TEACHING APTITUDE

LEARNING THEORIES

Learning theories are conceptual frameworks or models that make an effort to explain how individuals gain knowledge, develop skills, and modify their behavior through time. These theories offer insights into the factors that affect learning and offer a systematic explanation of the learning process.

Prominent Learning Theories and Theorists

THEORISTS	THEORY
Ivan Pavlov Edward Lee Thorndike John B. Watson B.F. Skinner	BEHAVIOURISM
Jean Piaget Lev Vygotsky Bruner Ausubel	COGNITIVISM
Jean Piaget Lev Vygotsky. Bruner Ausubel	CONSTRUCTIVISM
Albert Bandura	SOCIAL LEARNING THEORY
Carl Rogers Abraham Maslow	HUMANISTIC THEORY

Behaviourism Theory

- Behaviorism Theory is a psychological perspective that focuses on observable behavior and the environmental factors that shape it. This theory suggests that behavior can be modified through reinforcement, punishment, and conditioning.
- For example, if a child receives praise for completing their homework, they are more likely to continue doing so in the future.
- On the other hand, if a child is scolded for misbehaving, they are less likely to repeat that behavior. Through this process of reinforcement and punishment, behavior can be shaped and modified over time.
- Two of the most famous experiments upon which proof of learning is based are the "Dog Salivation Experiment" by Ivan Petrovich Pavlov and the " Skinner Box" experiment with pigeons by B.F. Skinner.
- Behaviourism is derived from the belief that free will is an illusion.

The Basic Principles of Behaviourism Theory

- Behaviorism theory is based on the idea that all behaviors are learned through interactions with the environment. This means that behavior can be modified through different types of conditioning.
- Reinforcement: is a key principle of behaviorism theory. Positive reinforcement involves rewarding a behavior to increase the likelihood of it being repeated.
- Negative reinforcement: involves removing an unpleasant stimulus to increase the likelihood of a behavior being repeated.
- The Basic Principles of Behaviorism Theory
  - Punishment: is another principle of behaviorism theory. It involves applying an unpleasant stimulus to decrease the likelihood of a behavior being repeated. However, punishment can also have negative side effects, such as causing anxiety or aggression.
  - Conditioning: is the process of learning associations between stimuli and responses. In classical conditioning, a neutral stimulus is paired with a naturally occurring stimulus to create a learned response. In operant conditioning, behaviors are strengthened or weakened based on their consequences.

IMPORTANT PEOPLE TO BEHAVIOURISM

I. Ivan Pavlov (1849-1936)

- He became famous for his behavioral experiments with dogs.
- He won the Nobel prize in Psychology in 1904.
- He came up with Classical Conditioning, the process that refers to the natural reflex that occurs in response to a stimulus.
- Classical conditioning is a type of learning that occurs when a neutral stimulus becomes associated with a

meaningful stimulus, resulting in a similar response to both stimuli.

- This process was first discovered by Ivan Pavlov, who observed that dogs could be conditioned to salivate at the sound of a bell if the bell was repeatedly paired with the presentation of food.
- Pavlov's dogs are the most famous example of classical conditioning, in which the sound of a bell (neutral stimulus) was repeatedly matched with the display of food (unconditioned stimulus), resulting in salivating (unconditioned response) in the dogs. The sound of the bell eventually elicited salivation (conditioned response) from the dogs.

Examples:

Classical conditioning can be applied in various classroom activities to facilitate learning.

- For instance, a teacher can create a positive association between a particular subject and a pleasant experience. This can be achieved by incorporating fun activities or games related to the subject. Over time, students will begin to associate the subject with enjoyment, making it easier for them to learn and retain information.
- Another example of classical conditioning in the classroom is the use of rewards. By pairing good behavior with rewards such as praise or extra credit, students will begin to associate good behavior with positive outcomes. This can lead to an increase in desired behaviors and a decrease in negative behaviors.

KEY ELEMENTS

1. Neutral Stimulus

- A neutral stimulus is one that does not elicit a reaction at first. However, if it is continuously repeated, it will elicit a response and eventually become a conditioned stimulus.
- The bell in Pavlov's experiment would be considered a neutral stimulus.

2. Unconditioned Stimulus

- An unconditioned stimulus is a component of an experiment that causes an instinctive response.
- In Pavlov's experiment, the unconditioned stimulus was the food because the dogs automatically salivated when food was in their presence.

3. Conditioned Stimulus

- The conditioned stimulus is the stimulus that is repeatedly paired with the unconditioned stimulus until the same reaction is elicited.
- In Pavlov's experiment, for example, the conditioned stimulus was the bell before the meal since the dogs eventually began to salivate at the sound of the bell.
- An unconditioned stimulus induces an automatic response, whereas a conditioned stimulus must be paired with an unconditioned stimulus to generate a reaction.

