

Psychology

Chapter#3

Learning

Definition's of Learning

- Learning refers to relatively enduring change in behavior or knowledge as a result of experience.
- Learning is any relatively permanent change in behavior brought about by experience or practice.
- Learning is the process of acquiring new, or modifying existing, knowledge, behaviors, skills, values or preferences.

Definition's of Learning

- The ability to learn is possessed by humans, animals.
- Any change in our behavior as a result of new experience is said to be learning.
- Learning takes place at all ages, and one learns, when put in a new situation, to make sense and be more comfortable.

Learning (Behaviorism)

- John B. Watson-Book (Behaviorism)- 1924
- Learning according to behaviorists:
 1. Change in behavior
 2. Animal-Human
 3. Forcefully
 4. Empty Brain

Major types of learning

- Learning by association
(Classical conditioning)
- Learning by consequences
(Operant conditioning)

Classical Conditioning

- **Conditioning:** The ability to connect the changes that occur in the environment with behaviors or other actions.
- **Classical Conditioning:** Ivan Pavlov research on the dogs unexpectedly led to his discovery of the learning process now known as classical conditioning. Pavlov was a physiologists, not a psychologist.
- **Classical Conditioning Definition:** “Learning to associate an automatic behavior (or feeling) with a stimulus.”

Classical Conditioning

➤ Explanation

Classical Conditioning is a learning process that occurs through associations between an natural stimulus and a artificial stimulus.

It refers to learning that occurs when a neutral stimulus(e.g a tone) becomes associated with a stimulus (e.g food) that naturally produces a behaviors. He uses specific terms to identify the stimuli and the responses in classical conditioning

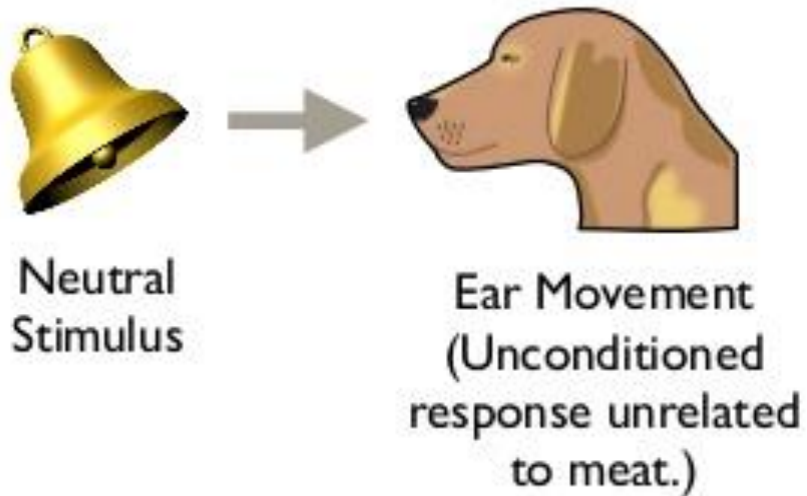
Classical Conditioning

- **Unconditioned stimulus(US):** It is something (such as food) that triggers a naturally occurring responses.
- **Unconditioned response (UR):** It is the naturally occurring responses (such as salivation) that follows the unconditioned stimulus).

