
UNIT 4 LEARNING: NATURE AND THEORIES

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4.0 OBJECTIVES

After reading this Unit, you should be able to:

- Acquire conceptual understanding of learning;
- Understand the classical conditioning and operant conditioning theories of learning;
- Differentiate classical conditioning from operant conditioning theory of learning;
- Acquire the knowledge about cognitive learning theory and social learning theory;
- Observe how learning is going on at different stages of human development; and
- Understand the theories of learning and their implications in day-to-day life.

4.1 INTRODUCTION

Generally, learning implies socialisation leading to the modification of behaviour. However, it should not be considered that learning is concerned with positive aspects of change only. One learns good and bad things both. That is why one possesses virtues as well as vices. Learning changes the mode

of thinking and imagination. Practice also brings change or modification of behaviour. Therefore, practice is a means of learning. Learning occupies an important place in life. It is through learning that man brings changes in his instincts that appear difficult to be changed. Learning therefore provides key to the structure of our personality and behaviour.

Meaning of Learning

As young infants, we learn to hold ourselves upright, to walk, and to use our hands. Later, we learn to run, to play cricket etc. We learn to read, to write, and to memorise information to help us to pass an examination. Thus, we can say that except the simple innate reflex activities like eye-blinking, salivation, knee-jerking, sneezing, vomiting and coughing, all other activities or behaviours are learned.

Every aspect of human development is related to learning. Various modes of behaviour of a person are the outcomes of his learning. Every form of learning depends on maturation which enables one to learn. Learning is the basis of our ability and individual differences. Some people learn more than others, hence it makes them different from others.

Definitions of Learning

Various psychologists have defined learning in different ways. Some such definitions are given below (Lakshmi, 2000):

Skinner: “Learning is a process of progressive behaviour adaptation”.

Crow and Crow: “Learning is the acquisition of habits, knowledge and attitudes. It involves new ways of doing things and it operates in individuals’ attempt to overcome obstacles or to adjust to new situations. It represents progressive changes in behaviour. It enables him to satisfy interests to attain goal”.

Woodworth: “The process of acquiring new knowledge and new responses is the process of learning”.

Gates and others: “Learning is the modification of behaviour through experience and training”.

H.J. Klausmeir: “Learning is a process whereby a change in behaviour results from experience, activity, training, observation and the like”.

4.2 NATURE OF LEARNING

As learning is the process of modification of behaviour, it implies cumulative improvement which is arrived at as a result of various changes that take place while learning is in progress. It is growth through experience and improvement in efficiency of adjustment as a result of practice, insight, observation, imitation or conditioning. Learning involves in making the right response and in continuing to make it to a certain situation. It is a purposeful and goal-directed process. No good learning can take place unless the goal is clear and definite. The activity involved is both physical and mental and is in response to a felt need from within.

However, learning is not an individual matter; all learning is social. It takes place in response to the environment in which there are individuals and group patterns. We learn many things as a result of our association with people in our family, in school and colleges, on the play grounds, and in our profession. Much of our unintentional learning or incidental learning is the product of social influences; even our attitudes are coloured by the group to which we belong.

4.2.1 Principles of Learning

There are certain principles involved in the learning process. Some of them are mentioned below:

- i. **Universal:** Learning is not restricted to any particular age, sex, race, culture, time and place etc. So, it is universal in nature.
- ii. **Continuous process:** It is a never ending process that extends from womb to tomb. It denotes the lifelong nature of learning.
- iii. **Development through learning:** Woodworth rightly said “all activity can be called learning so far as it develops the individual. Development is a never-ending process as learning”.
- iv. **Dynamic and flexible in relation to real life situations:** Learning is not a static process, it is a dynamic phenomenon. The way of living and acquiring knowledge differs from context to context and person to person, hence, there are several channels of learning based on real-life situations.
- v. **As a means:** Learning is directed to reach goals purposively; therefore, it is a means to achieve an end and not an end in itself.
- vi. **Leads to adjustment:** Learning helps an individual to adjust himself adequately to the existing as well as new situations/ environment. Most of the time learning occurs by modifying, adapting and developing behaviour.
- vii. **Result of practice:** Learning is the basis of drill and practice, hence, it has been proven that students learn best and retain information longer when they have meaningful practice and repetition.
- viii. **Physical and mental maturity:** To learn anything, physical and mental maturity are necessary, otherwise, real learning may not occur.
- ix. **Transferable:** Whatever is learned by the individual can be transferred to another person with a positive or negative impact.

