UNIT 1   UNDERSTANDING LEARNING*

Unit Structure

1.1   INTRODUCTION

What is learning and what is not? This unit starts with finding the answers of these questions while discussing the concept of learning. As a teacher you will come across questions like, how does learning take place? what are the guiding principles of learning? etc. Along with it, learning needs to be differentiated from various related concepts like, maturing, teaching, imprinting, etc. The present unit discusses the various dimension of learning which help a teacher to achieve a major goal of education i.e. to enhance learning. Discussion on various modes of learning will help you in planning learning experiences. In order to facilitate learning, an understanding of the concepts like transfer of learning, various learning styles and pace of learning are also very important to understand for a teacher. This unit will discuss all these in brief.

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* Few sections in this unit have been adopted from Unit 9 of ES-332, IGNOU

1.2 OBJECTIVES

After going through this unit, you will be able to:

• describe the nature of learning,

• differentiate among learning, maturation, teaching and imprinting,

• identify various activities reflecting learning,

• explain the role of understanding the dimensions of learning for a teacher to improve teaching learning,

• identify various learning styles among learners,

• discuss the use of transfer of learning in the new situation, and

• keep in mind the pace of learning while designing teaching-learning experiences.

1.3 WHAT IS LEARNING?

What is learning? Answer to this question has been attempted by many psychologists and educationists. Learning is not something that takes place within the boundaries of a classroom; rather it takes place anywhere, anytime and from anyone. Traditional Indian Literature has examples where people learnt from trees, mountains, rivers, insects, etc. It means learning is something which is possible anywhere.

In order to understand the concept of learning, let us begin with few definitions of learning which many psychologists and educationists have proposed. Generally, learning is defined as **a process of behaviour modification through experiences, exercise and efforts**.

Before discussing further, let us have a look at the definitions of learning given by various psychologists/educationists:

Hurlock (1942) : Learning is development that <u>comes from exercise and effort</u>. Through learning, children acquire competence in using their hereditary resources.

Hilgard, Atkinson and Atkinson (1979): Learning may be defined as a <u>relatively permanent change in behaviour</u> that occurs <u>as the result of prior experience</u>.

Murphy (1968) : The term learning covers <u>every modification in behaviour to meet environmental requirements.</u>

Woodworth (1945) : Any activity can be called learning so far as <u>it develops the individual</u> (in any respect, good or bad) and <u>makes him alter behaviour and experiences different from what they would otherwise have been.</u>

If you examine these definitions carefully, particularly focusing on the underlined portion of the definitions, you may conclude that:

Every creature, including human beings, is born with certain capabilities. e.g.: a human baby can suck milk from its mother's breast as soon as it is born. These capabilities are known as **instinctive behaviour**. As an individual grows s/he has to make certain adjustments in various situations of life. Therefore, s/he has

to acquire various habits, knowledge, attitudes and skills, etc. The acquisition of all these things is called 'learning'. It means that:

- Learning is not acquired by birth, but it is the process of acquiring competence by using hereditary resources.

- Temporary change in behaviour is not learning.

- Not only the modification of behaviour by acquiring good things as per the social norms is learning but even behaviour modification by acquiring bad things comes under'learning'. In other words, learning leads to change in behaviour but this does not necessarily mean that these changes always bring about improvement or positive development.

According to Smith (1962),*'learning is the acquisition of new behaviour or the strengthening or weakening of old behaviour as the result of experience'*. It means, instead of change in existing behaviour or acquisition of new behaviour, learning may also result in discontinuance or abandonment of existing behaviour. This 'unlearning' is also learning in itself.

According to Fagin (1958), learning is a sequence of mental events or conditions leading to changes in learner.

Fig. 1.1: The Learning Process

It can be concluded that learning is a process by which an individual, as a result of interactions in a situation, modifies his/her behaviour. It helps in bringing desirable changes in behaviour attaining proper adjustment, and attaining proper growth and development.

Behaviors not Attributable to Learning

In previous section, we have discussed that a modification or change in behavior is called 'learning'. However, there are some types of behavior which are due to one or other kind of modifications yet; these are not termed as 'learning'. e.g.: when a pin pricks our finger, we withdraw it from the pin. Similarly, when a very bright light falls on our eyes, we immediately close our eyelids. Such behavior is instant and we even do not feel that we are putting in any special effort. This behavior does not fall under the learning category; rather these are called '**reflex actions'**.

There is another category of behavior commonly known as '**biological instincts**'. e.g.: a child start crying when s/he feels hungry, we feel like resting when tired, we are attracted towards opposite sex, etc. Such behavior is natural and not learned; therefore we do not call it learned behavior.