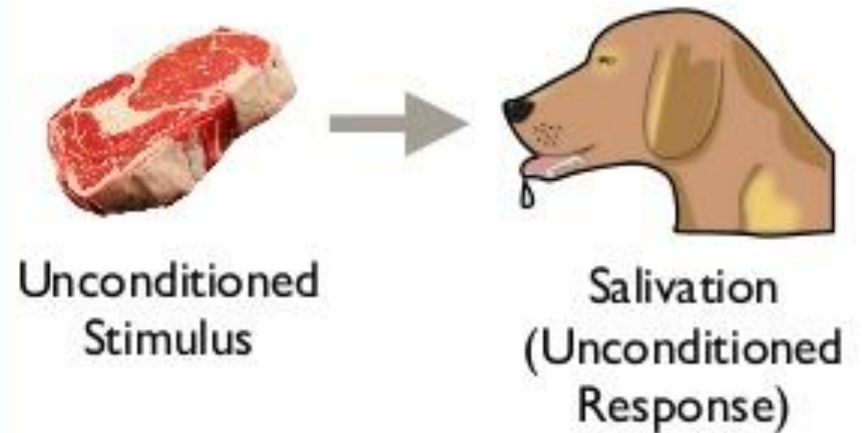
Classical Conditioning

- **Conditioned stimulus (CS):** It is a once neutral stimulus. After repeated the unconditioned stimulus, the neutral stimulus evokes a similar response as the unconditioned stimulus. The neutral stimulus is now called a conditioned stimulus.
- **Conditioned response(CR):** It is the acquired response to the formerly neutral stimulus.

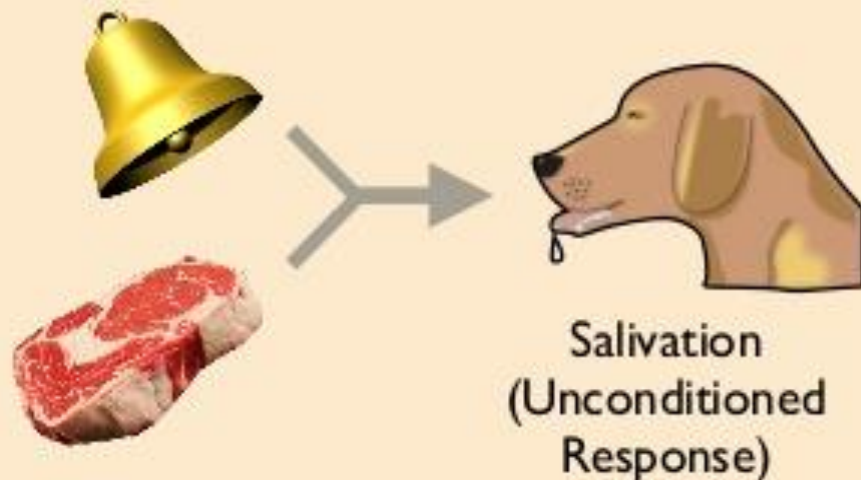
1. Before Conditioning



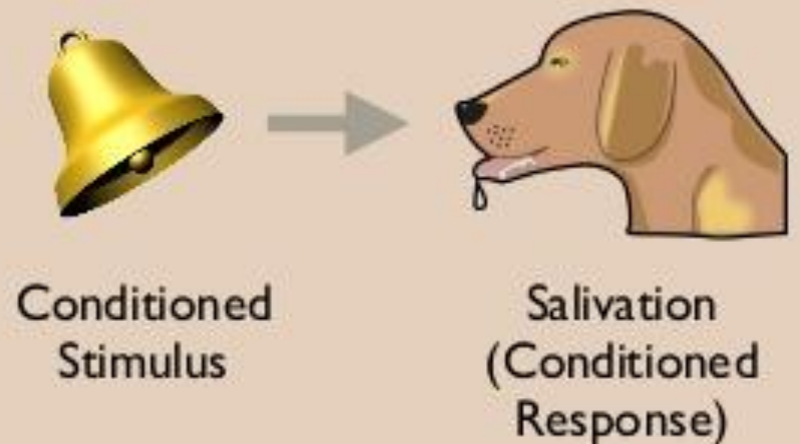
2. Before Conditioning



3. During Conditioning



4. After Conditioning



Standard classical conditioning paradigm

UCS → UCR
(food) (salivation)

Cs + UCS → UCR
(bell) (food) (salivation)

CS alone → CR
(bell alone) (salivation)

Case study

- Case study on the "**Little Albert**" given by behaviorist John B. **Watson**

Operant Conditioning

Operant: Any active behavior that operates upon the environment to generate consequences.

Operant Conditioning: The behavior is followed by a consequences, and the nature of the consequences modifies the organisms tendency to repeat the behavior in the future.

It is the learning that occurs based on the consequences of behavior and can involve the learning of new actions.

Explanation

Thorndike and **Skinner** was the first scientists to systematically study **operant conditioning**.

