LESSON 6

LEARNING PROCESSES AND ACQUIRING SKILLS

SUMMARY

It is through the process of learning that we become competent, skilled, perform various activities and excel in life.

Nature of Learning

Learning is a process by which a certain change or modification in behaviour occurs. **'Behaviour'** refers to any action which may be muscular, social, and mental or a combination of these.

Learning – it refers to a process by which any relatively permanent change in behaviour occurs as a result of practice and /or experience.

Important elements of learning

- Learning is a change in behaviour
- It is a change that takes place through practice or experience
- The change must be relatively permanent or enduring

It is a thoughtful reaction to a given stimulus and it is different from maturation, reflex and instinctive behaviour.

Maturation is the development brought about by growth of the neural and muscular system, while learning is an outcome of stimulating situations.

Instincts are complex patterns of behaviour. **Reflex-action** is a direct automatic and immediate response of a muscle or a gland to the stimulation of a sense organ. These are innate tendencies and are not acquired through practice. However, instinctive behaviour can be modified by learning.

Basic Experiments in Learning

(a) Learning predictable signals: Classical conditioning

It is a form of *associative learning* as a connection or association between a stimulus and a response is established.

It was discovered by a Russian scientist **Ivan P. Pavlov** in **1968**. It is also called Pavlovian / respondent conditioning.

Pavlov presented to the dog a series of trials in which a tone was paired with food. The steps of conditioning process are:

Procedure	**Response**
Before Conditioning	
Food (UCS) ⟶	Salivation (UCR)
Buzzer (CS) ⟶	Orienting response
During conditioning (Acquisition phase)	
Food + Buzzer ⟶	Salivation
(UCS) (CS)	(CR)
(Repeated pairing of the UCS and CS)	
After Conditioning	
Buzzer (CS) ⟶	Salivation (CR)

UCS- Unconditioned Stimulus;
CS- Conditioned Stimulus;
UCR- Unconditioned Response;
CR- Conditioned Response

The essential requirement for conditioning to take place is that the two stimuli shall occur together.

Generalization- If the same response occurs to two different stimuli which are somewhat similar it is a generalized response.

Differentiation- By further practice, individual can be trained to differentiate between stimuli.

Extinction- it is used One to make the organism forget a conditioned response by repeating new substitute stimulus without reinforcement. Like forgetting, extinction seems to be temporary. An extinct response is much more quickly relearned when the reinforcement is given than an altogether new response.

Spontaneous recovery – It is a tendency of responses to recover spontaneously. It is a kind of forgetting in reverse, a tendency to forget the extinction that has occurred. Basically, relearning occurs very fast, faster than the initial time to learn. This is spontaneous recovery.

(b) Learning by consequences: Operant Conditioning

B.F. Skinner speaks of operant behaviour as voluntary behaviour of an organism.

In this type of learning, reinforcement is dependent on the response of the organism. Since response is instrumental in getting the reinforcement, it is also known as **instrumental conditioning**.

Behaviour which is reinforced is likely to be repeated.

Pigeon experiment - A hungry pigeon is placed in a box which has a lighted button on the wall. It will peck at the button accidentally and immediately it will get a little grain. The pigeon eats and then continues its movement in the box. Once again it accidentally pecks the button and is reinforced with food. Finally, the pigeon will stop the random behaviour and will simply peck the button to get food as required. The pigeon has learned to peck the button to obtain food.

Applications of Operant Conditioning

I. Teaching new material in schools by means of programmed learning - a method by which in each correct step the learner is reinforced by response.
II. Behaviour modification techniques for treating behaviourally disturbed children and adults.

Other Forms of Learning

Skill Learning - Skill learning takes place in three stages –

1. Cognitive stage
2. Association stage
3. Automatic execution of the skill

Verbal Learning – The process of learning language is called verbal

learning. it involves learning to respond to words or with words. It is acquired through memorising, by repeating, recalling and recognising the material. Methods for Verbal learning-

a. ***Serial learning*** - the learner is asked to recall in the way the words were presented to him.
b. ***Free recall*** – it requires the learner to recall the words without regard to their order of presentation.
c. ***Paired associates*** - the verbal material is presented in pairs such as CRAT-BOOK.