Sometimes, modifications or change in behavior takes place due to accidents or psychological defects, for example, limping of a person after an accident or stammering in speech due to some defect in tongue. We again exclude such behavior from the category of learned behaviour. Similarly, there are some motor actions which a child can perform only at a certain age. For instance, to sit in a proper posture, to walk with steady steps, etc., are attained after a specific age. The behavior which is the outcome of maturity of the child, is not called learned behavior. However, in most of such cases, maturity and learning both play their role simultaneously and therefore, it becomes difficult to determine which of the two is responsible for the behavior.

Check Your Progress

Notes: a) Answer the following questions and write your answer in the space given below.

   b) Compare your answer with those given at the end of unit.

1) "Learning is the development that comes from exercise and effort". Explain.

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2) What is not learning?

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1.4 NATURE OF LEARNING

Learning occupies a very important place in our life. It provides a key to the structure of our personality and behaviour. Experience, direct or indirect, plays a very important and dominating role in moulding and shaping the behaviour of the individual from the very beginning. When a child touches a hot pan and gets burnt, s/he immediately withdraws her/his hand and learns to touch such vessels carefully. S/he concludes that if one touches a hot vessel, one gets burnt. In the same way from other experiences, in her/his day to day life, s/he derives different conclusions and modifies her/his behaviour. These changes in behaviour brought about by experience are commonly known as learning and this process of gaining experiences, drawing conclusions, and changing behaviour goes on from womb to tomb.

This discussion and the definitions given in the first section 'What is learning?' of this unit, reveals the nature of learning as follows:

- **Learning is a process and not a product**: Learning is a fundamental and life-long process. Attitudes, fears, gestures, motor skills, language skills, etc. are the products of learning. They are not learning themselves.

  In a classroom, when learning is viewed as a product then it is viewed as something external. Something like shopping– people go out and buy knowledge and then it becomes their possession. Paulo Freire in his book 'Pedagogy of the Oppressed' criticizes this and says that education thus becomes an act of depositing, in which the students are the depositories and the teacher is the depositor. In this 'banking' concept of education, the teacher is the subject of the learning process, while the pupils are mere objects.

  Whereas, when learning is viewed as a process, it is viewed as something internal or personal. It is something that a child does in order to understand the real world and uses it as a tool for survival.

- **Learning is purposive or goal directed:** Learning is not an aimless activity. All true learning is based on purpose. We do not learn anything and everything that comes in our way in a haphazard manner. However, some experts argue that sometimes learning is unintended.

- **Learning generally involves some degree of permanence:** Activities bringing temporary change in behaviour and not lasting do not come under learning. For example, cramming the content matter by a learner for examination and forgetting it after sometime does not bring any change (to some extent to permanence) in the total behaviour pattern of the learner and thus this type of learning cannot be said as true learning.

- **Learning is universal and continuous:** Every creature till it lives, learns. In human beings it is not restricted to any particular age, sex, race or culture. It is a continuous never-ending process which starts from birth and continues till death.

- **Learning prepares for adjustment:** Learning helps the individual to adjust herself/himself adequately and adapt to the changes that may be necessary to the new situations. We meet with new situations which demand solutions. Repeated efforts are required react to them effectively. These experiences leave behind some effects in the mental structure and modify our behaviour.

- **Learning is comprehensive:** The scope of learning is spread over each and every dimension of life. It is a very comprehensive process which covers all domains – Cognitive, Affective and Psychomotor- of human behaviour.

- **Learning is change in response or behaviour may be favourable or unfavourable:** Learning leads to changes in behavior but this does not necessarily mean that these changes always bring about improvement or positive development. There are chances to drift to the negative side too.

- **Learning is organizing experience:** Learning involves all those experience and training of an individual (right from birth) which help her/him to produce changes in behaviour. It is not mere addition to knowledge or mere acquisition of facts. It is the reorganization of experience which may also include unlearning.

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- **Instincts and reflexes are not learning:** Changes in behaviour on the basis of native response tendencies like instincts and reflexes (e.g. infant's sucking behaviour, blinking at bright lights)cannot be attributed to learning.

- **Learning does not include changes in behaviour** on account of maturation, fatigue, illness, or drug etc.

Check Your Progress

Notes: a) Answer the following question and write your answer in the space given below.

   b) Compare your answer with those given at the end of unit.

3) Whether learning is a process or a product?

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1.5 LEARNING AND RELATED CONCEPTS

1.5.1 Learning and Maturation

According to Hurlock (1942), maturation is the unfolding of characteristics potentially present in the individual that come from the individual's genetic endowment, while, learning is development that comes from exercise and effort.

