UNIT 3

LEARNING AND THEORIES OF LEARNING

Discussion

Learning is involved in almost every phenomenon.

Every individual uses learning techniques and processes and directive unique thoughts and memories to perform day-to-day functions

As psychologists studied, it occurs in many different ways.

3.1.1. Definition of Learning

- ***What is the meaning of learning to you?***
- ***What are the elements of learning?***

Learning is a relatively permanent change in behavior occurring as a result of experience or practice.

Definition (Contd)

The above definition emphasizes the following attributes of learning:

- Learning is a change in behavior
- This change in behavior is relatively permanent
- It does not include change due to illness, fatigue, maturation and use of intoxicant.
- This permanent change in behavior is not because of biological factors (like hormonal changes) that bring permanent changes in behavior; but because of experience, or practice
- Learning is not directly observable but manifests in the activities of the individual.

3.1.2. Characteristics of Learning

- Learning is continuous modification of behavior throughout life
- Learning is pervasive; it reaches into all aspects of human life.
- Learning involves the whole person, socially, emotionally &intellectually.
- Learning is often a change in the organization of experiences.
- Learning is responsive to incentives
- Learning is an active process
- Learning is purposeful
- Learning depends on maturation, motivation and practice.
- Learning is multifaceted

3.1.3. Principles of Learning

- Individuals learn best when they are physically, mentally, and emotionally ready to learn.
- Students learn best and retain information longer when they have meaningful practice and exercise
- Learning is strengthened when accompanied by a pleasant or satisfying feeling, and that learning is weakened when associated with an unpleasant feeling.
- Things learned first create a strong impression in the mind that is difficult to erase.

Principles (Contd)

- Things most recently learned are best remembered.
- The principle of intensity implies that a student will learn more from the real thing than from a substitute.
- Individuals must have some abilities and skills that may help them to learn.
- Things freely learned are best learned - the greater the freedom enjoyed by individuals, the higher the intellectual and moral advancement.

3.2 Factors Influencing Learning

Motivation: The stronger & clearer the motives for learning, the greater effort to learn. High motives of learning , you become enthusiastic

Maturation: Neuro-muscular coordination

Health condition of the learner: Sensory defects, malnutrition, toxic conditions of the body, loss of sleep and fatigue hinder effective learning

Psychological wellbeing of the learner: worries, fears, feelings of loneliness and inferiority hinders learning self-respect, whereas self-reliance, and self-confidence are necessary for effective learning

Factors (Contd)

Good working conditions – absence or presence of fresh air, light, comfortable surroundings, moderate temperature, noise and learning aids

Background experiences: previously learned course

Length of the working period: periods should neither be too short nor too long

Massed and distributed learning: reasonable time gaps

3.3. Theories of Learning and their Applications

- There **three** major theories of learning

1. Behaviorist theory,
2. Social learning and
3. Cognitive learning

3.3.1. Behavioral Theory of Learning

- Occurs as a result of stimulus-response associations
- emphasize observable behaviors,
- seek laws to govern all organisms, and
- provide explanations which focus on consequences
- Behaviorists differ among themselves with respect to their views about the role of reinforcement in learning

There are two major behavioral theories of learning

1. **Classical** Conditioning and
2. **Operant** Conditioning

3.3.1.1 Classical conditioning theory

Classical conditioning focuses on the learning of *involuntary emotional* or *physiological responses to stimuli that normally elicit no response*

e.g. fear, increased heartbeat, salivation or sweating

Therefore, Classical conditioning is a type of learning in which a neutral stimulus comes to bring about a response after it is paired with a stimulus that naturally brings about that response

Classical conditioning (Contd.)

Basics of Classical Condition

Neutral stimulus: A stimulus that, before conditioning, does not naturally bring about the response of interest

Unconditioned stimulus (UCS): A stimulus that naturally brings about a particular response without having been learned.

Unconditioned response (UCR): A response that is natural and needs no training (e.g., salivation at the smell of food).

Classical conditioning (Contd.)

Basics of Classical Condition

Conditioned stimulus (CS): A once neutral stimulus that has been paired with an unconditioned stimulus to bring about a response formerly caused only by the unconditioned stimulus

Conditioned response (CR): A response that, after conditioning, follows a previously neutral stimulus

Classical conditioning (Contd.)

