Learning is influenced by the family, the community, the school and the societal culture in which the child is born and brought up. Through these agencies the child learns life skills, mores, habits, attitudes, values, and many more things. Apart from informal learning the child goes through the organized or institutionalized learning, which is obtained in a formal way via predetermined curriculum and provides him/her the treasure of knowledge and understanding accumulated in the course of the experience of human race. You will find that all learning of the individual, whether formal or informal, is the result of his/her interaction with the physical and socio-cultural environment in which he/she lived. This process of interaction is not a simple, generalizable process, but an individual and personal process, simultaneously affected by a host of factors within and outside of the learner. To be able to understand learning more clearly, you have to be aware of the various issues and concerns. Then we can proceed to help the learners in their personality development, the major goal of education.

In this Unit, we will discuss some important issues and concerns related to learning, knowledge of which can enhance your understanding of the learning process. Some of the focal questions that need to be asked in this regard may be:

- Is learning permanent or temporary?
- What factors within or outside of the individual influence human learning?
3.2 OBJECTIVES

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

- state whether learning is permanent or temporary;
- state whether learning is transferable;
- elucidate the concept of over learning with its implications;
- state how learning is influenced by factors (that lie within the individual) of readiness, attention, interest, effort;
- explain with examples the learning of mores, manners, habits outside the school;
- describe the role of time as a factor of learning;
- discuss the importance of instructional objectives in teaching-learning process;
- discuss the importance of assessment in teaching-learning process; and
- explain the role of home in child learning.

3.3 LEARNT BEHAVIOUR IS NOT PERMANENT

The activities of humans that are of prime concern to psychologists are the learnt behaviours. Many non-learnt human functions are also of interest as these affect learnt behaviour. In order to understand the learnt behaviour of individuals it is necessary to have some understanding of the foundations on which the learnt behaviour is built.

We know that the learnt responses of human beings in a social setting occur as a complex pattern of stimuli and responses. Learning is a change in behaviour that does not result from simple development or maturation. It is a change in behaviour that results from experience. Whether the results of experience appear to be shortlived or long lasting, we are inclined to call it learning. All changes in behaviour, therefore, are not the result of learning. Changes in behaviour or alteration of the organism resulting from experience are designated as learnt. It encompasses much of human behaviour. Human being continues to learn from birth to death. The rate of learning increases with age from infancy to maturity. It is fairly constant for the next ten or fifteen years after maturity is achieved. Then there is a gradual decline.

Human beings learn manual skills, verbal skills, and graphic skills, and ways of utilizing them. Through learning he/she acquires knowledge, meanings, fears, attitudes, personality, ideals, frames of reference, prejudices, values, and self-knowledge. Whatever is learnt brings a constant change in behaviour. This change in behaviour is only relatively permanent. Since, all learnt human behaviour is modifiable, behaviour can never be strictly permanent. Experience is a continuous process in human life starting from the cradle and ending with grave. Nothing therefore, can be said to be permanently and completely learnt unless we lose our capacity to learn or experience any further. According to Piaget(1970) intellectual assimilation is similar to biological assimilation. It is a child’s ability to act on and understand something new in terms of what one is familiar with (available schemes). The assimilation further helps in developing new capacity for assimilating new objects and events. The development of new capacities (change in already existing schemes) brought out by the elements it assimilates is called accommodation, and equilibration is the process that produces progressive equilibrium between assimilation and accommodation. Our knowledge of the self and that of the external world goes on expanding because of continuous
interaction with it, assimilating our newer perceptions in the already existing cognitive structures (apperceptions) and then accommodating these structures to give rise to newer structures. For further interactions the newly formed cognitive structures (new accommodations) act as 'apperceptions'. Thus the process of experiencing goes on. Any idea of learning as a permanent change in behaviour will be contradictory to the very meaning of the concept of learning, for the process of assimilating new information and thereby accommodating the existing whole cognitive structure equilibrating to a new one, will no longer be feasible or possible. Learnt behaviour is only relatively permanent and modifiable in the light of fresh evidence/perceptions.

There is another reason to show that learning is not and cannot be permanent change in behaviour. We know that we all forget whatever we learn if it is not used (Thorndike’s law of use and disuse). Similarly, the process of extinction also proves the point. In the process of extinction a reinforcer is withheld to weaken the response. If an organism is not reinforced every time it makes a particular response, the organism will stop making a response after sometime.