B.F Skinner used a skinner box to study operant learning. The box contains a bar or key that the organism can press to receive food and water, and a device that records the organisms responses.

Thorndike Trial & Error Theory

Psychologist Edward L. Thorndike (1874–1949) was the first scientist to systematically study operant conditioning. In his research Thorndike (1898) observed cats who had been placed in a “puzzle box” from which they tried to escape. At first the cats scratched, bit, and swatted haphazardly, without any idea of how to get out. But eventually, and accidentally, they pressed the lever that opened the door and exited to their prize, a scrap of fish. The next time the cat was constrained within the box it attempted fewer of the ineffective responses before carrying out the successful escape, and after several trials the cat learned to almost immediately make the correct response.

Thorndike Trial & Error Theory

- **Stages in the process of learning**
 1. **Drive:** Hunger + intensified with the sight of food.
 2. **Goal:** To get food by getting out of the box.
 3. **Block:** Box in which cat was confined.
 4. **Chance Success:** Several random movements
+ By chance, cat succeeded in opening the door

Thorndike Trial & Error Theory

5. Selection of proper movement: Gradually, the cat recognized the correct manipulation of lever and selected proper movement.

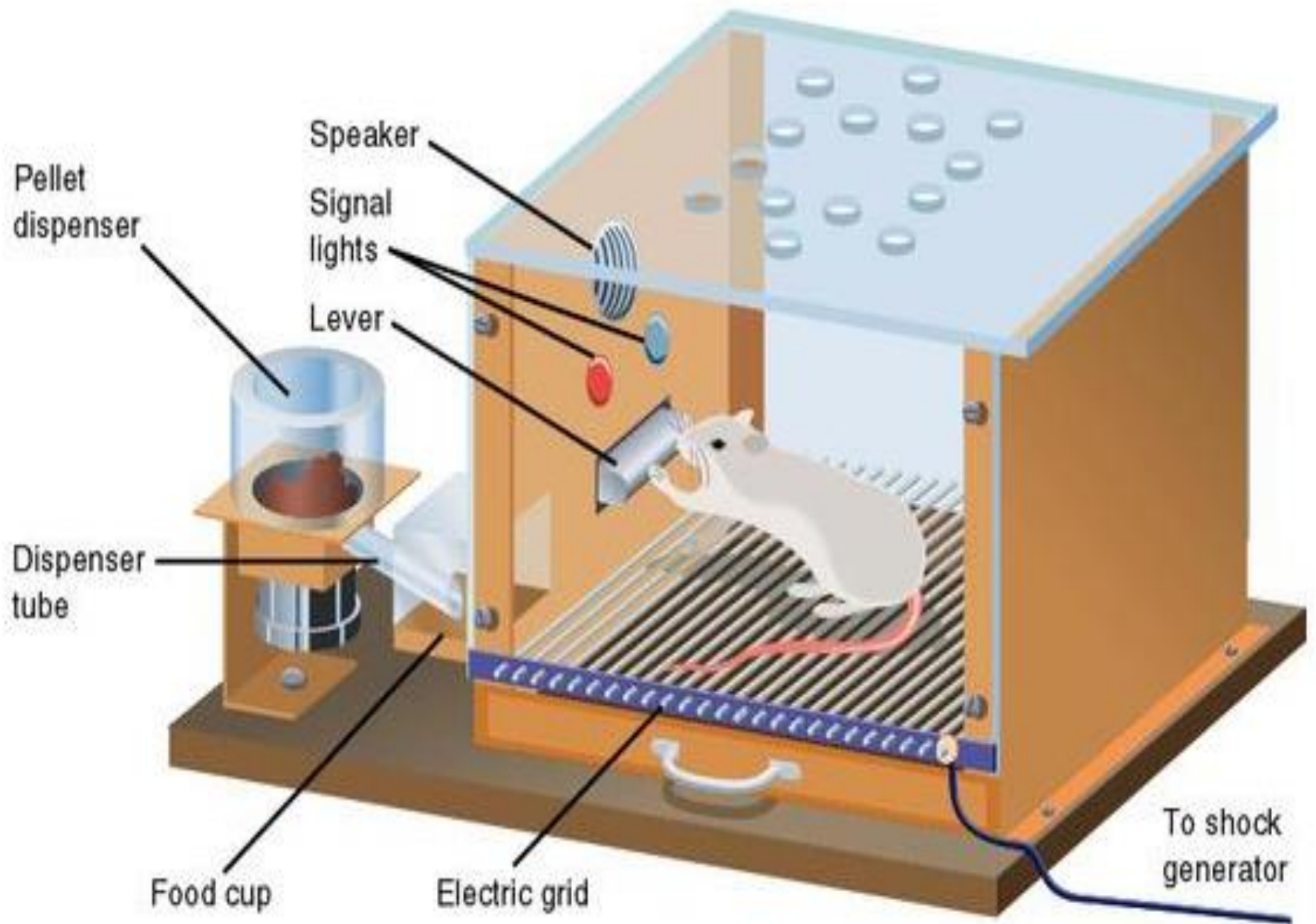
6. Fixation: Cat learned the proper way of opening box, Eliminating incorrect response and fixing right one.