Hence, the theory of classical conditioning represents a process in which a neutral stimulus, by pairing with a natural stimulus, acquires all the characteristics of natural stimulus

It is also called *substitution learning* b/c it involves substituting a neutral stimulus in place of natural stimulus

Let us consider Pavlov's experiment (Summary)

Summary of classical conditioning procedure

A. Before conditioning

Food **(UCS)** → Salivation **(UCR)**

Bell **(NS)** → No salivation

B. During conditioning

Bell + food → Salivation

NS + UCS → **UCR**

C. After conditioning

Bell → Salivation

CS → **CR**

Principles of Classical Condition

- **Extinction:** presenting the ***CS*** repeatedly without the ***UCS*** (meat), the ***CR*** will diminish and eventually stop
- ***Spontaneous recovery*** is the reemergence of an extinguished conditioned response after extinction
- **Stimulus generalization** is a process in which, after a stimulus has been conditioned to produce a particular response, stimuli that are similar to the original stimulus begin to produce the same responses
- ***Stimulus discrimination*** is the process of distinguishing two similar stimuli; the ability to differentiate between stimuli

Applications of classical conditioning (contd.)

Classical conditioning provides explanations for many of our **phobias** (**irrational or unreasonable fears**); for example

- ***Developing fear of a doctor (hospital) because of painful experiences by needle.***
- ***Developing fear of a car (driving) after having been in an automobile accident.***
- ***Developing fear of fear of dogs after having been bitten by one dog.***

To develop good habits or positive attitude,

Used in psychotherapy, to eliminate conditioned fears (phobias) and to break bad habits (by counter conditioning)

3.3.1.2. Operant/Instrumental conditioning

Operant conditioning is learning in which a voluntary response is strengthened or weakened, depending on its favorable or unfavorable consequences

It is a form of association learning in which the consequences of behavior produce changes in the probability of the behavior's occurrence

Also known as instrumental conditioning

In operant conditioning, the organism's response operates on the environment and the environment, in turn, operates the organism's response

BASIC OPERATIONS

As Skinner‘s analysis, a response (operant) can lead to three types of consequences

1) A neutral consequence **2)** A reinforcement or **3**) punishment

1. **A neutral Consequence** that does not alter the response
2. **A reinforcement** that strengthens the response by a **reinforcer**

BASIC OPERATIONS (Contd)

A **reinforcer** is any event that increases the probability that the behavior that precedes it will be repeated

There are **two** basic types of reinforcers

- **Primary reinforcers:** Food, water, light, stroking of the skin, and a comfortable air temperature
- **Secondary Reinforcers:** . Money, praise, applause, good grades, awards, and gold stars

BASIC OPERATIONS (Contd)

Both primary and secondary reinforcers can be **positive or negative**

- ***Positive reinforcement*** is the process whereby presentation of a stimulus makes behavior more likely to occur again
- ***Negative reinforcement*** is the process whereby elimination of an aversive stimulus makes behavior more likely to occur

For e.g., if someone nags you all the time to study, but stops nagging when you comply, your studying is likely to increase- e.g. ***escape learning*****, avoidance Learning**

BASIC OPERATIONS (Contd)

Schedules of reinforcement

A response can be reinforced each time it occurs- a procedure as **continuous reinforcement or** once a response has become reliable reinforcing only some responses, not all of them, a procedure called ***intermittent (partial)*** schedule of reinforcement

There are **four** types of intermittent schedules

BASIC OPERATIONS (Contd)

1. **Fixed-ratio schedules:** reinforcing a response after a fixed number of responses.
2. **Variable-Ratio Schedule:** reinforcing a response after some average number of responses, but with varying from reinforcement to reinforcement
3. **Fixed Interval Schedule:** reinforcing a response only after a fixed amount of time has passed
4. **Variable Interval Schedule:** reinforcing a response only after a variable amount of time has passed

BASIC OPERATIONS (Contd)

3. **Punishment- is a stimulus** that weakens the response or makes it less likely to recur

It is an undesirable event that follows a behavior it intends to reduce/ weaken

Punishers can also be primary or secondary

primary punishers: Pain and extreme heat or cold

Secondary punishers: Criticism, demerits, catcalls, scolding, fines, and bad grades

The Pros and Cons of Punishment

- **Immediacy** –punishment follows immediately after the behavior to be punished
- **Consistency**- using punishment evenly/steadily
- **Intensity**- use severe punishments

The Pros and Cons of Punishment (Contd.)