Biggie and Hunt (1968) defined maturation as a developmental process within which a person, from time to time, manifests different traits, the 'blue-prints' of which have been carried in his cells from the time of his conception.

Thus, maturation is a natural process and it involves changes that are associated with normal growth. These changes are independent of activity, practice or experience. The resultant behaviour, thus, or account of the process of maturation does not fall in the category of acquired or learned behaviour. However, maturation is closely linked with results of learning and with the process of development. Before certain kinds of learning may take place, one has to have achieved a certain level of maturation. Infact, learning and maturation are so closely interrelated that sometimes it becomes difficult to say definitely, particularly in human beings, as to which of the behavioural changes the results of learning are and which the consequences of maturation are. Aggarwal (2008) has discussed it as follows,

"The swimming of tadpoles and the flying of birds can be attributed primarily to maturation. But in the case of human beings it is not easy to decide whether the activities result from maturation or learning. The simplest example is that of a child. The child learns to talk only when he reaches a certain stage or age of maturation. It is also equally true that he does not learn the language just because he attains that age. The language is taught to him. The language which he learns

is that which he hears. It is very clear that the two processes- maturation and learning – are closely related to each other. Maturation assists in the process of learning. Learning takes place only if the stage for that type of learning has been achieved through a process of maturation. A teacher would be effective if he understands the complexity of the changes that take place as a result of both processes and the interaction between the two. The reverse would be harmful. For instance, the normal development of speech in the child would be disrupted if a child is forced to learn certain speech patterns before a certain maturation has occurred. On the other hand, failure to provide specific training in speech at the appropriate time may be a great educational error."

1.5.2 Learning and Teaching

Teaching is a system of actions which induce learning through interpersonal relationships. It is a purposeful social and professional activity. The ultimate goal of teaching is to bring about development of a child.

Teaching is a complex phenomenon as its nature is scientific as well as artistic. Gage (1979) has discussed teaching as a science to describe 'the elements of predictability' in teaching and as an art to describe 'what constitutes good teaching'. When we consider teaching as an art, we consider it loaded with emotions, feelings, values, beliefs and excitement and difficult to derive rules, principles or generalizations. When we consider teaching as science, then pedagogy is predictable to the extent that it can be observed and measured with some accuracy and research can be applied to the practice of teaching.

The total task of teaching is to provide a conducive environment to child for learning and helping him in exploring his potential. That is why, Joyce, Weil and Calhoun (2009) say that models of teaching are really models of learning. As we help learners in acquiring information, ideas, skills values, ways of thinking, and means of expressing themselves, we are also teaching them how to learn. In fact, the most important long term outcome of teaching may be the learners' increased capabilities to learn more easily and effectively in the future.

'Any valid conception of teaching must be integrally related to a conception of learning. How human beings learn should provide much of the basis for our derivations of how teachers should teach' (Gage, 1967).

1.5.3 Learning and Imprinting

'Imprinting' as a term was first used in 1930s by the Austrian Ethologist Konrad Lorenz for describing the attachment behaviour of new born-birds to the first large moving objects in their environment. He conducted a series of experiments for studying such attachment behaviour. Like, in his initial experiments he demonstrated that ducklings and goslings follow the mother soon after hatching. Afterwards, Lorenz replaced the mother by a big object like football and found the new-borns following the new object.

In one of his later experiments he himself worked as a substitute for the object and the mother. He first hatched a group of goslings in an incubator and then presented himself as the first moving object they saw. He found that the new-born birds began to follow him wherever he went. Thus he concluded that imprinting represents an inborn perceptual process independent of any training or experience. It is a sense of strong connection or attachment that is made between

the new-born organism and the first object it may have initially responded to. This attachment behavior is a species-specific behaviour and is not exhibited by all species.

Imprinting is quite dissimilar and distinct from the actual process of learning. It depends on an instinctive and inborn species-specific behaviour mechanism rather than the experience and training carried out during specific critical periods of the species life time soon after birth.

Check Your Progress

Notes: a) Write your answer in the space given below.

b) Compare your answer with those given at the end of unit.

4) Give an example of maturation.

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5) What do you understand by the term imprinting?

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1.6 DIMENSIONS OF LEARNING*

According to Marzanoet al. (2006) dimensions of learning is a comprehensive model that uses what researchers and theorists know about learning to define the learning process. Their premise is that five types of thinking – i.e. five dimensions of learning- are essential to successful learning. These five dimensions of learning are:

a) Attitudes and Perceptions

b) Acquire and Integrate Knowledge

c) Extend and Refine Knowledge

d) Use Knowledge Meaningfully

e) Habits of Mind

a) Attitudes and Perceptions

A key element of effective teaching is helping learners to establish positive attitudes and perceptions about the classroom and about learning because these affect learners' abilities to learn.