Skinner Experiment

The influential behavioral psychologist B. F. Skinner (1904–1990) expanded on Thorndike's ideas to develop a more complete set of principles to explain operant conditioning. Skinner created specially designed environments known as operant chambers (usually called Skinner boxes) to systematically study learning. A Skinner box (operant chamber) is a structure that is big enough to fit a rodent or bird and that contains a bar or key that the organism can press or peck to release food or water. It also contains a device to record the animal's responses.

Skinner Experiment

The most basic of Skinner's experiments was quite similar to Thorndike's research with cats. A rat placed in the chamber reacted as one might expect, scurrying about the box and sniffing and clawing at the floor and walls. Eventually the rat chanced upon a lever, which it pressed to release pellets of food. The next time around, the rat took a little less time to press the lever, and on successive trials, the time it took to press the lever became shorter and shorter. Soon the rat was pressing the lever as fast as it could eat the food that appeared. As predicted by the law of effect, the rat had learned to repeat the action that brought about the food and cease the actions that did not.



Components of Operant Conditioning

Reinforcement: Any event that strengthens or increase the likelihood of a behavior.

Types of Reinforcement:

- **Positive reinforcement:** Strengthens a response by presenting something pleasant after the response.
E.g. The little boy receives Rs.50 (Reinforcing Stimulus) for every “A Grade” on his report card.
- **Negative reinforcement:** Strengthens a response by reducing or removing something unpleasant.
E.g. Taking aspirin to reduce the pain of a headache is negative reinforcement.

Components of Operant Conditioning

- **Punishment:** Any event that weakens or decreases the likelihood of a behavior.

Types of Punishment:

