

# Learning Theories: Thorndike's Stimulus-Response Theory

## Theories of learning

Some psychologists have studied the process of learning very minutely. The inferences that they have drawn from their experiments and Organization of thought that they have presented about the process of learning, are called the theories of learning. Different psychologists have propounded different theories of learning. We shall discuss some of the important theories. In the discussion of these theories we shall first describe those experiments on the basis of which particular psychologist has propounded particular theory, and then we shall discuss its merits and demerits and will discuss its utility in the field of education.

## Thorndike's Stimulus-Response Theory

The American psychologist, **Edward L. Thorndike** conducted several experiments on the process of learning in dogs, cats and monkeys, in order to understand the form of the process of learning of human beings. In this connection one of his experiments conducted on a cat is very important. He got made a cage for a cat. He used such a latch in the cage which opened the door if it was pressed. This cage is called the puzzle box.

Thorndike put a hungry cat in it. After shutting it, he placed a fish in a plate outside the cage. As soon as the cat saw the fish, it started to attempt to come out. It made many types of efforts, it jumped and hit its paws here and there. In this effort, its paw pressed the latch. As a result, the door opened and the cat came out of the puzzle box and ate up the fish to satiate its hunger. Thorndike repeated this experiment on the cat several times and observed that the cat committed less number of mistakes for arriving at position of pressing the latch, and finally a situation was reached in which it pressed the latch without having committed any mistake at all. In other words, it learnt how to open the box. Thorndike inferred the following from this experiment:

1. The first need for learning is objective as food in the above experiment.
2. There is a drive or motive behind the objective, as hunger in the above experiment.
3. It is necessary for a stimulus to exist for the attainment of the objective, as the fish (food) in the above experiment.
4. A response is needed for the attainment of the objective, as the effort by the cat to come out of the box in the above experiment.
5. The responses which are helpful in the realization of the objective, the learner adopts them, and he gives up meaningless activities, as was done by the cat in the above experiment.
6. On realization of the objective, the nervous system of the learner establishes powerful relationship between the stimulus and the response which is helpful in its realization. Whenever that stimulus is presented before the learner in the future, he performs the similar response towards it. In the view of Thorndike, learning is the establishment of this powerful bond between the stimulus and response.

Thorndike has propounded these facts in the form of Stimulus-Response theory. In brief, it is also called S-R Theory. According to this theory, the first need is that of the stimulus. The second need is that of the response, and the third need is that of the intense bond between the stimulus and the response. We are aware that when there is a correct response towards a stimulus, the learner gets satisfaction and he selects that response. This is the situation when a bond between a stimulus and a response is established. On the basis of this relationship, this theory is also called the Bond Theory. Because the learner arrives at the correct response by trial and error, so it is also called the **Trial and Error Theory**, and the learning of this type is called learning by trial and error.

### **Characteristics of S-R Theory-**

The factors that this theory reveals about the process of learning are its characteristics.

1. This theory supports connectionism; this is another thing that it considers only the establishment of relationship between stimulus and response as learning. In the process of learning, previous experiences and new experiences are also connected to each other.
2. According to this theory, application of the acquired knowledge is learning, we cannot call the acquired knowledge as learning until it is used.
3. This theory considers that the objective is necessary for learning and it considers it necessary for a motive or drive to be behind the objective, and it considers the presence of a stimulus which is helpful to the realization of the objective.
4. This theory considers effort by the learner as necessary. According to it a learner learns correct response by trial and error.
5. Thorndike has propounded some laws on the basis of this theory following which the process of teaching-learning becomes effective.

### **Shortcomings of S-R Theory**

1. This theory was propounded on the basis of experiments performed on animals, this does not apply fully on the learning process of man.
2. According to this theory, a stimulus is necessary for learning, while man responds even without any stimulus, and learns as well.
3. This theory talks of arriving at the correct response by trial and error, while man performs the correct response by insight too.
4. This theory considers man a biological machine and learning as mechanical process, while there is a vital role of intelligence, thinking logic and reasoning in the learning by man,
5. This theory lays emphasis on learning by trial and error, which takes much time.

### **Utility of S-R Theory in Education**

1. Children should be prepared for learning, they should be motivated, and this becomes possible when there is a clear objective before them. Therefore, a teacher should explain the objectives of the material to be taught.

2. Imitation is a natural method of learning and in this method, children often learn by trial and error, infants should be given opportunity to learn by trial and error. This method is very useful for the education of dull children.
3. Children should be provided opportunities to learn by self-effort, the knowledge and skill acquired by self-effort is more stable.
4. This theory lays much emphasis on effort, and says that the student should be admired on correct response, and in case of failure, they should be motivated for repeated efforts.
5. Thorndike's laws of learning based on this theory make the process of learning effective, they should be used necessarily.

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