of someone who shows a great fear of spiders. This is an example of social cognitive learning**

3- Tolman's latent learning Theory idea of cognitive maps

- **A cognitive map is a mental representation in the brain of the layout of an environment and its features.**

- **He placed rats individually in a maze, such as the one shown below, and allow each rat time to explore the maze with no food present. then, with food present in the maze's food box, he would test the rat to see which path it took. The rat learned very quickly to take the shortest path.**
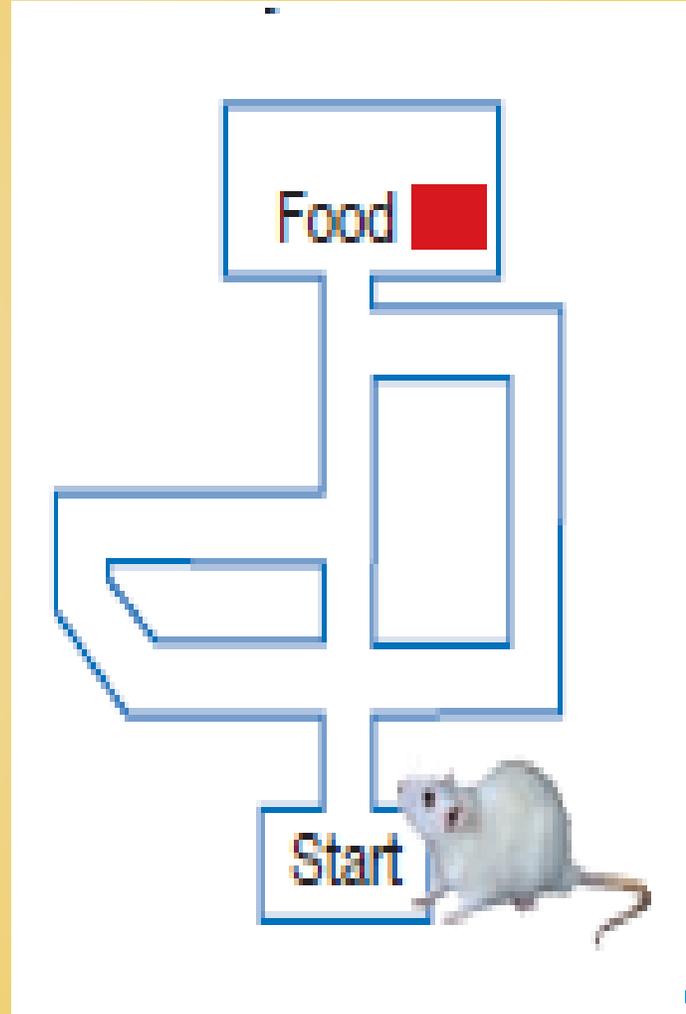
Memory
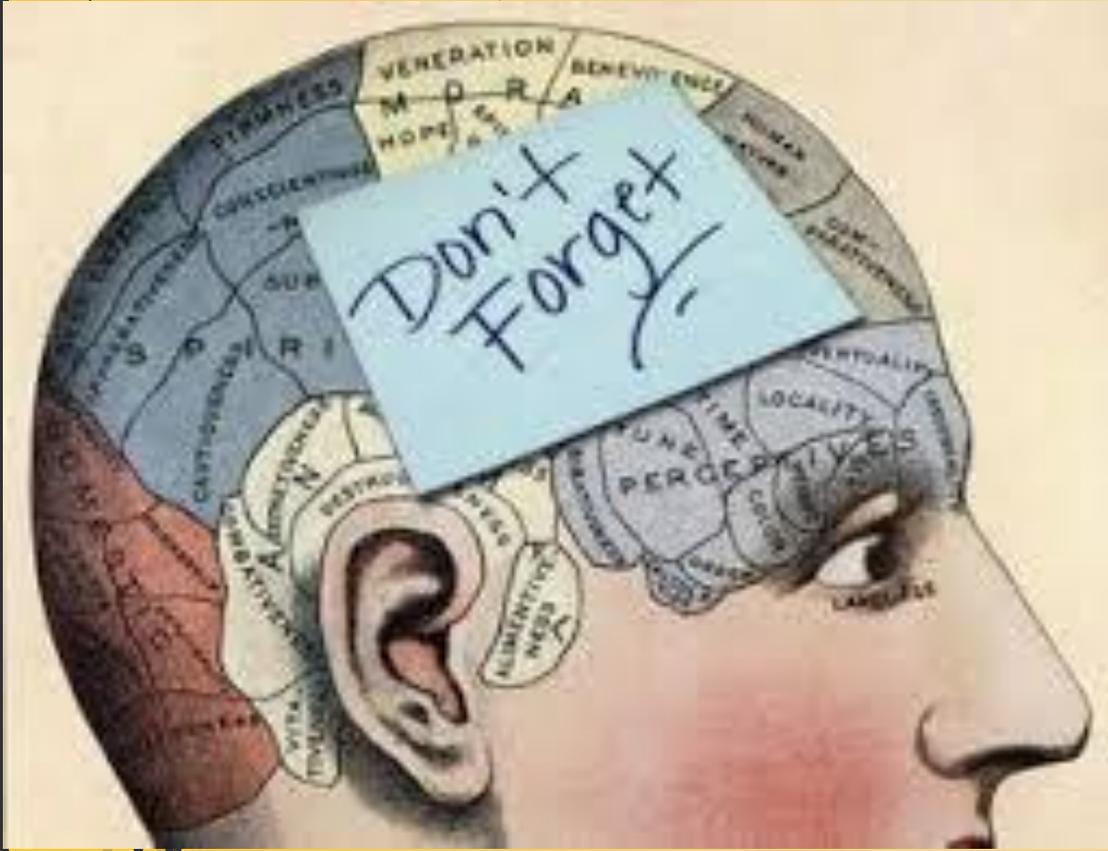
Memory