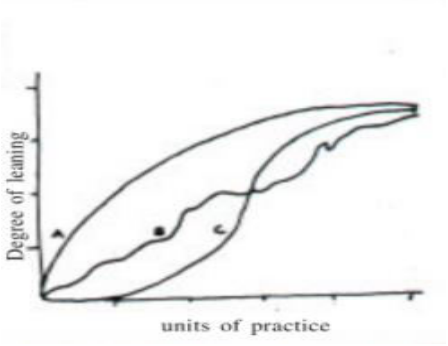
Concept Learning – It involves both generalization and differentiation. An individual learns to distinguish between two or more stimuli which differ in some detail. Various words which are normally used to denote an object such as house, car, school, animal, doll and so on are examples of concepts.

Social learning - learning that is facilitated through social interactions with other individuals. Certain social responses are reinforced by the society if they are acceptable as per the norms of the society.

In addition to other mechanisms social learning involves 'imitation' of the role models which is a process by which individuals learn new behaviour by observing others, also called modelling or **observational learning**. In this process no direct reinforcement is involved.

Learning Curve

Learning can be measured by assessing the performance of an individual on a given task. The rate of learning, as normally measured by performance, can be represented graphically by placing the 'units of practice' on the X-axis (horizontal axis) and 'degree of learning' on the Y-axis (Vertical axis). The degree of learning is measured through markers such as percentage of correct responses, amount of time to achieve a goal.



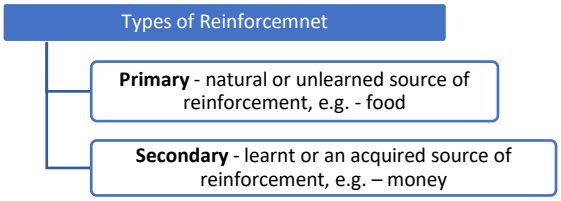
Curve A- indicates slow learning initially, followed by rapid learning

Curve B- illustrating irregular learning

Curve C- Indicating slow learning initially, followed by rapid learning.

Factors Influencing Learning

a) **Reinforcement** – it is anything that strengthens a response and increases the probability of its occurrence.



b) **Feedback or knowledge of results-** It is another motivational variable. If you are provided with knowledge of results or feedback, the efficiency of your learning is increased.

c) **Distribution of Practice** - In this method, the practice periods for a particular task are separated by lengthy rest periods or lengthy periods of practicing different activities or studying other material, rather than occurring close together in time.

d) **Whole and Part Learning** - Whole learning is often considered as an efficient method to learn the task particularly for fast learners and for short or meaningful material which is easily memorized as a whole. But if the content is very long it may first be learnt in parts and then as a whole.

e) **Meaningfulness** - The more meaningful the material; the fewer the trials or practice sessions are required to learn it.

f) **Interest and attitudes** - a favourable attitude towards the learning material and sincere effort to learn and remember it will enhance learning. If one feels that nothing worthwhile will result from learning something, one's rate or progress of learning will be poor.

Phenomena related to learning

Preparedness for Learning - Every organism is not equally ready or prepared to learn a given response. Organisms are differentially endowed with capability to respond. So, the possibility and ease of learning is determined by the degree of preparedness on the part of organisms for a given learning task. All organisms are not equally prepared for all responses or associations. This becomes one of the key determinants of learning.

Learning disability - It is a disorder which leads to difficulties in reading, writing, speaking, and doing mathematical exercises. These problems are found because of some problem in the central nervous system. It may be related to sensory impairment or some kind of mental/physical handicap. They may occur in children with average or superior intelligence.

Transfer of Learning

Transfer of learning is the process of applying or carrying over the knowledge, skills, habits, attitudes or other responses from one learning situation, in which they were initially acquired, to a different learning situation.

Types of Transfer of Learning

Positive – What one has learnt in one subject or a task may facilitate learning in another subject or task. In positive transfer, the carry-over

of knowledge or skill is beneficial to future learning.

Negative – There are cases in which the previous learning interferes with subsequent learning. In such cases, the carryover knowledge or experience in one task interfere with further learning. As a result of negative transfer, performance on one task may block performance on the subsequent task.

Zero – In zero transfer, the performance in the new situation is neither aided nor hindered by the past learning.

Do you know?

B.F. Skinner developed an experimental chamber (called Skinner box) to study learning process in rats.

Ivan Pavlov was given Nobel Prize in 1904 in recognition of his work on the physiology of digestion.

The concept of Social Learning was given by **Albert Bandura**.

Evaluate yourself

1. Describe different types of learning.
2. What is reinforcement and how does it influence the process of learning?

Extend Your Horizon

To learn more about learning experiments in detail visit:

https://online.king.edu/news/psychology-experiments/