

TEACHING-LEARNING PROCESS

It is now evident that an understanding of the teaching-learning process is essential to have a grasp of the meaning of extension. The teaching-learning process is explained by Leagans (1961).

TEACHING is the process of arranging situations in which the important things to be learned are called to the attention of the learners, their interest developed, desire aroused and action promoted.

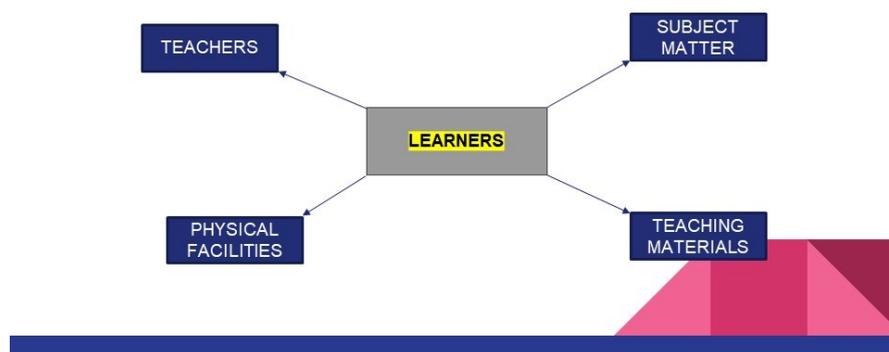
LEARNING is the process by which an individual through one's own efforts and abilities changes the behaviour.

PROCESS means a course of procedures, something that occurs in a series of action or events conducting to the desired end.

➤ An effective learning situation

Effective learning situation is one in which all the essential elements for promoting learning i.e. learners, teachers, subject matter, teaching materials and physical facilities, relevant to a particular situation, are present in a dynamic relationship with one another. The conditions under which effective learning can take place are presented, following Leagans.

An effective learning situation



1. **Learners.** Persons who want and need to learn are the learners. In an effective learning situation, learners occupy the most important central position and all efforts are directed towards them. Learners should-
 - (a) be capable of learning,
 - (b) have interest in the subject.
 - (c) have need for the information offered, and
 - (d) be able to use the information once it is gained.

In the present context, the fish farmers, farm women and rural youth comprise the learners. To explain the learning situation, we take an example in which fish farmers who need to increase fish production are the learners.

2. **Teachers.** They are the extension agents who impart training and motivate the learners.

They not only know what to teach, but also know how to teach. The teachers should

- (a) have clear-cut and purposeful teaching objectives,
- (b) know the subject matter and have it well organized
- (c) be enthusiastic and interested about the learner and the subject matter,
- (d) be able to communicate and skilful in using teaching aids, and
- (e) be able to encourage participation of the people.

3. **Subject Matter.** It is the content or topic of teaching that is useful to the learners. The subject matter should be

- (a) pertinent to learner' needs.
- (b) applicable to their real-life situations,
- (c) well organized and presented logically and clearly.
- (d) consistent with the overall objectives.

Here, the subject matter is increasing fish production.

4. **Teaching Materials.** These are appropriate instructional materials, equipment and aids. The teaching materials should be:

- (a) suitable to the subject matter and physical situation,
- (b) adequate in quantity and available in time,
- (c) skilfully used

In the present example, the teaching materials may be improved breeds of fish and improved feed suitable for good growth, appropriate medicines, audio-visual aids relevant to the topic etc.

5. **Physical Facilities.** It means an appropriate physical environment in which teaching learning can take place. The physical facilities should be

- (a) compatible with the objective,
- (b) representative of the area and situation, and
- (c) adequate and easily accessible

➤ **Criteria for effective extension teaching**

1. **Extension teaching requires specific and clearly defined teaching objectives.** Teaching must be clearly conceived and specifically designed. There must be clear-cut conception about

the end product, i.e. what is going to be achieved. In deciding on the objectives of teaching, the following aspects are to be considered:

- i. people to be taught.
- ii. behavioural changes to be developed in people,
- iii. content or subject matter to bring the desired change in behaviour, and
- iv. the real-life situation in which the action is going to take place.