The content under this section is broadly based on the 2nd edition of 'Dimensions of Learning- Teacher's manual' by Marzano et al. (2006)

If learners find the classroom as an unsafe and disorderly place, their learning will be negatively affected. Also, learners' positive attitude about classroom tasks helps in learning.

b) Acquire and Integrate Knowledge

Providing new knowledge by integrating the previous knowledge helps in learning. When learners are learning new information, they must be guided in relating the new knowledge to what they already know, organizing that information, and then making it part of their long-term memory.

c) Extend and Refine Knowledge

Learning does not stop with acquiring and integrating knowledge. Learners develop an in-depth understanding through the process of extending and refining their knowledge (e.g. by making new distinctions, clearing up misconceptions, and reaching conclusions). Various reasoning processes, like: comparing, classifying, abstracting, inductive reasoning, deductive reasoning, constructing support, analyzing errors, analyzing perspectives, etc. are used by learners to analyze for extending and refining their knowledge.

d) Use Knowledge Meaningfully

The most effective learning occurs when we use knowledge to perform meaningful tasks. So, making sure that learners have the opportunity to use knowledge meaningfully is one of the most important parts of planning a teaching activity. For this, reasoning processes, like: decision making, problem solving, invention, experimental inquiry, investigation, systems analysis, etc. may be used.

e) Habits of Mind

A learner becomes an effective learner by developing powerful habits of mind that enable her/him to think critically, do thing creatively, and regulate her/his behaviour. The mental habits for critical thinking are being accurate and seeking accuracy, being clear and seeking clarity, maintaining an open mind, restraining impulsivity, taking a position when the situation warrantsit and responding appropriately to others feeling and level of knowledge.

Habit of preserving, pushing the limits of own knowledge and abilities, generating, trusting and maintaining own standards of evaluation enable in thinking creatively. Self-regulated thinking is enabled by the habits of monitoring own thinking, planning appropriately, identifying and using necessary resources, responding appropriately to feedback and evaluating the effectiveness of own actions.

These five dimensions of learning do not operate in isolation but work together. All learning takes place against the back drop of learners' attitudes and perceptions and their use of productive habits of minds. Having positive attitudes and perceptions and using productive habits of mind makes learning easier and helps in learning more. When positive attitudes and perceptions are in place and productive habits of mind are being used, learners can more effectively do the thinking required in the other three dimensions- that is, acquiring and integrating knowledge, extending and refining knowledge, and using knowledge meaningfully.

Thus, the dimensions of learning help a teacher achieve a major goal of education, i.e. 'to enhance learning'.

Check Your Progress

Notes: a) Write your answer in the space given below.

b) Compare your answer with those given at the end of unit.

6) Name the five dimensions of learning.

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7) Which reasoning processes are used by learners to analyze for extending and refining their knowledge?

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1.7 LEARNING AS A PSYCHOLOGICAL AND SOCIAL CONSTRUCT

The term 'construct' is commonly used for an attribute which cannot be measured directly like some other physical attributes (e.g. weight, height, etc.). The presence or absence of such an attribute is decided by the reflection of certain actions in an individual's behaviour. Learning is also a construct. It is characterized by certain behaviour.

Learning as a Psychological Construct

As a psychological construct, learning is defined as any activity that develops an individual, irrespective of being good or bad. Early schools of thought like behaviourist and cognitivist established learning as a psychological construct.

Behaviorist perspective focused on observable behavior whereas cognitivists concentrated on role of internal cognitive processes in learning. Behaviorists believed that education is a mean to train individuals for desired behavior. Cognitivists were concerned with internal processes of the brain and nervous system for learning. Internal mental processes include inputting, organizing, storing, retrieving, and finding relationships between information are important for learning. Their focus was on how information is processed. Gestaltists also emphasized on learning a psychological construct however they were of a different viewpoint. Gestalt theorists focus on role of perception, insight, and meaning as the key elements of learning. They perceived individual as a perceptual organism that organized, interpreted and gave meaning to the events.

Learning as a Social Construct

However, learning as a social construct is characterized by development of socially desired behaviour, generally developed in a social environment by observation and self-regulation.

Learning as a social construct is the outcome of interaction between people. These theorists believe that learning is based on observation of others in a social setting. In the 1960's, Bandura postulated that an observer can learn by observing without having to imitate what is being learned. He proposed four processes for observational learning i.e. attention, retention (memory), behavioral rehearsal, and motivation.

