

TEACHING LEARNING PROCESS

5.1 MEANING AND NATURE OF LEARNING

5.1.1 Learning Defined

Learning has been explained and defined in a number of ways. A few of the views regarding the nature of learning are given below.

1. **Munn's Views:** According to Munn, "Learning is more or less permanent incremental modification of behaviour which results from activity, special, training or observation."
2. **Skinner's View:** According to Skinner, "Learning is both acquisition and retention."
3. **View of Gates:** According to Gates, "Learning is medication of behaviour through experience."
4. **View of Daniel Bell:** In the words of Daniel Bell, "Learning is modification due to energies of organism and the environment impinging on the organism itself."
5. **View of Thorpe:** Thorpe says, "We can define learning as that process which manifests itself by adaptive changes in the individual's behaviour as a result of experience."

Thus, the process of learning includes the following:

- a. Acquisition of new experiences.
- b. Retention of old experiences in the form of impressions, engrams or skills.
- c. Development and modification of experience,
- d. Synthesis and organization of the old and the new experiences, resulting in novel pattern called learning.

5.1.2 General Characteristics of Learning

The following are the general characteristics of learning:

1. **Learning is Adjustment:** Learning involves adjustment of the individual to his environment. The individual must learn to adjust himself to the changes that take place around him.
2. **Learning is Growth:** Learning must result in the growth of the child. An immature child is developed into a mature person through the process of learning.

3. **Learning is Organizing Experience:** Learning is not like adding one experience to the other it is rather, organizing the new experience with the old ones, thus giving rise to a new form of behaviour. Thus, learning involves the proper organizing of experiences in manner.
4. **Learning is Purposeful:** The more intense the purpose of the individual, the more rapid the learning. Lack of purpose in learning will hamper learning. Thus, purposeful learning is always more rapid and permanent.
5. **Learning is Active.** Better learning will take place only if the learner is actively engaged in the learning process. Thus, active participation of the pupils is essential in the learning process.
6. **Learning is intelligent and Creative:** Learning involves an intelligent interpretation of the situation, and some selectivity in the response. This necessarily involves intelligent and creative thinking.
7. **Learning Affects the Conduct of Learners:** Learning affects individuals to adjust himself to the environment. This is brought about through some sort of change and modification of one's behavior. Thus the behaviour or conduct of the individual undergoes change on account of learning.
8. **Learning is the Product of the Environment:** Learning is essentially an adaptation and adjustment to the environment.

5.2 Laws of Learning

Learning is a fundamental ingredient in the education of a child. Therefore, a teacher must understand fully, how learning takes place in the best possible manner, in this connection, it is imperative that the teacher should know what are called 'Laws of Learning' as given by Thorndike and others. They must be accepted and fundamental laws of learning are:

- (i) Law of Readiness
- (ii) Law of Exercise
- (iii) Law of Effect

In addition to these, certain other laws of learning will also be mentioned briefly.

- (i) **Law of Readiness:** This law emphasizes the importance of readiness to learn. "When a person feels ready to learn or to act, he learns or acts, more effectively and with greater satisfaction than when not ready". This implies that the learner must be mentally prepared to learn. This emphasizes the importance of motivation in learning. The learner must be brought in the proper frame of mind, and his curiosity must be increased for bringing about effective learning.

5.3 Nature of Skill Learning

Many important human activities require precision, timing and co-ordination of muscular movements. The acquisition of these qualities of action, precision, timing and coordination is required for all proficient performances and is known as skill learning. In other words skills imply proficient performance or the level of proficiency needed for a specific task. Skill learning, Motor learning and Psycho-motor learning are synonymous. Merrill (1972) has proposed the following five categories of skills, which are pertinent to schools.

- (i) Physical education and recreation skills (sports, and exercise).
- (ii) Communication skill (typing, hand-writing, shorthand).
- (iii) Language skills (speech and gestures).
- (iv) Vocational skills (crafts, tool usage, machine usage).
- (v) Fine art skills (painting, singing, using musical instruments).

5.4 Stages of Skill Learning

A skill is not learned all of a sudden. It is learned through stages or phases. Fitts and Posner (1967) observed learners during practice, and also interviewed some skill instructors. As a result of their observation and interview they distinguished three phases or stages of skill learning. These are:

- The early or cognitive phase,
- The intermediate or associative phase, and
- The final or autonomous phase

5.5 The Early or Cognitive Phase:

The beginning learner attempts to understand the task and what it demands. The instructor provides verbal guidance directing the learner's attention to the proper sequence of action, the procedure of performing the action and putting together the various parts. This phase is also called the phase of instruction and intellectualization. The duration of this phase varies from learner to learner depending upon one's capacity, to intellectualize the task.

i. The Intermediate or Associative Phase:

This second stage of learning skills: during this stage the learner practices the skill. He practices the individual sub skills, puts together, associates or co-ordinates the various part skills into a meaningful pattern. This phase may last for days or months.

ii. The Final or Autonomous Stage:

During the final stage the skill becomes autonomous which means it can be executed while the individual is engaged in some other activity like conversing. Improvements in smoothness and precision of the skill continue to take place gradually. During the second stage, outside activities may interfere with the learning of a skill. But in the final stage the skill becomes automatic and thus outside activities do not interfere with the present performance.

These three stages are not unrelated and discontinuous; on the contrary each stage depends on its preceding one. For example, improvement in performance depends on practice and practice depends on effective instruction.