2. Extension teaching requires a suitable learning situation. The learning situation consists of the following five interrelated elements- **i)** Instructor (extension agent), **ii)** Learners (farmers, farm women, rural youth etc.), **iii)** Subject matter (say farm pond), **iv)** Teaching materials (seeds, plants, audio-visual aids etc.) and **v)** Physical facilities (suitable land, facilities for conducting demonstration, training etc.).

3. Extension teaching requires effective communication. Communication involves the transfer of knowledge from a source to one or more receivers. Extension teaching, to be effective, must take into consideration proper functioning of the elements of communication: communicator, message, channel, treatment, audience and audience response. Effective communication can motivate people to act.

4. Extension teaching requires both content and method. **Content means what to teach**, the subject matter. **Method means how to teach**, the delivery system. The content should be relevant to the audience. Appropriate teaching methods and aids are to be selected and combined according to needs of the situation.

5. Extension teaching must result in effective learning. The meaning of what is taught should be understood and internalized by the learners. This usually requires a combination of teaching methods and aids relevant to a particular situation. An effective learning situation is one which results in a maximum number of desirable changes in the behaviour of the learners.

6. Extension teaching must accomplish certain kinds of educational changes in relation to the subject matter taught. Desirable changes in the knowledge, skill, attitude, understanding, goal action and confidence of the people are to be achieved in relation to the topic being taught.

7. Extension teaching requires careful evaluation of results. Whether the teaching has been able to attain the objectives set forth i.e. desirable changes in behaviour of the people have taken place, have to be assessed or evaluated. Steps are to be taken to meet deficiencies identified in the process.

➤ **Criteria for effective learning**

The basic purpose of education is to transform human activity to more productive effective purposes. Learning involves acquisition of knowledge, skill, attitude etc.; retention to stop

reversion: and transfer, to use it in real life situations. Learning to be effective, should have the following:

1. ***Learning should be purposeful.*** The learning must make sense and be useful to the learners. Objectives must be clear and meaningful to the learners. What is to be learnt must be important to, and wanted by, a relatively large number of participants in the group, and must be attainable
 - (a) through the educational process,
 - (c) within the physical and economic resources of the participants, and
 - (d) within the social condition and learning ability of the participants.
2. ***Learning should involve appropriate activity by the learners that engages the maximum number of senses.*** Messages reach the human mind through five senses, namely, seeing, hearing, feeling, tasting and smelling. In extension, most of the messages to be learnt reach the mind through seeing, hearing and doing. Learning should be experience centered i.e. farmers should primarily learn by doing, in addition to seeing and hearing.
3. ***Learning must be problem solving and satisfying.*** Abilities acquired through learning should help the farmer to solve the problems, to overcome the difficulties and gradually lead to a more satisfying life.
4. ***Learning must result in functional understanding.*** Mere acquisition of knowledge is not enough, it must be understood and applied in real life situations.

➤ **LEARNING EXPERIENCE**

It is the mental and physical reaction one makes through seeing, hearing or doing the things to be learned through which one gains the meaning and the understanding of the subject matter to be learned.

Characteristics of Effective Learning Experience

1. An effective learning experience should contribute towards the achievement of the objectives.
2. It should lead to the development of the significant content.
3. It should contribute towards the interest in and desire for more or better learning.

