Psychology of Learning

(EDTE 202)

Session 2

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Warm Up

1. **Write down any 2 things that the definition of learning precludes.**

2. **Why is Growth or Maturation not considered as learning?**

Lesson Topic

Classical Conditioning (Ivan Pavlov)

Lesson Objectives:

By the end of the lesson, you will be able to:

- describe Ivan Pavlov's Classical Conditioning experiment,
- explain the elements of Classical Conditioning,
- examine the educational implications of Pavlov's Classical Conditioning theory,
- apply Pavlov's theory in modifying people's behaviour.

Definition of Terms

- **Stimulus:** anything that elicits a response. E.g. a burn, the smell of food, lightning, etc.
- **Response**: a reaction to a stimulus. E.g. a shout after a burn, swallowing saliva, cringing.
- **Unconditioned stimulus (US**): a stimulus that automatically elicits a reflexive response, a response without prior learning. E. g. snake
- **Unconditioned Response (UR)**: The automatic or unlearned response that a **US** elicits.

Definition of Terms Contd.

- **Neutral stimulus:** a stimulus that on its own does not elicit any response. E.g. belt
- **Conditioned stimulus (CS)**: an initially neutral stimulus that now elicits a new response when it is paired with a US. E. g. torch light.
- **Conditioned Response**: the response that the CS elicits/triggers. E. g. people **cringing** when torch light flashes. Cringing is the response.

Definition of Terms Contd.

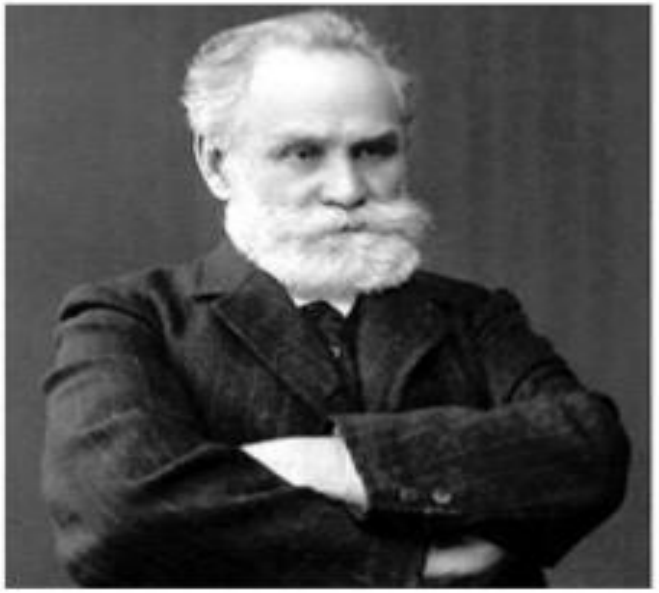
- **Reflexes**: they are responses that are **unlearned or universal**. They are **involuntary** behaviours. They are controlled by eliciting stimuli. E. g. blinking when a bright light flashes.
- **Conditioned behaviours:** they are behaviours that are learned through association. E. g. fear at the sight of a doctor's syringe.

Classical Conditioning Theory

Ivan Pavlov

1849-1936

- Pavlov, a Russian physiologist, first described classical conditioning in 1899 while conducting research into the digestive system of dogs.



Classical Conditioning Experiment

- Ivan Pavlov was a noted Russian physiologist who studied digestive processes of animals.

- It was while studying digestion in dogs that Pavlov noted an interesting occurrence – his canine subjects would begin to salivate whenever an assistant entered the room.

- In his digestive research, Pavlov and his assistants would introduce a variety of edible and non-edible items and measure the saliva production that the items produced.

Classical Conditioning Experiment

- Salivation, he noted, is a **reflexive process**. It occurs automatically in response to a specific stimulus and is not under conscious control.

- Pavlov suggested that the salivation was a learned response. The dogs were responding to the sight of the research assistants' white lab coats, which the animals had come to **associate** with the presentation of food.

- Unlike the salivation response to the presentation of food, which is an **unconditioned reflex**, salivating to the expectation of food is a **conditioned reflex**.

Classical Conditioning Experiment

- He used food as the unconditioned stimulus, or the stimulus that evokes a response naturally and automatically. The sound of a bell was chosen to be the **neutral stimulus**.

