

LEARNING

Learning may be defined as the relatively permanent change in behaviour that occurs as a result of practice.

CLASSICAL CONDITIONING

Classical conditioning gets its name from the fact that it is the kind of learning situation that existed in the early “classical” experiments of Ivan. p. Pavlov. In the late 1890’s, this famous Russian Psychologist and Nobel Prize winner began to establish many of the basic principles of this form of conditioning. Classical conditioning is also called as Pavlovian conditioning or Respondent conditioning.

MEANING OF CLASSICAL CONDITIONING

Classical conditioning is the formation of an association between

1. a conditioned stimulus and
2. a response

Through the repeated presentation of the conditioned stimulus in a controlled relationship with an unconditioned stimulus that originally elicits that response.

PAVLOV’S EXPERIMENT

A dog is prepared for experiment by having a minor operation performed on its cheek so that part of the salivary gland is exposed to the surface. A capsule attached to the cheek measures salivary flow. Pavlov designed an apparatus, called harness, on which the dog was made to stand quietly. The sound proof laboratory was so arranged that meat powder can be delivered to a pan in front of the dog by a remote control. Salivation was recorded automatically. The experimenter can view the animal through a one-way glass panel, but the dog is alone in the experimental room, isolated from extraneous sights and noises.

At the beginning of the experiment Pavlov noted that no saliva flowed when he rang a bell.

Now a bell sound was given. After a few seconds the meat powder was delivered. The dog was hungry and ate the food. The recording device registered copious salivation.

A few more trials were given in which the bell sound was always followed by salivation.

After several trials Pavlov rang the bell but did not present food. He found that the dog salivated in response to the bell sound alone even though food did not follow the bell sound.

When this happened, it was concluded that the dog has been conditioned to salivate to the bell sound and a conditioned response has been established.

In classical conditioning two stimuli are presented to the dog.

Meaning of the term stimulus is anything in the environment that can be detected by the senses.

One of the stimuli in classical conditioning is called the conditioned stimulus (c s)

A stimulus that is originally ineffective, but which, after pairing with an unconditioned stimulus, evokes the conditioned response

The bell sound was the conditioned stimulus in the Pavlovian experiment.

The other stimulus is known as the unconditioned stimulus (u c s)

A stimulus consistently evokes a response or is reliably followed by one is known as unconditioned stimulus (u c s)

Food was the unconditioned stimulus in the pavlovian experiment.

In classical conditioning two responses are elicited.

Salivation of the dog for the sight of food is unconditioned response (u c r) in the experiment.

The response that reliably follows the unconditioned stimulus is known as the unconditioned response (U C R)

The two stimuli- the c s and the u s are paired in classical conditioning so that the conditioned stimulus comes a short time before the unconditioned stimulus is presented. After the stimuli have been paired a number of times, presentation of the originally neutral conditioned stimulus evokes a response. This response is what is learned in classical conditioning. It is termed the conditioned response (c r)

A response produced by a conditioned stimulus after it has been paired with an unconditioned Stimulus is called Conditioned Response.

A chart of events in classical conditioning

BEFORE CONDITIONING.

C S----- no response or irrelevant response (Bell sound)
U S -----U R (food) (salivation)

DURING CONDITIONING

C S + U S -----U R (Bell sound)(food) (salivation).
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AFTER CONDITIONING

C S ----- C R (Bell sound). (salivation)

LAWS OF CLASSICAL CODITIONING

The following are some of the laws that characterize classical conditioning.

ACQUISITION

Each paired presentation of the c s and the u c s is called a trial. The period during which the organism is learning the association between the c s and the u c s is the acquisition stage of conditioning.

The acquisition of a conditioned response is usually gradual. As more and more trials (c s-u c s pairings) are given, conditioned responses grow stronger and stronger or are more and more likely to occur.

Acquisition – The stage during which a new response is learned and gradually strengthened.

EXTINCTION

When the c s is presented alone without the u c s for a number of trials, the dog gradually decreases salivation. The number of drops of saliva decreases over unpaired trials and at one particular stage the c s (bell sound) is eliciting no salivation at all.

EXTINCTION The procedure of presenting the conditioned stimulus (bell sound) without the unconditioned stimulus (food) to an organism.

SPONTANEOUS RECOVERY

The day after extinction of a salivary conditioned response, a dog is brought back into the laboratory and the bell sound (c s) is presented. The dog suddenly salivated when the c s was presented because of previous conditioning. This is known as spontaneous recovery.

SPONTANEOUS RECOVERY The return in strength of a conditioned response after a lapse of time following extinction.

GENERALISATION

In the classical conditioning experiment, a dog learns to salivate to other similar. (For example, sound of a turning fork). This is called generalization.

DISCRIMINATION

Discrimination is the process of learning to make one response to one stimulus and a different response, or no response, to another stimulus. In experiment two different sounds C S1 and C S2 were presented. C S1 was followed by mild shock and C S2 was not followed by mild shock and C S2 was not followed by shock.

During the course experiment the differentiated the two sounds and salivated only to the sound C S2.

OPERANT CONDITIONING

Operant conditioning refers to increasing the probability of a response in a particular stimulus environment by following the response with reinforcement.

The word operant derives from the fact that the operant behaviour operates on the environment to produce some effect.

SKINNER'S EXPERIMENT

B. F. Skinner did not his influential experiment on operant conditioning. He invented the Skinner box, and it is often called the operant chamber. All operant chamber is a simple box with a device at one end that can be worked by the animal in the box. The device is a lever whenever the lever is pressed a pellet of food falls into the dish inside the box. There is a small light bulb above the bar. This can be lighted at the experimenter's discretion.