Memory is the ability to retain information over time through three processes: encoding (forming), storing, and retrieving. Memories are not copies but representations of the world that vary in accuracy and are subject to error and bias.

1. **Encoding refe**rs to **making mental representations of information** so that it can **be placed into our memories**. For example, Daniel encodes numbers by visualizing each number as having a different shape, color, and texture. Such a vivid mental representation helps to store numbers in his memory.

2. **Storing** is the process of **placing** encoded information into relatively permanent mental storage **for later recall**. New information that is stored by making associations with old or familiar information is much easier to remember, or retrieve.

3. **Retrieving** is the process of **getting or recalling information** that has been **placed into short-term or long-term storage**.

Daniel was able to recall, or retrieve, 22,514 digits in order.

Three Types of Memory

➡ **1- Sensory memory refers to an initial process that receives and holds environmental information in its raw form for a brief period of time, from an instant to several seconds.**

➡ For example, after reaching your ears, the guitarist's sounds are held in sensory memory for a second or two. What you do next will determine what happens to the guitarist's sounds that are in your sensory memory. If you pay no more attention to these sounds in sensory memory, they automatically **disappear** without a trace.

Three Types of Memory

- **2- Short-term memory, also called working memory, refers to another process that can hold only a limited amount of information— an average of seven items—for only a short period of time—2 to 30 seconds.**

- Once a limited amount of information is transferred into short-term, or working, memory, it will remain there for up to 30 seconds. If during this time you become more involved in the information, such as humming to the music, the information will remain in shortterm memory for a longer period of time.

- However, the music will **disappear** after a short time unless it is transferred into permanent storage, called long-term memory (Squire & Kandel, 2009).

Three Types of Memory

➡ **3- Long-term memory refers to the process of storing almost unlimited amounts of information over long periods of time.**

➡ For example, you have stored hundreds of songs, terms, faces, and conversations in your long-term memory— information that is potentially available for retrieval.