***When punishment fails*:**

- ✓ administering punishment inappropriately or mindlessly
- ✓ recipient of punishment often responds with anxiety, fear or rage
- ✓ depending heavily on the presence of the punishing person or circumstances
- ✓ hard to punish immediately
- ✓ Punishment conveys little information - instead of punishing it may be reinforcing because it brings attention

Schedules of reinforcement

Shaping: an operant conditioning procedure in which successive approximations of a desired response are reinforced

It is establishing novel behaviors by reinforcing responses that gradually approach the behavior that is desired

Applications of operant conditioning

- ***Conditioning study behavior:*** arranging effective contingencies of reinforcement, e.g., for Self-learning reinforcing a student using incentives such as prize, medal, smile, praise, patting on the back or giving higher marks

❖ ***Conditioning and classroom behavior:*** acquiring unpleasant experience which becomes conditioned to the teacher, subject and the classroom and students begin to dislike the subject and the teacher

❖ ***Managing Behavioral Problem*** : used as therapy to shape students' behavior by admitting positive contingencies like praise

Applications of operant conditioning (Contd)

- ***Dealing with anxieties through conditioning***: used to break fear habits using use desensitization technique- initially provide very weak form of conditioned stimulus, gradually increasing the strength of stimulus
- ***Conditioning group behavior***: reinforcement breaks undesired and antisocial behavior of a group

Applications of operant conditioning (Contd)

- ***Conditioning and Cognitive Processes***: to bring a progress of knowledge, reinforcing in the feedback form
- ***Shaping Complex Behavior***: Controlling complex behavior that exist in the form of a chain of small behaviors

3.3.2. Social Learning Theory (observational learning)theory

A tendency for individuals to reproduce the actions, attitudes or emotional responses displayed by real life or symbolized models

As Bandura, three forms of reinforcement can encourage observational learning

- ***direct reinforcement***
- ***vicarious reinforcement***
- ***self-reinforcement***

Processes of Social learning

Bandura mentions *four conditions* that are necessary in the processes of observational learning

1. ***Attention*:** paying attention to the model
2. ***Retention*:** encoding and storing of observed behavior in memory
3. ***Motor reproduction***: replicating the observed behavior
4. ***Motivation*:** *motivation*; the desire *to demonstrate* (perform) the learned behavior frequently

Implications of Social learning theory

- *learn a great* deal simply by *observing* other people
- *Describing* the *consequences* of behavior to increase appropriate behaviors and decrease inappropriate ones
- Provides an *alternative to shaping* for teaching new behaviors
- Taking care to *model appropriate behaviors but not* inappropriate behaviors
- To break down traditional stereotypes, *exposing* students to a *variety* of other *models*

Implications (Contd.)

- To develop a sense of *self-efficacy - believe* that someone is *capable* of accomplishing school tasks
- To set *realistic expectations* for academic accomplishments
- Helps to improve elf-regulation behavior

3.3.3. Cognitive Learning Theory

Human beings, unlike the rat and the rabbit, are full of attitudes, beliefs and expectations that affect the way they acquire information, make decisions, reason, and solve problems

These mental processes affect individuals' behavior and personality

These theory deals with the mental mechanisms that mediate the processing of information in some meaningful fashion.

It extends into the realms of memory, thinking, problem solving and the use of language

Forms of Cognitive learning

Examples:

- **Latent learning** - a hidden form of learning in which a behavior is not manifested for the time being but it might appear when situations are favorable

It involves changes in the way information is processed and occurs without reinforcement and responses

- **Insight learning** - a sudden change in our perception that comes while encounter and struggle with life challenging problem

It doesn‘t depend on conditioning of particular behaviors for its occurrence

THE END OF THIS UNIT

THANK YOU VERY MUCH!!