- The dogs would first be exposed to the sound of the bell, and then the food was immediately presented.

Classical Conditioning Experiment

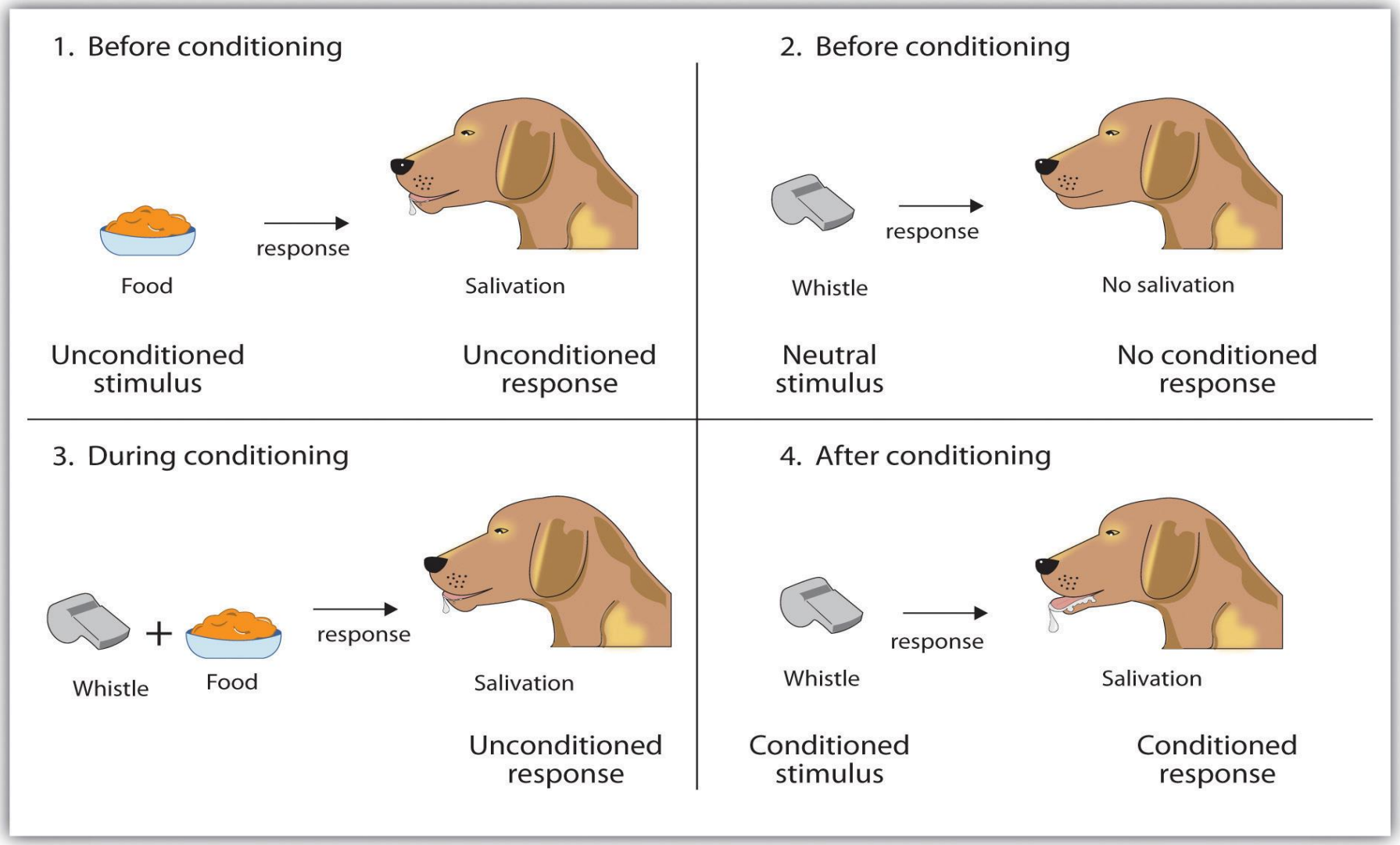
- After several conditioning trials, Pavlov noted that the dogs began to salivate after hearing the **bell**. "A stimulus which was neutral in and of itself had been superimposed upon the action of the inborn alimentary reflex.“

- In other words, the previously **neutral stimulus** (the bell) had become what is known as a **conditioned stimulus** that then provoked a **conditioned response** (salivation).