Motivation

- It involves the processes that energize, direct, and sustain behaviour (Santrock, 2011).

- It is something that stimuli, compels and energizes an individual to act or behave in a particular manner at a particular time for attaining some specific goal or purpose. (Mangal, 2007).

- Types of Motivation

- **Intrinsic Motivation**

- **Extrinsic Motivation**

Motivation

- PERSPECTIVES ON MOTIVATION
- **The Behavioral Perspective**
- **The Humanistic Perspective**
- **The Cognitive Perspective**
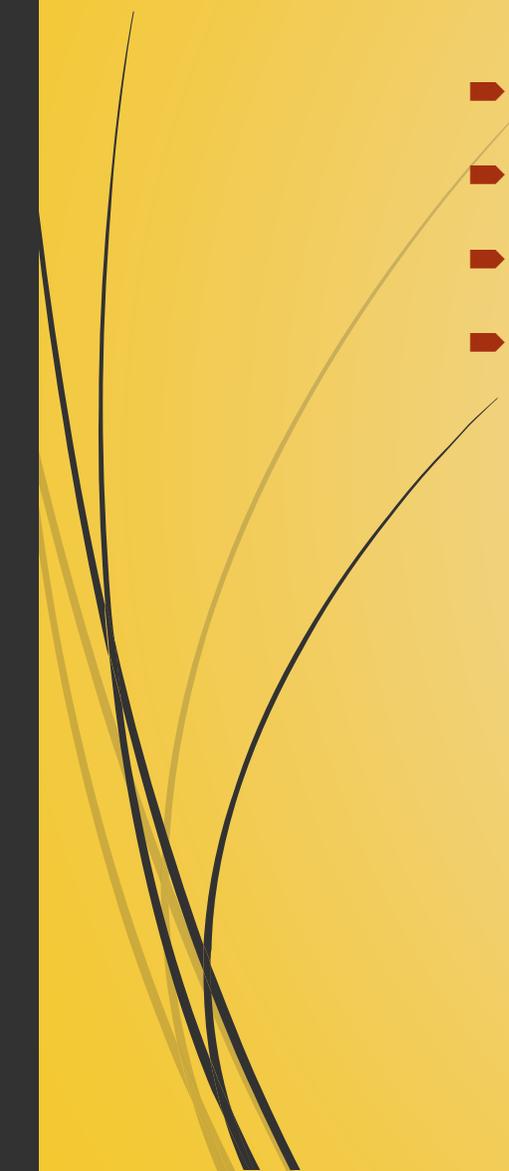
Attention

- **Attention is the concentration of consciousness upon one object other than upon another"—Dumville (1938)**

- **Characteristics of Attention**

- It is a process not a product

- Increase environment consciousness or awareness.

- Increased awareness is selective.

- At particular time can focus on one object.

- Attention is not just cognitive process.

- Attention creates readiness for doing a work.

Factors affecting Attention

External Factors

1. Size:
2. Intensity
3. Movement
4. Contrast.
5. Repetition
6. Duration
7. Change.
8. Novelty

Internal Factors

1. Interest
2. Desire
3. Motives
4. Aim/Goal
5. Habit
6. Past Experience

Individual Differences

Carter B Good (1959), "the variations or deviations among individuals in regard to single characteristic or a number of characteristics."

- **Types or varieties of individual differences**

- **Physical differences**

- **Psychological differences**:

1. *Mental Differences:*

2. *Differences in motor ability*

3. *Differences in achievements*

4. *Emotional Differences*

5. *Differences in interest and aptitudes*

6. *Learning Differences*

7. *Differences in social and moral development*

Individual Differences

▸ **Educational implication of Individual Differences**

1. *Proper knowledge of the individuals' potentialities*
2. *Ability Grouping*
3. *Adjusting the Curriculum*
4. *Adjust the methods of teaching*
5. *Individualized Instruction*
6. *Class size as small as possible*
7. *Special coaching and guidance programs*