Quadrant II – Notes

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NOTES

CLASSICAL CONDTITIONING

Classical conditioning is a type of learning where stimulus that brings out biological response is paired with a new stimulus that results in the same reaction.

A Russian physiologist Ivan Pavlov in 1890's discovered the process of classical conditioning. When Pavlov was carrying out experiments on digestive processes of dogs he observed that dogs begin salivating at the sight of the technician who feed them. To find out whether the response was associated with the food Pavlov carried out the experiment with dog.

Pavlov's Experiment

Pavlov made the experimental setup wherein he presented the dog with food and measured the salivation that occurred. He then started to ring the bell and serve food to the dog. This was repeated several times. Finally, only the bell was rung without serving the food. It was observed that the dog started salivating after hearing the bell even when the food was not being served.

Pavlov concluded that when a new stimulus was associated with the presentation of food, that stimulus became associated with food and caused salivation. Similar response was even noticed when the food was being served at the sound of metronome or using a light bulb as a stimulus.

In Pavlov's studies he referred food as unconditioned stimulus. Unconditioned stimulus is when its effect is not learned and triggers an unconditioned response that occur naturally and completely involuntarily. The bell is first a neutral stimulus though. Which is later gets converted to conditioned stimulus with repetitive exposure with the unconditioned stimulus.

Pavlov also reported that

- Learning occurred most rapidly when the interval between the sound and the food was short.
- Classical conditioning triggers the involuntary responses to the neutral stimulus if presented along with the unconditioned stimulus. It does not create a new behaviour.
- Saliva which is produced as a reaction to sound (conditioned stimulus) differed in composition with the saliva produced at the sight of the food. This implies that the conditioned response was not the exact replica of the unconditioned response.
- Conditioning can be undone if the conditioned stimulus is presented without the unconditioned stimulus several times.

Response of the brain

When a dog is presented with food, it acts as a stimulus and stimulates eyes and nose in response to the sight and smell of the food, these signals are perceived by the brain which stimulates salivary glands to secrete saliva. Saliva aids in digestion.

When the dog hears the sound of the bell it sends signal to the brain which notices the stimulus but does not create any response. Sound acts as a neutral stimulus as it does not create any response.

When the food is served to the dog at the sound of a bell, two neurological processes are activated simultaneously that is the ringing of the bell as well as sight

and smell of food which is being served. This creates new synaptic connections in response to both the stimuli. These connects leads to the acquisition (association of food and sound together). With a repeated exposure this synapsis is strengthened so that it only takes the sound to activate the pathway leading to salivation.

Discrimination is classical conditioning

It is when a conditional response occurs only after the conditioned stimulus and not after stimuli that are similar. Pavlov's dog showed some degree of discrimination to sounds that were being played. Dog just did not respond to any noise, although it did show a response which were similar to the conditioned stimulus.