4.2.2 Factors influencing learning

The success and failure of learning in terms of introducing desired modification of behaviour of a learner depends on a host of factors some of which are listed below:

- | | |
|------------------------------|---------------------------|
| i. Personal factors | ii. Social factors |
| • Physical and mental health | • Home environment |
| • Age | • School environment |

- Maturation
- Emotional condition
- Needs
- Interest
- Motivation
- Abilities
- Aptitudes etc.
- Cultural context
- Learning materials
- Relationship with teachers, parents and peer groups etc.

Check Your Progress 1

Note: i) Use the space given below for your answers.
ii) Check your answers with those given at the end of the Unit.

1. Discuss the meaning of learning.

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2. Explain the principles of learning.

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4.3 THEORIES OF LEARNING

Several psychologists have tried to explain how and why the learning process takes place. Abundant experiments have been conducted on animals and human beings. The researchers have come to certain conclusions that have taken the form of theories of learning. There are many theories explaining the modes of learning: 1. Trial and Error learning theories, 2. Classical learning theories, 3. Operant conditioning, 4. Cognitive learning theories, and 5. Social learning theories, etc.

Conditioning Theory

The word ‘conditioning’ means the process of ‘training or getting used to’ or ‘accustoming to’ a new situation or a stimulus. It is a process of self-substituting, the original stimulus substituted by a new one and connecting the response with it. There are two types of conditioning: 1. Classical conditioning 2. Operant conditioning.

4.3.1 Classical Conditioning Theory

E.L Thorndike and R.S Woodworth (1929) proposed Stimulus-Response (S-R) bond of learning. According to theory, a stimulus is connected to its response. These bonds between S-R may be motor, perceptual, emotional, and conceptual and can be organised into systems.

Later, the behaviouristic theory of conditioned response was put forward by the Russian psychologist Pavlov and is well known as Classical conditioning. Pavlov's experiments with a hungry dog led to the formulation of Conditioning Theory. Normally, a hungry dog salivates when food is presented. He started his experiments by ringing bell every time when food is presented. He repeated the same for a number of times. Finally, he rang the bell without presenting food. Even then he found that the dog salivated, since the dog had become conditioned to a response by salivating to the stimulus of the ringing bell.

Here a weaker stimulus (bell) is associated with a stronger stimulus (food). So the dog is enabled to transfer the response connected with the stronger stimulus. With these experiments, the terminology including conditioned stimulus (ringing bell), unconditioned response (salivation) conditioned response (salivation in the absence of food) has been introduced in learning. Pavlov's research was limited to psycho-physical nature. For example, a small child may touch a small kitten without any fear, but if anybody shouts every time the child touches the kitten, gradually the child will be afraid to touch it.

Educational implications: The theory of conditioning does not explain all types of learning, yet through this theory we can understand that repetition is of great value in learning things. Drill is necessary, but it should also be meaningful and motivating. Importantly, distracting and opposing influences should be eliminated during the process of learning.

4.3.2 Operant Conditioning Theory

E. L Thorndike in his S-R theory notes that the responses or behaviours are weakened or strengthened by the consequences of behaviours. This concept was refined by B.F Skinner and his theory is known as Operant conditioning. Operant conditioning means strengthening desirable behaviour by reinforcing it, and at the same time, discouraging undesirable behaviour. Skinner did a lot of research on the principles of Operant conditioning. These principles have been extensively used in research and in clinical and therapeutic settings. Basically, Skinner used reinforcers for changing behaviour. He created a learning apparatus box called the Skinner box. It is a rat box so designed in which every time when the rat moves towards the lever, it receives a food pellet. Thus the movement of the rat towards the lever is trained by giving reinforcement with food pellets. This idea of shaping a rat's behaviour was extended for shaping human behaviour. The key components in this experiment that are integral to achieving the modification of behaviour are timing and consistency that act as effective reinforcers. Skinner highlighted the importance of these factors in his experiment.