5.6 PROBLEM SOLVING

In schools and colleges students learn concepts, rules and principles. Learning rules and principles helps them to learn new and higher order rules and principles in future. Learning rules and principles helps in solving problems of various types. Their activity of problem solving is thus a natural extension of rule learning. Robert M. Gagne (1976) states “Problem solving may be viewed as a process by which the learner discovers a combination of previously learned repulse which can be applied to achieve a solution for a novel situation.”

Problem solving is not simply a matter of applying learned rules. It is also a process that yields new learning. The learners are placed in a problem situation, or find themselves in one such situation. They recall previously acquired rules in the attempt to find a solution. In carrying out such a thinking process, they find a particular combination of rules that fit the situation. They not only solve the problem but also learn something new.

In fact, all learning is problem solving. There may be different forms of learning-psychomotor, verbal or affective. But these are differences in form the core remains identical. Problem solving is a complex from of learning. It is at the apex of hierarchies of human learning.

Solution to problems is not an easy or a sudden process. The individual may encounter difficulties or obstacles in achieving a solution to problems, problem-solving behaviour involves a process of overcoming difficulties that appear to interfere with the attainment of a goal-the solution to problem.

We can also view problem solving as a form of transfer of learning. When experience in one task influences performance in another task, transfer of learning is said to have occurred. Similarly experience in solving one problem facilitates the solution of similar new problems. Successful solution of similar problems is the evidence for positive transfer of learning as well as for successful problem solving behaviour.

5.6.1 Problem-Solving, Discovery and Creativity

Problem solving as a method of learning requires that the learners discover the higher-order rule in their own idiosyncratic manners. This does not mean that the learners will arrive at a solution by “pure discovery” without any guidance or verbal instruction. Problem solving behaviour occurs when the learners get some verbal instruction or guidance. Verbal instruction does not include a “verbally stated solution” but some hints about the nature of the problems.

The processes involved in problem solving and creativity are so similar that it is difficult to differentiate problem solving from creativity. A great scientific discovery or a great work of art is surely the result of problem solving activity. As problem solving behaviour, these creative acts are based on a tremendous amount of previously immersed themselves deeply in the subject-matter of problem, often over considerable periods. The steps in creative thinking are almost similar to the steps in problem solving.

5.6.2 Conditions Influencing Problem Solving

The following are some of the conditions, which influence problem solving behaviour:

i. Principle Learning

Problem solving is closely related to principle learning since it combines two or more previously learned principles into a higher order a principle. Thus one essential condition of problem solving is that the student must learn principles before he is able to solve problems for example, a student has to solve a problem hitting an under-water target. To do this he must have learned the principles of refraction.

ii. A Period of Initial Efforts

There are two views regarding the means of solving problems. One view is that the solution to a problem is arrived at suddenly after some initial efforts. Another view is that a problem gets solved through gradually eliminating errors and putting together correct responses. Although considerable arguments have occurred concerning which is the correct interpretation, we can accept the view that certain problems, which are easy for the learner are solved with fewer trials and difficult problems take more trials for a solution.

iii. Intelligence

Intelligence has been defined as the ability of an individual to solve problems. Thus, other things being equal, an older and more intelligent person can solve a problem with less fumbling and fewer errors than a younger and less intelligent child. Teacher can arrange learning situations to facilitate achieving the correct solutions with fewer errors.

iv. Experience with Success and Failure

Problem solving is related to one's experience with success or failure in solving problems previously. Repeated failures result in giving up, substituting different goals, or showing other forms of unproductive behaviour. The problem solving processes of a student after failure are significantly inferior to those following successful experiences. Thus successful experiences in solving problems are easily, transferred to solving similarly new problems.

v. Teaching Problem Solving in School

There are four different viewpoints regarding the chief purpose of teaching problem solving in school. These are:

- (a) Acquisition of knowledge of wide applicability,
- (b) Learning and using the techniques of problem solving,
- (c) Learning and transfer of skills, concepts and principles,
- (d) Development of the ability to transfer the skills acquired through problem solving in schools to the solution of personal and community problems.

Whatever may be the purpose of teaching problem solving, teachers must know the following points in providing instruction for problem solving:

- (i) The teacher must describe what the problem is and what constitutes the solution. This does not mean that the teacher will tell the students how to solve the problem. Rather he will help the students in locating the problem the students must construct the solution on their own though guided discovery.
- (ii) A necessary condition for successful problem solving is the acquisition of related concepts and principles. Thus while presenting a problem and encouraging the students to find solutions the teacher must assess the student's entering behaviour- the concepts and principles learned by the students which will be required in the solution of the problem, if the students have not understood these concepts and principles, they will fail to solve the problem.
- (iii) The teacher should help the students to recall all relevant concepts and principles. The students must recall these principles in the presence of the problem and discover the relationship between them, which will result in the problem solution. By question and demonstration the teacher can help the students recall the principles.
- (iv) While helping students to recall the relevant principles they should also be helped to apply these concepts and principles in the solution of the problem. Verbal

direction and instruction by the teacher can help students apply the relevant principles in the problem situation.

- (v) After trying and solving the problem, the students should be required to give a full demonstration of the problem solution. In order to test their real understanding of problem solving the teacher should use other problems of the same class and verify their learning and understanding. This will also lead to test their generalization and transfer.