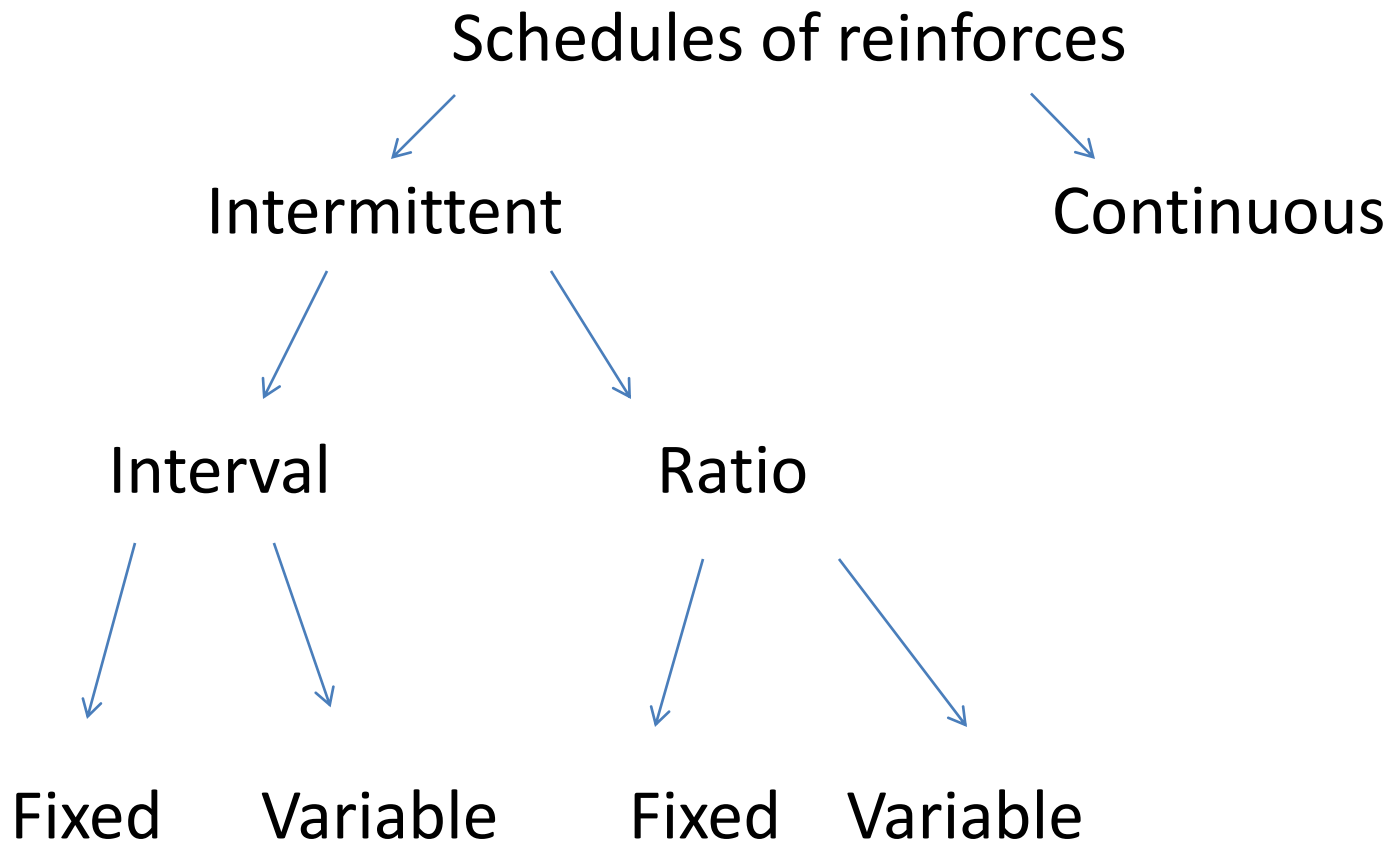
- **Positive punishment:** It weakens a response by presenting something unpleasant after the response.

E.g. When a student talks out of turn in the middle of class, the teacher might scold the child for interrupting her.

- **Negative punishment:** It weakens a response by reducing or removing something pleasant.

E.g. When a student talks out of turn again, the teacher promptly tells the child that he will have to miss recess because of his behavior.

Schedules of Reinforcement



Schedules of Reinforcement

- **Definition:** The determination of when reinforcers are applied; after every response or only after some responses
- **Two general categories** of schedule are:
 - **Continuous Reinforcement:** Every behavior is reinforced; the simplest schedule
 - **Intermittent Reinforcement:** Only some behaviors are reinforced; four types are identified in the text:
 - **Fixed Interval:** based on a fixed time interval
 - **Fixed Ratio:** based on a fixed number of responses
 - **Variable Interval:** based on a variable time interval
 - **Variable Ratio:** based on a variable number of responses

Rewards used by organizations

- **Material rewards:** pay, pay rises, stock options, profit sharing, bonuses(bonus plans), incentive plan, expense plan.
- **Supplemented benefits:** company automobiles, health insurance plans, pension contributions, vacations and sick leaves, child care support.

Rewards used by organizations

- **Social personal rewards:** praise, developmental feedback and other nonverbal signals.
- **Rewards from the task:** Sense of achievement, jobs with more responsibility, self-direction performing important tasks.
- **Self administered rewards:** self recognition, self praise, self development through expanded knowledge/ skills.