Learning & Learning Theories
Index:

- Learning
- Definitions
- Characteristics
- Theories of Learning - Trial and Error, Classical, Operant and Gestalt
- Factors affecting Learning
Learning Objectives

The students will be able to:

- Define Learning
- Describe various Theories of Learning
- Differentiate between Trial & Error, Classical Conditioning, Operant Conditioning and Insight Theory
- Explain various Factors Affecting Learning
Learning

- Change in behavior as a result of experience.
- Our goals and personality traits are all result of learning.
- Everyone of us is learning one thing or another although he may not be aware of it.
According to Crow and Crow: “Learning involves the acquisition of knowledge, habits and attitudes.”

According to Gates: “Learning is modification of behavior through experience and training.”

According to Kingsley and Garry: “Learning is the process by which behavior originates or changes through practice or training.”
Characteristics of Learning:

- Learning is change in behavior.
- Learning is continuous.
- Change in behavior caused by Learning is relatively permanent.
- Learning is Universal process.
- Learning is purposeful.
- Learning is transferable from one situation to another.
Learning helps in proper growth and development
Learning helps in proper adjustment
Learning involves reconstruction of experiences
Theories of Learning
Connectionist

Trial and Error Theory

Behaviorist

Classical Conditioning

Operant Conditioning

Gestalt

Insight Theory
Trial and Error Theory
Propounded by E.L. Thorndike

Learning is a matter of Bond Connection and that bond is S-R.

We learn by trials, making errors during the trials and eliminating the wrong responses.

It is also known as ‘Learning by Selection of the Successful Variant.’
Thorndike performed an experiment on **Hungry Cat.**

It was put in a box which could be opened with a latch.

The lever was inside the box.

The cat made many attempts to open the box. With each successive trial its wrong responses decreased.
https://www.youtube.com/watch?v=M_KLxVJPjKM
Stages of Trial and Error Learning

- **Drive:** It was the hunger and was intensified by the sight of the food.
- **Goal:** To get the food by getting out of the box.
- **Block:** The cat was confined in the box with a closed door.
**Random movements:** The cat persistently tried to come out of the box without knowing how.

**Chance success:** As a result of random movements, the door opened by chance.

**Selection:** The cat recognized correct way.

**Fixation:** All incorrect responses were eliminated.
Conditioning Theories
a) **Classical Conditioning**

- Was given by *Ivan Pavlov, (Russian Psychologist)*
- Performed an experiment on *Hungry Dog.*
General model: Stimulus (S) elicits Response (R)

For eg: If air is blown into your eye, you will blink. You have no voluntary control whether the blink occurs or not.

Unconditioned Stimulus (UCS) elicits Unconditioned Response (UCR)

Neutral Stimulus (NS) does not elicit any response.

After conditioning Neutral Stimulus changes into Conditioned Stimulus.
UCS: Unconditioned Stimulus

UCR: Unconditioned Response

CS: Conditioned Stimulus

CR: Conditioned Response

Before conditioning

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<th>FOOD (UCS)</th>
<th>SALIVATION (UCR)</th>
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During conditioning

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<th>BELL + FOOD (UCS)</th>
<th>SALIVATION (UCR)</th>
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After conditioning

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<th>BELL (CS)</th>
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**Principles**

**Extinction:** If CS (*Bell*) is presented alone for a number of times without the food, the magnitude of the CR (*Salvation*) begins to decrease and after a point of time extinct. This gradual process of disappearance of CR is known as Extinction.

**Spontaneous Recovery:** After extinction, when CR (*Salvation*) is no longer evident, the behavior reappears spontaneously. The reappearance of extinguished CR after an interval in which pairing of CS (*Bell*) and US is not repeated is called Spontaneous Recovery.
Stimulus Generalization: The dog provided CR (Salvation) not at the sight of the food but to stimuli like ringing of the bell, appearance of light and things that were associated with its being fed. This is known as Stimulus Generalization.