Vyogotsky also viewed learning as a social construct. We will discuss in details about these viewes in unit 2.

1.8 LEARNING STYLES

The term 'learning styles'corresponds to the understanding that every individual learns differently. Learning styles define the way how people learn and how they approach information. It is a pattern of behaviour that human beings use for new learning. You may recall that sometimes you feel like you cannot learn something important even if you use the same method which has been suggested by your parents, colleagues or teachers. But, then you tried to learn that in your own way and succeeded. It indicates that you may have different learning style.

An individual's learning style refers to the preferential way in which the learner absorbs processes, comprehends and retains information. Different learners learn in a variety of ways, by seeing and hearing, working alone and in groups, reasoning logically and intuitively and sometimes by memorizing or visualizing. Thus, since, everyone is different, it is important for teachers to understand the differences in learners' learning styles, so that they can implement best practice strategies into their daily activities, curriculum and assessments.

Fleming's VARK model of learning is a very commonly accepted model.

Fig.1.2: VARK Model of Learning

VARK is an acronym that refers to the four types of learning styles: Visual, Auditory, Reading/Writing Preference, and Kinesthetic.

- **Visual learners** prefer the use of images, maps and graphic organizers to access and understand new information.

- **Auditory learners** best understand new content through listening and speaking in situations such as lectures and group discussions.

- Learners with a strong **reading/writing preference** learn best through words. These learners are able to translate abstract concepts into words and essays.

- **Kinesthetic learners** best understand information through tactile representation of information. They learn best through figuring things out by hand.

Teachers should assess the learning styles of their learners and adapt their classroom method to best fit each learner's learning style. Thus, according to 'meshing hypothesis', they learn better. Meshing hypothesis means a learner/ learns better if taught in a method deemed appropriate for her/him.

Activity 1

Observe your classroom and try to identify your learners with different learning styles. It will help you to design your teaching-learning experiences more effectively.

1.9 PACE OF LEARNING

Concepts like 'Learning Styles', 'Pace of Learning', etc. are related to individuality. Considering these concepts indicates the understanding of individual differences by a teacher. Every individual is unique and has his own learning style and pace of learning. The general meaning of pace of learning reveals about at what rate an individual learns.

Every learner does not learn at the same pace. If you present any new concept and explain it in the classroom, some of your learners may grasp it immediately. For few of them, you may have to explain again with help of some examples. For some, you may design certain activities so that while doing those activities, learners can understand the concept, even for some, you may require repetitive drill and exercises and such learners can take mush time. In earlier days, we used terms like fast learners and slow learners but now days such words are not being used anymore. A learner is a learner; his/her pace may vary. Pace of learning is a kind of individual difference.

According to Khan (2012) "people learn at different rates. Some people seem to catch on to things in quick bursts of intuition; others grunt and grind their way towards comprehension. Quicker is not necessarily smarter and slower definitely is not dumber. Further, catching on quickly is not the same as understanding thoroughly. So, the pace of learning is a question of style, not relative intelligence".

In a class, learners learn in a different way, at a different pace and as a teacher in a face-to-face class, it is almost impossible to cater to everyone's learning need but understanding of these concepts will help us in accommodating diverse learning needs in the class.

With the advancement in e-learning and other ICT mediated learning, self-paced learning is gaining momentum. Philosophy of Open and distance learning (ODL) also believes in self-paced learning. It respects the individual differences and provides enough time to each learner to learn on his/her pace.

Role of a Teacher

As a teacher you must have realized that every learner learns on his/her own pace but you cannot teach on different pace. Sometimes you may find it challenging to match with the pace of learners. Here are few suggestions which you can try to facilitate learning for learners at different pace:

– Never present a lot of concepts at a time. Try to explain every concept and involve your learners to provide explanation of the concepts.

– Encourage learners to give examples based on their own experiences and observations; this will help the learners to link the concept with their own experiences and knowledge.

– Sometimes you may try time-limit or time-warning strategy to increase the pace of learners. For example, you can give 05 minutes to complete a task to all learner, which can be completed by an average learner in three minutes.

– If it is group work, you can assign time-keeper role to one of the learner who will encourage all to complete the task in given time.

– You should analyze the activity/task before assigning to learners in terms of time required to complete the task and plan accordingly.

– Design some additional activities/exercises for learners who learn at comparatively slow pace.

Check Your Progress

Notes: a) Write your answer in the space given below.

   b) Compare your answer with those given at the end of unit.

8) How will you identify learners with different learning styles in your class?

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9) What strategies you can plan to deal with learners with different pace for learning?