4. Unconditioned Response

- An unconditioned response is a response that naturally occurs.
- In Pavlov's classic experiment with his dogs, drooling was the unconditioned

response because it happened naturally as a response to the smell of food.

5. Conditioned Response

- A conditioned response is one that is learned through experimentation.
- It would be the dogs in Pavlov's experiment who would learn to salivate at the sound of the bell, exactly as they do in the presence of food.
- The distinction between unconditioned and conditioned responses is that unconditioned responses occur naturally, but conditioned responses are taught behaviour through stimuli exposure.

PRINCIPLES OF CLASSICAL CONDITIONING

1. Acquisition: Acquisition is the first stage of learning when a neutral stimulus is combined with an unconditioned stimulus. The neutral stimulus becomes connected with the unconditioned stimulus during this stage and begins to elicit a conditioned response.

For example, in Pavlov's experiment, he repeatedly paired the presence of food with the sound of a bell. The presence of food already caused the dogs to salivate, but the bell did not. As he repeatedly paired them together, the dogs began to salivate at the sound of the bell.

2. Extinction: The second principle is extinction, which occurs when the conditioned stimulus is presented repeatedly without the unconditioned stimulus. This leads to a weakening of the association between the two stimuli and a decrease in the conditioned response.
For example, if Pavlov stopped ringing the bell with the presence of food, eventually, the sound of the bell ringing would not be associated with being fed.

3. Spontaneous recovery: When a conditioned reaction reappears after going extinct for a while, this is known as spontaneous recovery.
For instance, it would be termed spontaneous recovery if salivation stopped while ringing a bell and then resumed when the bell rung again. If spontaneous recovery grows, extinction typically follows shortly.

II. Edward Lee Thorndike (1874 - 1949)

- His work on learning theory that led to the development of operant conditioning within behaviorism.
- Skinner's theory of operant conditioning is built on the ideas of Edward Thorndike
- He is best known for his work on the Law of effect (Trial and Error Theory), which states that behaviours followed by positive consequences are more likely to be repeated than those followed by negative consequences.

Theory of Thorndike

- Thorndike found that animals, particularly cats, would learn to escape the box more quickly with each trial, suggesting that they were learning through trial and error.
- This led to the development of the concept of the 'learning curve', which describes how the rate of learning increases over time as an organism becomes more familiar with a task.
- The Trial and Error theory has significant implications for understanding how humans and animals learn and shape their behaviour

Thorndike's Laws of Learning:

- In a classroom setting, a teacher is introducing a new math concept to a group of students. Before diving into the new material, the teacher assesses the students' readiness by reviewing prerequisite knowledge and skills. They discover that some students are not adequately prepared due to missing foundational concepts. If the child is ready to learn, learning occurs faster. If he not ready and learning is imposed, it becomes annoyed only.

  1.The law of readiness - The law states that, when a conduction unit is ready to conduct, for it to do so is satisfying. When a conduction unit is not ready to conduct, for it to conduct is annoying. When a conduction unit is ready to conduct, not to conduct is also annoying.

  2.The law of exercise- A student is learning to play a musical instrument, made between a situation and response, during a length of time, that connection's strength is decreased.
  - This means, any act that is not practiced for some time gradually decays. Specifically, the piano. Initially, the student may struggle with coordination, finger placement, and reading sheet music.
  - According to the law of exercise, the more frequently and consistently the student practices playing the piano, the better their skills will become over time.
  - The law is spitted in to two they are:
    a) The law of use: - the strength and frequency of a learned behavior increase with its repetition and practice.
    b) The law of disuse: - if a behavior is not used or applied, it may diminish or even disappear.

  3. Law of Effect- In a classroom scenario where a teacher uses positive reinforcement to encourage students to actively participate in class discussions. Whenever a student contributes to the discussion by answering questions or sharing their thoughts, the teacher praises and acknowledges their efforts (favorable outcome/reinforcement). As a result, the students who receive this positive reinforcement are more likely to continue participating in class discussions, as they associate their behavior with a positive outcome.
    - The consequences of a behavior will determine whether that behavior is likely to be repeated in the future.

III. B F Skinner (1904-1990)

- He came up with another form of Conditioning that is labeled as Operant or behavioral Conditioning.
- Operant Conditioning describes learning that is controlled and results in shaping behavior through reinforcement of stimulus-response patterns.

OPERANT CONDITIONING:

- The concept of Operant Conditioning arose from the work of Edward Thorndike, whose law of effect proposed that behaviours emerge as a result of whether their effects are pleasurable or unpleasant.

- Unlike classical conditioning, which emphasizes the connection of stimuli, operant conditioning focuses on the relationship between behaviour and its consequences.