Timing: The time between the response and the reinforcer should be minimal. If the rat does not receive food pellet immediately after it moves towards lever, that behaviour will not be repeated.

Consistency: The rat moves towards lever only when it receives food pellet. The reinforcement should be given after every response.

Skinner developed the concepts of two kinds of reinforcers: 1. Primary reinforcers which are innate and have not been learned (food, warmth, sexual gratification); and 2. Secondary reinforcers stimuli which are provided externally. Further, B.F Skinner used the terms ‘positive reinforcement’ (rewards) and ‘negative reinforcement’ (punishment) for shaping behaviour. Though shaping is commonly used to train animals, it is also a useful learning tool in modifying human behaviour.

Educational implications: According to the theory of Operant conditioning, giving rewards to students reinforces the students’ behaviour. A desirable behaviour can be sharpened by using positive reinforcers.

4.3.3 Cognitive Learning Theory

In the previous types of learning behaviour, learning has been explained in terms of the association of stimuli and responses, but there are several human learning situations which do not involve specific kinds of association between the stimulus and response or between response and reinforcement.

In the 1920s, German psychologist Wolfgang Kohler studied the behaviour of apes. He designed certain simple experiments that led to the development of one of the first cognitive theories of learning which is also called ‘insightful learning’.

Kohler’s Experiment: Kohler placed a chimpanzee (Sulthana) inside a cage with a desirable piece of fruit, often a banana, out of reach outside the cage. To obtain the fruit, the animal had to use a nearby object as a tool. Usually the chimpanzee solved the problem and proved that it had some insight. The following description is typical: Sulthana is inside the cage and it cannot reach the fruit, which lies outside, by means of his only available short stick. A longer stick is deposited outside the cage, about two meters on one side of the object and parallel with the grating. It cannot be grasped with the hand, but it can be pulled within reach by means of the small stick. Sulthana tries to reach the fruit with the smaller of the two sticks. Not succeeding, he tears a piece of wire from the netting of his cage, but that too is in vain. Then he stares around. He suddenly picks up the little stick with the help of which he pulls the long stick. By using the long stick, he reaches the fruit. Kohler calls the cognitive processes underlying Sulthana’s behaviour as insight, a sudden awareness of the relationship among various elements that previously appeared to be independent of one another.

Certain aspects of the performance of chimpanzee are unlike those of Skinner’s rats. For one thing, struck by the chimpanzee, the solution was sudden rather than the result of a gradual trial and error process. Also Kohler’s chimpanzee could readily transfer what it had learned to a novel situation. For example, in one case, Sulthana was not put inside the cage but some bananas were placed too high for him to reach. To solve the problem, Sulthana staked some boxes strewn around him, climbed the platform and grabbed the bananas. It means learning takes place or a problem is solved all-of-a-sudden rather than through trial and error.

Implications

- Learning is a purposeful and goal-oriented activity.
- Emphasis is given to the whole, generating the ‘Whole to Part’ maxims of learning.
- It develops higher order thinking, reasoning and creativity among learners.
- It evolves the attitude of problem solving.

4.3.4 Social Learning Theory/ Observational Theory

The Social learning theory has been propounded by Albert Bandura. According to Social learning theory, learning occurs through the social context. This theory suggests that a learner’s social interactions with other knowledgeable persons affect his learning. It focuses on attention, retention, motor reproduction and motivation as factors of learning. Bandura in his theory proposes that observation of others’ behaviour plays a leading role in learning. For example, a child learns to show love, anger or sympathy by observing the behaviour of elders. He also learns speaking, reading, and writing by observing his parents and teachers. After his studies, Bandura determined three salient models of observational learning:

1. Live model: It includes an actual person performing behaviour.
2. Verbal instructional model: It involves giving description of model behaviour
3. Symbolic model: It includes a real or fictional character demonstrating behaviour through TV, books, online media etc.