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1.10 MODES OF LEARNING

Right from birth itself we learn many skills, like reaching for and grasping toys, standing up and stepping forward unfaltering and unaided, speaking, etc. Later, we learn more complex skills and acquire the ability of solving various types of problems. Thus, there is a gradual change from the simpler form of learning to the complex ones, like problem solving. There is no single way of acquiring all types of learning. However, here we shall discuss three important modes of learning. By understanding how each mode operates, you should be able to design your classroom teaching more effectively.

1.10.1 Learning by Observation

Observation is a basic requisite for all kinds of learning. By observation, here, we do not mean simply 'seeing' a thing, rather it refers to the act of perceiving or observing the stimulus. Thus in the process of observation we not only take the help of our eyes alone (as for 'seeing') but we also use all sense organs. The presence of a stimulus can be recorded with the help of our capability of perceiving, seeing, listening, smelling, tasting and touching.

It may amuse or take you by surprise if it is said that "we have eyes yet we are blind". Such a statement may confuse you unless it is clarified. The point of emphasis here is that there are so many objects around us, but we take notice of only a few of them. Just ponder upon this explanation and you will realize the underlying truth. In fact, we pay attention to the things of our interest only. But we can never be certain whether interest proceeds attention on it is attention which gives rise to interest. It is because the two are inseparable. Interest is the feeling side of attention.

By nature, all living beings are interested in something or the other. This interest is amused as a result of impulse evoked by instincts. The greater the impulse, the more is the amount of interest attached to it. And the greater the interest, the more the attention paid to the object. Therefore, it is said that interest is latent attention and attention is interest in action. However, the necessary conditions of both interest in and attention to any object is that the mind is so organized, either innate or through experience that it can think about the object and maintain a desire to know more and more about it. This type of mental or psychomotor activity leads us to learning about the object.

We often use 'attention' in order to achieve faster learning in our learners. We evoke interest in children by presenting concrete objects, illustration, pictures, modules etc. in class and relating the topic to them. However, this interest is of a primitive nature and we should not be satisfied with this kind of interest only. The interest can be sustained only if the learners are given the opportunity of observing new phenomena, and bring variety of our teaching. If we try to keep their attention and old objects for a long time, it becomes boring for them. If they are encouraged to observe various aspects of the concept to be learned, we can help them sustain their attention for a longer time and thus help them learn more about the concept.

The following steps can be followed in learning through observation:

i)   Grasping the meaning of the demonstration of an action.

ii) Trying to fix images of how the model looks in each step of the demonstration

iii) Formulating silent verbal directions for the step involved the in performance/ demonstration.

iv) The learning may also derive some benefit of slight imitative movements of arms, legs and other parts of the body.

1.10.2 Learning By Imitation

Living beings can learn a great deal by observing but they should also try to emulate others for perfecting their performance and learning. Like observation, imitation is also an innate tendency of the child. Imitation is tendency to repeat the observed actions of others. In the beginning, the child learns his movements, action and gesture by imitation. The capacity of imitating is very much prominent in children and you must observe that they take delight in imitating. As they grow, they learn many athletic, industrial and professional skills by imitating moving picture demonstration of skilled performance. Modeling also has a great value in learning. Modeling includes imitation of special personalities such as a learner imitates the actions immediately of the well-known cricketer Sachin Tendulkar. Imitation also means the invention of new things or actions. Teachers should give opportunity to the learners for self-development. Their creative tendency should be exploited or highlighted.

Trevor has reduced all kinds of imitation into two broad categories: (a) unconscious and (b) deliberate. Under the first category, the individual imitates what he sees, quite unwillingly. In deliberate imitation, the individual copies an act with a definite deliberateness to imitate, because of his interest in the act itself, or due to result he expects to secure an account of imitation.

1.10.3 Learning By Trial And Error

In many situations we learn by trial and error. Here we make a number of attempts for a particular task or problem and find more attempts rewarding. The satisfying feeling of rewards strengthens particular stimulus - response connections while the unsuccessful attempts are stamped out through practice. This type of learning is based on Thorndike's theory of connectionism. It implies that through conditioning, specific responses are linked with specific stimuli. The connections between stimuli and responses are formed through random trial and error. The law of trial and error was formulated after experiments on a hungry cat imprisoned in a cage. When the cat could press the lever of the cage through several trials, it would get food as the reward. The number of unsuccessful attempts reduced through practice and successful attempts got strengthened. The law has significant implications in classroom learning. When used appropriately by the teacher, they can help in developing the skills vocabulary and memorizing abilities of children.