➤ **THEORIES OF LEARNING**

Trial and Error Theory or Connectionism Theory

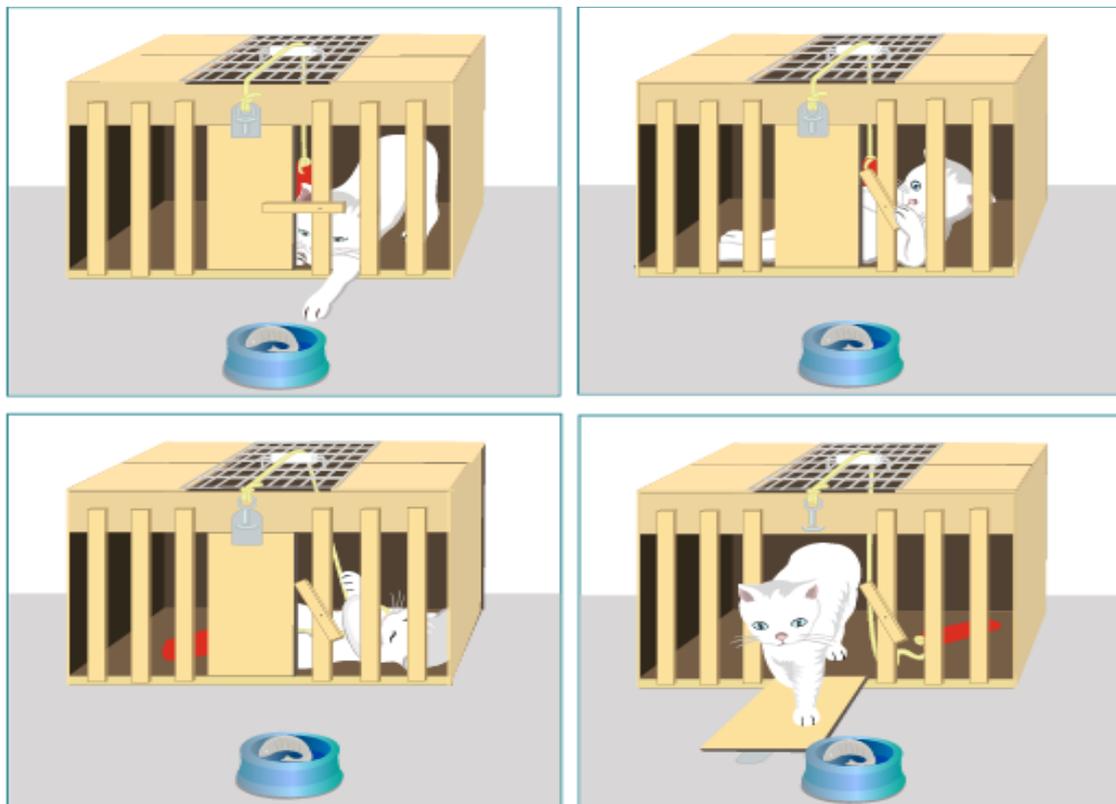
The first miniature Trial and Error learning system of the method was provided by Thorndike's research on Animal Intelligence in 1898. This is also known as ***Connectionism***. This theory was put forward by an American psychologist, E.L. Thorndike. According to him, learning is the formation and strengthening of natural connections between situations and

responses. These connections are formed through trial and error. This means that we learn by making trials, making errors or mistakes during the trials and making further trials, eliminating the wrong responses. Thus, learning takes place gradually by the process of trial and error. For example, one learns typing after a good amount of trial and error. Similar is the case with any other type of learning.

Thorndike placed a hungry cat inside a puzzle box, and a plate of fish was kept outside the box. It was impossible for the cat to get to the plate, unless it could open the door and get out. Thorndike had arranged the puzzle box such that, the cat either had to pull a loop or press a lever in order to open the door.

Initially, the cat moved randomly inside the box; biting and clawing at the bars, thrusting its paws and trying to squeeze out of the box. After several minutes of trying these ineffective responses, the cat accidentally pulled the loop. Having hit the correct response, the cat managed to get out and it was awarded with a small piece of fish.

The cat was placed inside the box again. This time around, the cat took less time to pull the loop. The exercise was continued repeatedly. It was seen that as the number of trials increased, the time taken to pull the loop decreased. As the response latency decreased, the cat finally learned the trick; it then pulled the loop as soon as it was put in the box and managed to get out.