A hungry rat was put inside the box, left alone in the box, the rat, being hungry, begins to explore the box. The rat moves about restlessly and by chance presses the bar. A pellet of food is released. Every time the rat- presses the box a pellet of food falls into the dish. The rat eats and soon presses the bar again. The food reinforces bar pressing and the rate of pressing the bar increased dramatically. At this point, we can conclude that operant conditioning has been established.

ACQUISITION

In operant conditioning experiment the rate of bar pressing gradually increases. The stage in which the food reinforces bar pressing, and the rate of bar pressing increase gradually is called acquisition stage.

EXTINCTION

If the food magazine is disconnected, so that pressing the bar no larger delivers Food, the rate of bar pressing will diminish. That is, operant response undergoes extinction.

GENERALISATION

There are light bulbs above the bar. Food is supplied when the lights are turned on. The animal learns to press the bar whenever the light is turned on regardless of its colour. Apprehending similar stimulus and responding is generalization.

DISCRIMINATION

Food is presented if the bar is pressed while the light is on. There is no food supply if the bar is pressed in the dark. This selective reinforcement leads to the rat's pressing the bar only in the presence of the light. This response is discriminative response.

COGNITIVE LEARNING

Cognitive learning is an important form of learning. It is different from classical and operant conditioning.

It involves the forming of new associations and the perceiving of new relationship among events. Links are made among stimuli so that stimulus – stimulus (s-s) associations are made.

COGNITION DEFINED

Cognition refers to the processing of the information about the environment that is received through the senses.

PROCESS OF COGNITION

Cognition process involves the following steps

- 1)The selected of information.
- 2)The making of alternations in the selected information.
- 3)The association of items of information with each other.
- 4)The elaboration of information in thought.
- 5)The storage of information memory.
- 6)The retrieval of stored information, when needed.

COGNITION AND LEARNING

The terms 'cognition' and 'learning' together gives a definition of cognitive learning. It is a change in the way information is processed as a result of experience a person or animal has had.

EXAMPLES OF COGNITIVE LEARNING

Latent learning, insight learning and Imitation are examples of cognitive learning.

LATENT LEARNING

DEFINITION

Latent learning is that occurs but is not evident in behaviour until later, when conditions for its appearance are favourable.

The word latent means “hidden “, latent learning is said to occur without reinforcement of particular response and seems to involve changes in the ways information is processed. Thus it is an example of cognitive learning.

LATENT LEARNING EXPERIMENT

In a latent- learning experiment, rats in an experimental group are first given plenty of experience in a maze without being reinforced for the particular responses involved in running the maze; they are simply allowed to live in it for a time. After the animals in the experimental group have thoroughly experienced the maze reinforced maze leaning of the sort begins.

While the experimental animals are experiencing the maze, rats in a control group are being treated like the experimental rats except that they are not being given experience with the maze. The question is whether in comparison with the control rats, the experimental animals will learn anything from their experience with the maze. If they do so such latent or hidden learning will show up in their performance when they are reinforced in the maze.

They will make use of what they learned as they explored the maze; and thus, when reinforcement for maze learning starts, they will do better than group rats learned the maze faster and with fewer errors than did the control animals.

LEARNING BY IMITATION

DEFINITION

Imitation as a response that is like the stimulus triggering the response; a person or animal watches or hears another do or say something, then responds in the same way. It is another cognitive-learning situation, occurs when we imitate another individual or model our behaviour on that of someone else.

What can be imitated seems to be a species- typical capacity. Psychologists tried to explain imitation and modeling in terms of classical and instrumental conditioning principles. Modern psychologists have come to the view that imitation and modeling are the result of an innate capacity possessed by certain animal species, human beings included.

Imitation learning is also known as observational learning focused by Bandura and Walters. They viewed observational learning as requiring no direct reinforcement to the learner. Observational learning generally takes place in a social situation involving a model and an imitator. The imitator observes the model and experiences the model’s behaviour and its consequences vicariously. The powerful influence of observational learning is evident in both clinical and everyday settings.

INSIGHT LEARNING

Insight In learning and problem solving, the relatively sudden solution of a problem.

Insight learning Learning which is said to involve perceptual reorganization and transfer of things previously learned to insight situations. The solution comes suddenly after a period during which no progress is made.

NATURE OF INSIGHT LEARNING

In a typical insight situation, a problem is posed, a period follows during which no apparent progress is made, and then the solution comes suddenly. A pleasant “Aha” experience accompanies the sudden solution.

MAJOR CHARACTERISTICS OF INSIGHT LEARNING

The following are the major characteristics of insight learning.

- 1)A solution comes suddenly after a period during which the subject tries various response strategies.
- 2)Perceptual rearrangement helps a great deal.
- 3)The solution can be easily generalized to other similar problems.

HOW DOES INSIGHT LEARNING OCCUR

Insight involves a perceptual reorganization of elements in the environment such that new relationships among objects and events are suddenly seen.

INSIGHT EXPERIMENT- WOLFGANG KOHLER

Wolfgang Kohler, the German psychologists carried out a number of insight experiments. One of them is illustrated below

A food morsel was placed outside the cage at a distance too far for the chimp to reach. Inside the cage was a stick too short to reach the food but long enough to reach another stick outside the cage. This longer stick could be used to rake in the food. In these experiments there was a period of Trial-and error fumbling, with little real progress toward a solution. Then the chimp suddenly stopped what it was doing. Visually surveyed the sticks and the food. Then the chimp used the shorter stick to rake in the longer stick. It then used the stick and got the food.

ESSENTIALS OF INSIGHT LEARNING

- 1) Perceptual reorganization of the environment so that object takes new meanings and new relationships.
- 2) A carryover, or transfer of things previously learned to insight situations.