- **Experiment of Operant Conditioning:**
- **B.F. Skinner conducted several experiments to demonstrate operant conditioning.**
- **One such experiment involved a rat in a box, which came to be known as the Skinner box. The box had a lever and a food dispenser.**
- **When the rat accidentally pressed the lever, a food pellet was dispensed. Over time, the rat learned to press the lever intentionally to receive the food pellet.**

Experiment of Operant Conditioning:

- **The experiment demonstrated how behavior can be shaped through reinforcement. Reinforcement can be positive or negative.**
- **Positive reinforcement involves adding something pleasant to increase the likelihood of a behavior repeating. In this case, the food pellet served as a positive reinforcement.**
- **Negative reinforcement involves removing something unpleasant to increase the likelihood of a behavior repeating.**
- **For example, imagine a child who receives a sticker every time they complete their homework. The positive consequence of receiving a sticker reinforces the behavior of completing homework, making it more likely that the child will continue to do so in the future.**
- **On the other hand, if the child is scolded every time they interrupt an adult conversation, the negative consequence of being scolded may decrease the likelihood of the child interrupting in the future.**

BASIC PRINCIPLES:

- **Reinforcement is the process of making something enjoyable or eliminating something unpleasant in order to improve the likelihood of a behaviour repeating again.**
- **Punishment consists of either adding something unpleasant or removing something nice in order to reduce the likelihood of a behaviour repeating again.**
- **Shaping is the process of gradually reinforcing behaviours that are getting closer to the intended behaviour.**
- **Extinction occurs when reinforcement for a previously reinforced behaviour is withheld, causing it to eventually stop.**

IV. John B. Watson (1878-1958)

Father of Behaviorism

According to him

- **Development of personality starts at an early age.**
- **Manipulation of the environment can cause changes in behavior.**
- **Only well-trained professionals like psychologists should raise children.**
- **Early training can unleash unconscious predispositions.**
- **Expanded Pavlov's theory of conditioning, it is through his** famous work “Psychology as the Behaviourists views it” (1913) **behaviourism became famous as a school of thought of psychology.**
- **Watson explains his theory that conditioning can account for all behaviour and that psychological research should concentrate only on objective behaviour rather than subjective experience.**

- Psychology as the Behaviourists views it, also known as Behaviorist manifesto.
- Watson's theories, which he articulated in School of Thought, were divisive at the time since they went against the accepted notion that psychology is the study of the mind.
- But his ideas have remained influential, influencing psychology's course for the remainder of the 20th century and beyond.
- One of his most famous experiments is known as the Little Albert experiment (1920), which demonstrated the principles of classical conditioning.
- Albert was a 9-month-old baby who was not previously afraid of rats. When the experiment began, John Watson placed a rat on the table in front of Albert and he had no reaction. Watson then began to make loud noises on several separate occasions while showing Albert the rat. Albert began to cry in reaction to the noise.
- The objective of the experiment was to investigate the process of classical conditioning by observing whether a fear response could be conditioned in a young child.

CHARACTERISTICS OF BEHAVIOURISM

- The first step in studying psychology for individuals is to study behaviour.
- Conditioning serves as the foundation for behaviour.
- The emphasis of behaviorism is on learned behaviour rather than unlearned behaviour. So, more than genetics, our environment influences our behaviour.
- Not just human behaviour, but also animal behaviour, should be considered subjective research because many of our behaviours can be understood by doing experiments on animals.

BASIC ASSUMPTONS OF BEHAVIOURISM

- Empiricism: knowledge comes from observable and measurable data. It prioritizes objective observation and experimentation over subjective interpretations.
- Environmental Determinism: behavior is primarily determined by the external environment rather than internal factors such as thoughts, emotions, or innate tendencies.
- Focus on Observable Behavior: Studying and analyzing observable behaviors rather than subjective mental processes. Internal mental states, like thoughts and emotions, are considered difficult to measure and therefore less relevant to behaviorist analysis.
- Conditioning: Association between stimuli and responses.
- Reinforcement and Punishment: Reinforcement strengthens and increases the likelihood of a behavior, while punishment weakens and decreases the likelihood of a behavior.
- Environmental Modification: Behavior can be modified by manipulating the environment.
- Generalization and Discrimination: Generalization refers to the tendency of a learned response to occur in similar

situations, while discrimination refers to the ability to differentiate between different stimuli and respond selectively.

- **Focus on Objectivity: It strives for replicability and reliability in its scientific approach.**

Educational Implications of Behaviourism

1. Practice should take the form of question (stimulus) - answer (response) frames which expose the student to the subject in gradual steps

2. Require that the learner make a response for every frame and receive immediate feedback

3. Try to arrange the difficulty of the questions so the response is always correct and hence a positive reinforcement

4. Ensure that good performance in the lesson is paired with secondary reinforces such as verbal praise, prizes and good grades.

