



Study of theory of Connectionism and its Components/ stages in the process of learning

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Abstract : Connectionism was based on the concept, that elements or ideas become associated with one another through experience and that complex ideas can be explained through a set of simple rules. Connectionism, today defined as an approach in the fields of artificial intelligence, cognitive psychology, cognitive science and philosophy of mind which models mental or behavioural phenomena with networks of simple units, is not a theory in frames of behaviourism, but it preceded and influenced behaviourist school of thought. Connectionism represents psychology's first comprehensive theory of learning. It was introduced by Thorndike, the most commonly cited connectionist.

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Introduction : Connectionism is the theory that all mental processes can be described as the operation of inherited or acquired bonds between stimulus and response. A theory that proposes that all learning consists primarily of the strengthening of the relationship between the stimulus and the response.

Type of learning- The trial and error learning

Connection-Stimulus-response connection, the basic unit of learning according to behaviourist learning theory.

Stimulus- Stimulus can be an object effecting the senses or an idea/ thought. Its nature is purely individualistic that means it differ from organism to organism from time to time from situation to situation and from place to place

- Something causing or regarded as causing a response.
- An agent, action, or condition that elicits or accelerates a physiological or psychological activity or response.
- Something that incites or rouses to action; an incentive:

Response- The Reaction is always in the form of Attraction or Repulsion .Response can be positive or negative, weak or strong, overt or hidden, right or wrong.

- The act of responding



- A reply or an answer.
- A reaction, as that of an organism or a mechanism, to a specific stimulus

Bond- Bond represents the connection in between the stimulus and response. It is denoted by (–)
Strength of connection- The strength of the connection depends upon the reaction time. (The time taken by an organism in giving response after receiving stimulus) the strength of the bond/ connection is inversely proportional to the reaction time. The less the reaction time the more will be the strength of the bond/ connection or vice-versa.

Fundamental Experiment-

E. L. Thorndike had a powerful impact on both psychology and education. Thorndike experimented on a variety of animals like cats, fishes, chicks and monkeys. His classic experiment used a hungry cat as the subject, a piece of fish as the reward, and a puzzle box as the instrument for studying trial-and-error learning

Thorndike (1898) studied learning in animals (usually cats). He devised a classic experiment in which he used a puzzle box (see fig. 1) to empirically test the laws of learning

Thorndike also conducted some of the first laboratory investigations of animal intelligence. A cat has been placed in a “puzzle-box.” The door of the box is held fast by a simple latch. Just outside the cage is a piece of salmon on a dish. The cat moves around the cage, sniffing at its corners. Suddenly, it sees the salmon, moves to the part of the cage closest to it, and begins extending its paws through the bars toward the fish. The fish is just out of its reach. The cat reaches more and more vigorously, and begins scratching at the bars. After a while these responses cease, and the cat begins to actively move around the cage. A few minutes later, it bumps against the latch. The door opens and the cat scampers out and eats the fish. The cat is placed back in the box and a new piece of fish is placed on the dish. The cat goes through the same responses as before and eventually, bumps into the latch once more.

This is repeated again and again. Gradually the cat stops extending its paws through the bars and spends more and more of its time near the latch. Next, the cat begins to direct almost all of its activity near the latch. Ultimately, the cat develops a quick and efficient series of movements for opening the latch.

Thorndike theorized that the cat learned to escape the “puzzle-box” by trial and error. That is, it performed various responses in a blind mechanical way until some action was effect in freeing it from the box. Thorndike postulated the Trial and Error learning to account for the behaviour of the cats.

Components/ stages in the process of learning-



- By analysing the above referred experiment the following components/ stages are evident.
- Need- Every need has a quantum of energy ,that force an organism to act for its fulfilment. Need leads an organism to the state of drive (the state of restlessness).Here the hunger in cat represent need.
- Goal.-The object suppose to satisfy the need .Here the piece of fish meat was acting as goal.
- Block- a hindrances in between the organism and the goal, is an essentiality for intensive efforts by the organism to reach the goal. These efforts can also be termed as wrong response. Here the close doors of the puzzle box acts as hindrance.
- Random movements- various responses in a blind mechanical way until some action was effect in reaching the goal.
- Chance success-out of blind mechanical responses the success is achieved by-chance. This effort can also be termed as right response. , Here the cat bumps against the latch. The door opens and the cat scampers out and eats the fish. Gradual reduction in wrong response-here the cat stops extending its paws through the bars and spends more and more of its time near the latch. Selection of the right response- ,Here the cat begins to direct almost all of its activity near the latch. Ultimately, the cat develops a quick and efficient series of movements for opening the latch. Fixation in the nervous system.- . When ultimately, the cat develops a quick and efficient series of movements for opening the latch.

On the basis of above analysis it can be concluded that-

- The most basic form of learning is trial and error learning.
- Learning is incremental not insightful.
- Learning is not mediated by ideas.
- All mammals learn in the same manner.

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