The Classical Conditioning Process

Diagram:	Explanation
Neutral Stimulus ringing bell	**(Neutral Stimulus means nothing to the subject.)** The sound of the bell is just an annoying sound, to the dog.
UCS ----------> UCR **food ----------> salivation**	**(Natural Stimulus-Response)** Eating food naturally produces salivation.
CS ----------> UCS ----------> UCR **bell ----------> food ----------> salivation**	**(Conditioning/Learning Stage)** In the training, Pavlov rings the bell, then presents the food, the dog salivates.
CS ----------> CR **bell ----------> salivation**	**(Learned/Conditioned Response)** Now, when the dog hears the bell, the dog salivates.

Summary of Classical Conditioning



Activity 1

Watch the following video and answer the question that follows:

- In the Zoom chat box, write down any 2 real life situations that can be explained using classical conditioning theory.
- Explain your answer to the whole class.

Processes in Classical Conditioning

Pavlov identified 5 main processes during his classical conditioning experiment:

- Acquisition
- Extinction
- Stimulus generalisation
- Stimulus discrimination and
- Spontaneous recovery.

Processes in Classical Conditioning: Acquisition

- **Acquisition is the overall process during which the organism learns to associate 2 events.**
- The rate of learning is often very fast in the early stages of the acquisition phase.

- Timing of the CS and UCS pairing is critical.
- Pavlov found that a very short time between presentations of the 2 stimuli was most effective.
- **Acquisition is more rapid when the CS occurs and remains present until the UCS is presented.**
- The end of the acquisition stage is said to occur when the CS alone produces the CR.

Processes in Classical Conditioning: Extinction

- A conditioned stimulus-response association can fade over time or disappear altogether.
- **Extinction is the gradual decrease in the strength or rate of a CR that occurs when the UCS is no longer presented.**
- Extinction is said to have occurred when a CR no longer occurs following presentation of the CS.

E.g. Pavlov's dogs eventually ceased salivating (CR) in response to the bell (CS) presented alone after a number of trials in which the food (UCS) did not follow the sound of the bell).

Processes in Classical Conditioning: Spontaneous Recovery

- **Spontaneous recovery is the reappearance of a CR when the CS is presented, following a rest period after the CR appears to have been extinguished.**

- Spontaneous recovery does not always occur and when it does, it is often short-lived.
- Furthermore the CR tends to be weaker than it was originally.

Processes in Classical Conditioning: Stimulus Generalisation

- Pavlov observed that his dogs salivated to other noises that sounded like a bell.
- This is known as **stimulus generalisation** which is the tendency for another stimulus to produce a response that is similar to the CR.
- The greater the similarity between stimuli, the greater the possibility that a generalisation will occur.
- E.g. is a stimulus generalisation to the sounds of a bell occurred with one of Pavlov's dogs, the dog might also salivate in response to the ringing of the front-door bell.
- However, the amount of saliva produced by the dog would tend to be less than the amount produced by the original bell to which the dog was conditioned.

Processes in Classical Conditioning: Stimulus Discrimination

- Stimulus discrimination occurs when a person or animal responds to the CS only, but not to any other stimulus that is similar to the CS.
- E.g. in Pavlov's example, stimulus discrimination would be observed when a dog salivated *only* in response to the sound of the 'experimental bell', and not in response to any other similar sound such as a door bell.

Activity 2: Pair Work

- **In your pairs, discuss and write down 3 educational implications of classical conditioning.**

- **Pairs will be called at random to share their answer with the whole class.**

Educational Implications

- Use attractive learning aids.
- Decorate the classrooms.
- Encourage students to work in small groups for difficult learning tasks.
- Greet the students and smile at them when he comes to the classroom.
- Inform the students clearly and specifically the format of quizzes, tests, and examinations.
- Make the students understand the rules of the classrooms.
- Timing of the CS and UCS pairing is very important

Lesson Evaluation

- Describe Ivan Pavlov's experiment.
- Explain the four key elements of classical conditioning
- Identify any learning situation where you can apply one of Ivan Pavlov's classical conditioning theory
- Explain the FIVE main processes identified by Ivan Pavlov during his classical conditioning experiment
- Discuss four educational implications of Ivan Pavlov's theory of learning.