Thorndike conducted an experiment in which exercise was made the indecent variable while other factors were held constant. He experimented upon a college student who was asked to draw a 3-inch line while blind-folded. More repetition did not bring any change or improvement. Such subjects were given more than thousand trials. On an average, there was no improvement from the first to the final trial. Practice without knowledge of results failed to produce any result. Some of the laws underlying trial and error learning are: law of readiness, law of effect, law of exercise. As regards the law of exercise, Thorndike began to think

that reward and punishment were not equal and opposite in effect. Reward strengthens the connection considerably whereas punishment does not weaken the connection to the same degree. The intensity and speed of reward in influencing learning are greater than that of punishment. Reward also brings healthy and desirable improvement in the personality of the child. In this way, Thorndike began to give more importance to reward and praise in place of punishment and blame.

1.10.4 Learning By Insight

Most of the learning in human beings takes place not only through observation or imitation, but also by solving problem which they come across in their day-to-day life. While solving a problem if an individual reaches the solution all of a sudden, we say that he has learned by insight. In fact, the person reaches the solution by understanding the relation between different aspects of the problematic situation. In our daily life, we describe the mode of learning by using phrases like seeing the point, or getting the idea.

Learning by insight was introduced by Gestalt psychologists. Gestalt means shape, form or configuration. To understand the process of insight the learning, we describe here Kohler's famous experiment of chimpanzee and bananas.

A chimpanzee was placed in a cage. Outside the cage, on one side were put some bananas. The chimpanzee was hungry, it long arms could not reach the bunch of bananas. Some sticks were placed near the door inside the cage. The chimpanzee first tried to reach bananas with its hands. It did not get success. After several attempts and failures, it sat in a corner, seemingly brooding on the problem. Suddenly, it jumped, seized a stick and pulled the bananas toward itself.

Kohler repeated the experiment by bringing some variations in the design. On the basis of his experiments, he described the process of learning in insight as follows:

- The learning perceives the situation in its totality.

- He analyses the various aspects of the situation and tries to establish a meaningful relationship among them. On the basis of this new perception he redefines the situation.

- The process goes on till he solves the problematic situation all of a sudden. That is what we mean when we say that a learner suddenly gets an insight into the solution.

Check Your Progress

Notes: a) Write your answer in the space given below.

b) Compare your answer with the one given at the end of the unit.

10) Give examples from classrooms' situation for the various modes of learning.

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1.11 TRANSFER OF LEARNING

One of the important characteristics of learning is that the acquisition of skills, habits, knowledge and attitudes, influences the acquisition of new learning due to some kind of carry-over effect. The carrying over of feelings, habits, skills, and knowledge from one learning area to another is called transfer of training or learning. Psychologists explained the nature of the transfer of learning process. We shall try to understand the nature of the transfer of learning with the help of various viewpoints of psychologists as reflected in their theories.

1.11.1 Meaning and Nature of Transfer of Learning

According to the older view, transfer of learning implies that training in one faculty of the mind may help in the functioning of older faculties as well various faculties of mind - memory, reasoning, judgment, observation etc. - are directed or trained through various academic subjects. Languages and mathematics give training to the mind which helps in learning other subjects. A person who possesses a good knack for language, can learning and retain any fact easily.

Thorndike by proposing the **theory of identical elements** took the stand that resemblance and similarity between situations has a considerable effect on the amount and kind of transfer of learning that can be carried over from one situation to the other. For instance, take memorization. When a learner practices memorization in one subject area, s/he becomes capable of memorizing other subjects as well, to some extent. And it is quite possible that s/he memorizes the content of some other subject areas quickly. According to this view point, this phenomenon is not due to an improved faculty of memory; rather it depends upon the extent to which the two situations share identical elements of content, attitude, method or aim.

Judd says that transfer of learning is nothing but a **generalization**. According to the principles of generalization proposed by Judd, the development of special skills, the mastery of specific facts, formulation of particular habits and attitudes in one situation have transfer value only if the skill, facts, habits, etc. are systematized and related to other situation in which they can be utilized.

In the opinion of Hilgard, transfer of learning is possible only when a person develops the ability of finding out the **identity of relationships** and using it to solve solutions in new situations and for this, insight is necessary.

An analysis of the above mentioned view of psychologists leads us to the following interferences in regard to the nature of transfer of learning:

- Transfer of learning can also be viewed as problem solving, in which experience in one task influences the performance of another.

- Transfer of learning comes from similarity of contents, similarity of techniques, similarity of principles, or a combination of these.