Stimulus Discrimination: It is opposite to Stimulus Generalization. The subject learns to react differently in different situations. The dog may salivate at the noise of the bell but not at the horn.
b) **Operant/Instrumental Conditioning**
Given by B.F. Skinner.

Revolted against ‘No Stimulus, No Response’ mechanism.

Organism learns to engage in certain behavior because of the effects of that behavior.

In this we learn to associate between our responses and what follows afterwards, its consequences.

For eg: To get a snack we open a refrigerator.
Skinner gave some concepts:

- **Respondent Behavior:** The response *elicited* by ‘Known Stimuli’ is known as Respondent Behavior. The stimulus preceding the response is responsible for causing the behavior. Eg.: *jerking one’s hand when jabbed with a pin* and then not come in the contact of the pin in the future.

- **Operant Behavior:** The response *emitted* by an ‘Unknown Stimuli’ is known as Operant Behavior. The stimulus causing Operant Behavior is unknown. Eg: *arbitrary movements of legs/arms.*
✓ **Reinforcement:** It is identical to the presentation of a reward. A reinforcer is the stimulus, the presentation or removal of which increases the probability of a response being repeated.

✓ **Reinforcer:**

- **Positive Reinforcer:** It is any stimulus such as food, water etc. whose *introduction/presentation* increases the likelihood of a particular behavior.

- **Negative Reinforcer:** It is any stimulus whose *removal or withdrawal* increases the likelihood of a particular behavior. Eg: To have maximum participation in a function attendance is given to participants rather than making it compulsory.
Gestalt Theory
Also known as *Insight Theory*

Gestalt is a *German word* which means ‘*whole*’ or ‘*total pattern*’.

It is contribution of Gestalt Psychologists who were studying nature of Perception.

**Max Wertheimer, Wolfgang Kohler and Kofka** are the leaders of Gestalt Psychology.

They believed that *an individual perceives a thing as a whole*.

Learning takes place as a *whole rather than parts*.
They did an experiment on a chimp *Sultan*.

They termed it *as a mental process marked by sudden an unexpected solution to a problem*.

It is often called the – ‘*aa-ha*’ experience.
Factors on which Insight Theory Depends:

- **Experience:** Past experience helps in insightful solution of a problem. Eg: A child can’t solve mathematical questions if he doesn’t know the formulas.

- **Intelligence:** Insightful solution depends upon the basic intelligence of the learner. The more intelligent the individual is, the greater will be his insight.

- **Learning situation:** How insightfully an individual will react depends on the situation in which he has been placed.
**Initial efforts:** Insightful learning has to pass through the process of trial and error but this stage doesn’t last long. These initial efforts pave the path for insightful learning.

**Repetition and generalization:** After obtaining an insightful solution of a particular type of problem, the person tries to implement it in other situation demanding similar type of solutions.
Factors Affecting Learning
They are divided into 4 broad categories:

- **Learner Related Factors**
- **Content Related Factors**
- **Factors Related to Methods of Teaching**
- **Teacher Related Factors**
a) Learner Related

- Psychological Factors:
  - Maturation
  - Age
  - Level Of Motivation
  - Intelligence
  - Physical Health
  - Goal setting and Level of Aspiration
  - Readiness and Will-Power
Physiological Factors:

- Organic defects such as bad vision or hearing
- Fatigue
- Environmental conditions
- Drugs
- Time of the day
b) Content Related:

- Difficulty of the Task
- Length of the Task
- Selection of the Content
- Meaningfulness of the Task
- Pronounceability
- Discriminability
- Associativness
- Perceptual Organization
c) **Methods of Teaching:**

- Whole vs Part Learning
- Recitation
- Learning by doing
- Suitability of Methods
- Distribution of Practice
- Knowledge of Results

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d) **Teacher Related:**

- **Mastery over subject**
- **Personality and behavior traits of the teacher**
- **Type of discipline and interactive maintained by the teacher**
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Operant Conditioning – AP Psychology Community
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