Bandura explains that the following steps are usually involved in learning:

- 1) **Attending and perceiving:** Observation of a role model catches the attention of a child.
- 2) **Remembering the behaviour:** The child remembers the actions and styles.
- 3) **Converting the memory into actions:** The child imitates the role model. A behaviour observed and remembered by the learner is analysed in terms of its acceptability to the learner. It gets transformed into action only afterwards and thus the observed relevant and accepted aspects of the model’s behaviour are imitated by the learner.
- 4) **Reinforcement of the imitated behaviour:** The child tries to change himself into the role of a model. The behaviour of the model imitated by the learner is reinforced for proper adoption and further continuance.

In this way, social learning through observations and modelling proves to be an effective means of learning many things concerning one’s behaviour. The impact of these observations is perceptible on his environment, expression of love, anger, hatred, companionship, friendship or solitude which collectively expresses his mode of observation and behaviour. All these reactions and

responses depend upon what has been observed, remembered, imitated and reinforced in the context of his experiences and models.

Implications

- Observational learning increases the knowledge of learners, retention and life skills.
- Various reinforcements and modelling can be used by teachers to increase the attention of learners.
- The learners follow the teachers having positive behaviours as their role model.
- Clear distinction between behaviours and their consequences can effectively result in increase in the desired behaviour and decrease in the undesired behaviour.

Check Your Progress 2

Note: i) Use the space given below for your answers.

ii) Check your answers with those given at the end of the Unit.

1. Briefly discuss the concept of Classical Conditioning in Learning?

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2. Explain the Social Learning Theory.

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4.4 CONCLUSION

Learning can cause a lasting change in behaviour produced by experience. One of the most universal forms of learning concerns the reflex which is inborn and built in response to a stimulus. Through learning, a reflex response can become attached to a stimulus that does not originally cause the response. This process was demonstrated when Pavlov taught a dog to respond to a sound with the salivary reflex originally caused by the presence of food in the mouth. This type of learning is called Classical conditioning. Another type of learning by Skinner concerns Operant behaviour—the random or exploratory activities in which organisms engage, not in reflex response to a stimulus but as a self-generated way of operating on the world around them. In operant conditioning, the reinforcement is the reward. The rule is that the operant behaviour that is reinforced by a reward tends to be repeated, while operant behaviour that

is not reinforced tends to take place only at random intervals or when is abandoned. Cognitive theories emphasise the role of purpose, insight, memory, understanding, reasoning, problem solving and other cognitive factors. The cognitive learning involves information storage and processing without explicitly building up stimulus-response association or manipulation of the reinforcers. Social learning theory proposed by Bandura emphasised on learning through direct experience by observing the behaviour of elders or phenomena.

4.5 GLOSSARY

Learning	:	Learning is behavioural change which results from experience. Learning is a basic and universal fact to be found in all behaviour.
Conditioning	:	The basis for conditioning is using connection between stimulus and response. In Pavlov's experiment, salivation of a dog is conditioned to the ringing of the bell.
Reinforcement	:	The term 'reinforcement' means strengthening the tendency of a response to be repeated. When an organism responds to a stimulus and that response is reinforced, it is probable that the same response will be repeated the next time when the stimulus occurs.
Operant	:	An item of behaviour that is not a response to a prior stimulus but something which is initially spontaneous, which may reinforce or inhibit recurrence of that behaviour.
Learning by insight	:	It is characterised by sudden grasping of the solution. The process of organising or reorganising or structuring or restructuring leads to a discovery

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4.7 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

1. Your answer should include the following points:

- Learning provides key to the structure of our personality and behaviour.
- Definitions of learning.

2. Your answer should include the following points:

- Universal
- Continuous process
- Development through learning
- It is dynamic and flexible in relation to real life situation
- Learning is a means
- Leads to adjustment
- Result of practice
- Physical and mental maturity
- Transferable

Check Your Progress Exercise 2

1. Your answer should include the following points:

- Classic conditioning is a process of self-substituting.
- There are two types of conditioning: 1. Classical conditioning 2. Operant conditioning.

2. Your answer should include the following points:

- The Social learning theory is developed by Albert Bandura.
- In Social learning theory, the learning occurs in the social context.
- It suggests that learners' social interactions with other knowledgeable persons affect their learning.