Conditioned Response Theory OR Classical conditioned Theory

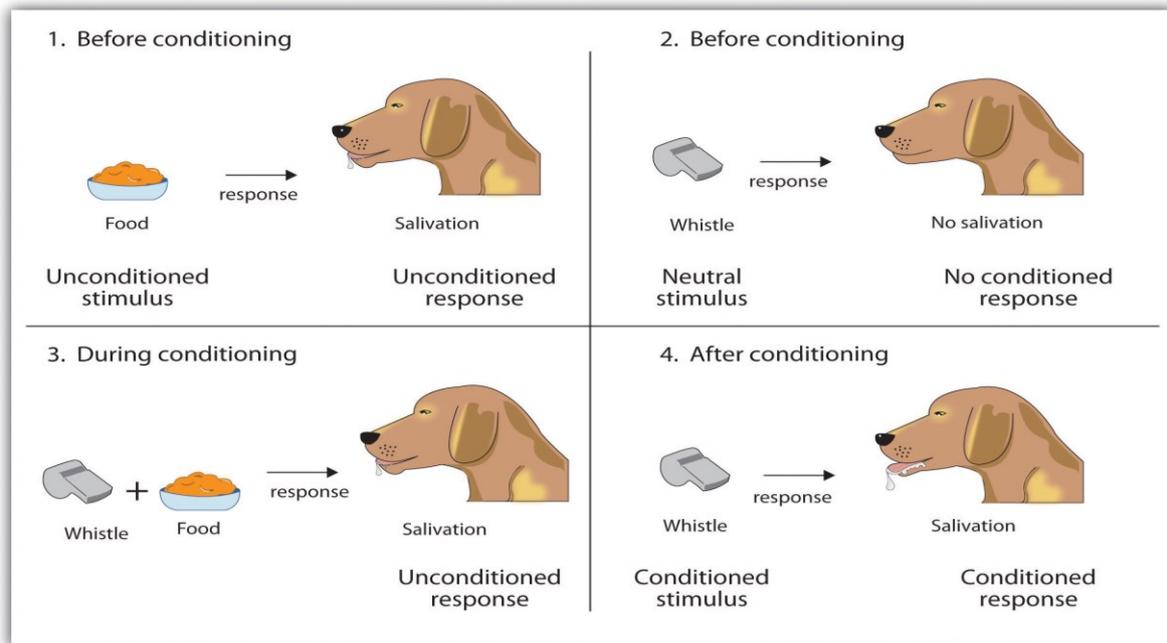
Conditioning means modification of the natural response. Natural stimulus results in natural response. According to the conditioned response, natural stimulus is substituted by an artificial stimulus. In this way, a new connection between artificial stimulus and natural response is created. In this way conditioning takes place.

The Theory of Conditioned Response Learning was given by Pavlov, a Russian doctor and psychologist.

In the early part of the 20th century, Russian physiologist Ivan Pavlov (1849–1936) was studying the digestive system of dogs when he noticed an interesting behavioral phenomenon: The dogs began to salivate when the lab technicians who normally fed them entered the room, even though the dogs had not yet received any food. Pavlov realized that the dogs were salivating because they knew that they were about to be fed; the dogs had begun to associate the arrival of the technicians with the food that soon followed their appearance in the room.

With his team of researchers, Pavlov began studying this process in more detail. He conducted a series of experiments in which, over a number of trials, dogs were exposed to a sound immediately before receiving food. He systematically controlled the onset of the sound and the timing of the delivery of the food, and recorded the amount of the dogs' salivation. Initially the dogs salivated only when they saw or smelled the food, but after several pairings of the sound and the food, the dogs began to salivate as soon as they heard the sound. The animals had learned to associate the sound with the food that followed.

The **unconditioned stimulus (US)** is *something (such as food) that triggers a natural occurring response*, and the **unconditioned response (UR)** is *the naturally occurring response (such as salivation) that follows the unconditioned stimulus*. The **conditioned stimulus (CS)** is *a neutral stimulus that, after being repeatedly presented prior to the unconditioned stimulus, evokes a similar response as the unconditioned stimulus*.



Learning by Insight Theory

This theory is also called Gestalt Theory of Learning. Gestalt is a German word, which means 'whole', or total pattern or configuration or total form. The Gestalt psychologists are not in consensus with the idea that correct solutions to the problems are learned gradually through the process of Trial-and-Error. They believe that it is a mistake to analyze all types of human behaviour into a large number of specific elements. In doing so, we have the functional relationships between these elements, which in the final analysis determine the meaning of these elements. Gestalt psychologists strongly believe that there is 'configuration' of experience rather than division into elements. The perception of a man, for example, is a configuration produced by the physical relations existing between the legs, arms, head, eyes, ears and various other parts of the body. The persons associated with the Gestalt school are Ehrenfels, Wertheimer, Kohler and Koffka.