Questions

1. **What does Behaviorism Theory focus on?**

a) Unconscious thoughts and desires.
b) Observable behavior and the environmental factors that shape it.
c) Genetic factors and hereditary traits.
d) The influence of culture and society on behavior

Answer: b) Observable behavior and the environmental factors that shape it.
(Explanation: Behaviorism Theory is a psychological perspective that emphasizes observable behavior rather than focusing on unconscious thoughts and desires)

2. **According to Behaviorism Theory, how can behavior be modified?**

a) Through unconscious desires and motivations.
b) Through genetic factors and hereditary traits.
c) Through reinforcement, punishment, and conditioning.
d) Through cultural influences and societal norms.

Answer: c) Through reinforcement, punishment, and conditioning.
(Explanation: Behaviorism Theory suggests that behavior can be modified through various processes such as reinforcement, punishment, and conditioning.)

3. **What is the primary focus of Behaviorism Theory?**

a) Understanding the complexities of the human mind.
b) Analyzing unconscious motives and desires.
c) Examining the impact of genetic inheritance on behavior.
d) Observing and studying observable behavior and its environmental determinants.

Answer: d) Observing and studying observable behavior and its environmental determinants.
(Explanation: The primary focus of Behaviorism Theory is on observing and studying observable behavior, along with the environmental factors that influence and shape that behavior. Behaviorists believe that behavior can be understood and explained by examining the relationships between specific stimuli and responses in the environment.)

4. **What did Thorndike's experiment with cats in a box demonstrate?**
   a) Cats can escape the box without any learning or effort.
   b) Cats learn to escape the box more quickly with each trial, suggesting trial and error learning.
   c) Cats avoid the box altogether as they find it unpleasant.
   d) Cats require external rewards to learn to escape the box.
   Answer: b) Cats learn to escape the box more quickly with each trial, suggesting trial and error learning.
   (Explanation: Thorndike's experiment with cats in a box showed that cats learned to escape the box more quickly with each trial. This pattern of faster learning over successive attempts is indicative of trial and error learning.)
5. **What concept was developed as a result of Thorndike's experiment?**

a) The law of effect.
b) The learning curve.
c) The reinforcement theory.
d) The cognitive theory
Answer: B) The learning curve.
(Explanation: Thorndike's experiment with cats in a box led to the development of the concept of the 'learning curve.' The learning curve describes how the rate of learning increases over time as an organism becomes more familiar with a task or experience.)

6. **What is the significance of the Trial and Error theory for understanding how organisms learn and shape their behavior?**

a) It highlights the importance of external rewards in learning.
b) It emphasizes the role of cognitive processes in learning.
c) It shows how learning occurs through repeated attempts and learning from mistakes.
d) It suggests that learning occurs through imitation and modeling.
Answer: C) It shows how learning occurs through repeated attempts and learning from mistakes.
(Explanation: The Trial and Error theory has significant implications for understanding how organisms learn and shape their behavior. It demonstrates that learning occurs through repeated attempts and learning from mistakes or errors. Organisms, including humans and animals, try different behaviors or strategies, and those that lead to successful outcomes or rewards are reinforced and more likely to be repeated.)

7. **Assertion: The concept of Operant Conditioning arose from the work of Edward Thorndike, whose law of effect proposed that behaviors emerge as a result of whether their effects are pleasurable or unpleasant.**
   Reasoning: Unlike classical conditioning, which emphasizes the connection of stimuli, operant conditioning focuses on the relationship between behavior and its consequences.

a) Both the assertion and reasoning are true, and the reasoning is the correct explanation of the assertion.
b) Both the assertion and reasoning are true, but the reasoning is not the correct explanation of the assertion.
c) The assertion is true, but the reasoning is false.

d) The assertion is false, but the reasoning is true.
e) Both the assertion and reasoning are false.

Answer: A) Both the assertion and reasoning are true, and the reasoning is the correct explanation of the assertion.

Explanation: Thorndike's law of effect suggests that behaviors that are followed by pleasant consequences are more likely to be repeated, while behaviors with unpleasant consequences are less likely to be repeated. Operant conditioning focuses on the relationship between behavior and its consequences, specifically how behaviors are shaped by reinforcement (positive or negative) or punishment.

8. What is classical conditioning?

a) Learning through reinforcement and punishment.
b) Learning by observing others' behavior.
c) Learning that occurs when a neutral stimulus becomes associated with a meaningful stimulus, resulting in a similar response to both stimuli.
d) Learning through the use of rewards and incentives.

Answer: C) Learning that occurs when a neutral stimulus becomes associated with a meaningful stimulus, resulting in a similar response to both stimuli.

(Explanation : In Pavlov's famous experiment with dogs, the neutral stimulus (a bell) became associated with the meaningful stimulus (food), causing the dogs to salivate in response to the bell alone.)