1.11.2 Types of Transfer of Learning

Transfer of learning may take place in three ways.

i) **Positive Transfer:** Positive transfer occurs when the acquisition of one type of performance facilitates another type. In the positive transfer, learning of

one activity makes learning of another activity easier. For instance, school children, who memorize poems, mathematical tables and other verbal material, show better learning of the similar new material as compared to the children who did not get previous training in memorization. It is also a common experience that learning to pedal of tricycles makes the pedaling of bicycles easier. In all these examples, we have noticed that previous learning of a related skill benefits the learner in subsequent learning.

ii) **Negative transfer:** Negative transfer occurs when the previous puts hindrances in the performance of the subsequent task. The content, techniques or principles which make for negative transfer are opposed to those required by the new situation. For instance, after the end of a year, most of us continue to write the previous year on our cheques for some time. If the telephone number of our friend changes, we often continue dialing their former number. When we switch over from riding a bicycle to driving a scooter, we often put the clutch lever for stopping the vehicle instead of using the foot brake. These types of habits' interference are example of negative transfer of learning.

iii) **Zero transfer:** The zero transfer refers to the fact that previous learning has no effect on the subsequent learning. e.g.: a cricketer who improves his bowling skills is not expected to transfer this skill to improve this batting skill.

1.11.3 Classroom Implications

Utility of transfer of learning should be discussed in the context of the assumption that knowledge, skills and methods of learning which learners use in relation to definite school tasks remain available in the future and also applies to solve new problems. With this assumption in mind, the knowledge of nature of transfer of learning helps you in finding answers to some crucial questions like - what type of learning in the school will help learners in solving problems in daily life. Which type of learning helps and which hinders in coping with day-to-day problems? And perhaps the most important and most neglected question - how best can we increase the transfer effect? Educationists have performed experiments for finding answers to the above mentioned questions. On the basis of the results of their investigations, they recommended that education must be life-centered to facilitate transfer of learning. School activities should have the tint and texture of the activities which the learners are expected to come across in his daily life. Problem-solving and discussion methods are more useful in promoting the power of transfer. Cramming should be replaced by meaningful learning. Learners should be trained to form generalization and they should be made self-reliant in solving new problems.

Check Your Progress

Notes: a) Write your answer in the space given below.

b) Compare your answer with the one given at the end of the unit.

11) List three types of transfer of learning.

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1.12 LET US SUM UP

In this unit, we discussed about the concept of learning and understood various definition of learning. Along with nature of learning, we learnt the difference among learning and other related concepts like teaching, maturation and imprinting. We also came to know about various dimensions of learning and understood their role in enhancing learning. Lastly, the unit made us aware about the concepts like learning styles and pace of learning.

Understanding the nature of learning process helps us in solving the problems related to the educational processes. To understand as to how human beings learn is, therefore, important for attaining competence in teaching. Psychologists differ in opinion regarding the nature of learning process. However, they point towards the facts that learning if more or less a permanent modification of behaviour which results from activity training or observation. Learning directs goal and takes place when an individual interacts with the learning situation. There are certain conditions which influence learning of the learners. Types of curriculum teaching methods and maturity level of the learner are just a few of such influencing conditions.

Though maturation and learning are two different processes, both are important for proper development of child.

One of the important characteristics of learning is that it is transferable. But the amount of transfer varies. There is no complete transfer of learning from one subject to the other. The transfer is possible between two situations, if there is identity of the context, identity of procedure and identity of attitudes and ideals. The transfer of learning may take place from one subject to another and from the classroom situation to the situations in life. Thus transfer helps inoptimizing learning.

1.13 UNIT-END EXERCISES

- What is learning? Describe nature of learning.

- Differentiate among learning, maturation, teaching and imprinting.

- Which are the various dimensions of learning? How does the understanding of these dimensions by a teacher help in enhance learning?

- 'Pace of learning is a question of style, not relative intelligence.' Discuss.

- How will this unit help you in becoming a good teacher?

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1.15 ANSWERS TO CHECK YOUR PROGRESS

1) Answer in your own words.

2) Temporary change in behaviour is not learning. It alsodoes not include changes in behaviour on account of maturation, fatigue, illness, or drug etc.

3) Process

4) Maturation involves changes that are associated with normal growth. For example becoming old, etc.

5) Answer in your own words.

6) The five dimensions of learning are –Attitudes and Perceptions; Acquire and Integrate Knowledge; Extend and Refine Knowledge; Use Knowledge Meaningfully; Habits of Mind

7) Various reasoning processes like, comparing, classifying, abstracting, inductive reasoning, deductive reasoning, constructing support, analyzing errors, analyzing perspectives etc. are used by learners to analyze for extending and refining their knowledge.

8&9) Write the strategy, which you will adopt.

10) Answer based an your classroom experiences.

11) Positive, Negative and zero.