Check Your Progress 1

Note: Write your answers in the space given below.

1) What kinds of behaviours are learnt by an individual?

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2) Learning cannot be a permanent change in behaviour. It is only a relatively permanent change. Illustrate.

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3.4 TRANSFER OF LEARNING AND PROBLEM SOLVING

All living beings, whether animals or human beings, have the capacity to respond adaptively to new situations. They do so by applying what they have learned previously to different situations. An individual attains maximum efficiency to the extent one is able to apply previously learnt content to a wide range of problems. Learning in schools would be simply inefficient if children learned only to solve specific problems and were not able to apply the knowledge to the solution of other problems. The facilitation of learning in new situations by the application of older learning is referred to as transfer of learning. In learning a new skill, for example, learning to drive a car, what is learnt at each lesson should facilitate the learning in the next session. Learning of addition and subtraction should facilitate learning of multiplication and division in arithmetic.

Learning of a new skill may also facilitate the retention of another previously acquired skill. For example, one may learn how to swim in a pond and then not swim for some time. After a gap one learns to swim in a river. The acquisition of skill in swimming in a river will strengthen the previously learnt skill. Thus learning of one skill may facilitate retention of a previously learnt skill and it may also facilitate learning of new skills.
Learning: Concept and Process

The acquisition of a skill may sometimes have a negative effect on the retention of a previously learned skill or acquisition of a new skill. Learning of English language, for example, may inhibit learning of German or French. But learning of Sanskrit may facilitate learning of Hindi. If the learning of a skill inhibits the learning of a new skill it is a case of negative transfer. And if learning of a new skill depresses the retention of a previously learnt skill it is called retroactive inhibition.

When the transfer has effect on subsequent learning, it is called *proactive transfer*. When the effect of transfer is to strengthen or weaken the retention of some previously learnt skill, it is called *retroactive transfer*. Much of the research on transfer has to do with proactive effects. Indeed much less research has been done to study retroactive effects on transfer.

Transfer of learning is not limited to intellectual responses; many emotional responses are also influenced by transfer. One such transferable type of emotional response is the anxiety response. A student who has developed high state of anxiety or fear while learning mathematics may transfer this response to physics or any other course involving application of mathematics. Similarly, if a teacher has badly treated a child and as a result the child displays fear or anxiety response in the presence of that teacher, the same type of response may occur whenever he/she faces other teachers.

During the acquisition of a skill, some events occur that are not learning phenomena but may affect the acquisition of subsequent skills. For example, fatigue may depress further acquisition of learning. This is not a case of negative transfer. Similar phenomenon is the case of “warm up” period. When a person begins a new activity he/she needs some time as warming up time to reach his/her maximum efficiency. This period depending upon the nature of activities may be in seconds or minutes. A musician, even when practising in her own home, goes through a warm up activity. There are individual differences found in such warm up activities.

Travers (1977) considered the issue of transfer constituting the core of problem solving. In all problem solving, there is some task to be undertaken and goal to be achieved, but the individual is not always ready with a well-learnt response that can be applied to the situation. Suppose your house is locked and you have lost your key. How to enter the house becomes a problem for which you have to seek a solution. To solve this problem you need to apply some similar previously learnt knowledge.

Problem solving may involve simple perceptual and motor skills, or complex skills like abstract reasoning. If one inserts the ignition key in the car and turns it but the car does not start, it is a complex problem which can be solved systematically by reasoning. Faced with this problem one may think that probably the battery is down or if the battery is charged, the current is not reaching the starter. One will then start thinking how to test the two hypotheses. By switching on the headlights one can test whether the battery is charged or not. If the battery is found charged then one will test the other possibilities and so on.

Thus, through systematic reasoning, the source of the problem can be slowly identified. In such a case, what is transferred comes from a general background of knowledge, not only from how cars start, but like electricity and its conduction. So both knowledge and reasoning skills are necessary for the solution of problems.

When we consider the issue of transfer of learning we find that there are two kinds of transfer: specific transfer and general transfer. In the case of specific transfer of learning or training some quite identifiable characteristic of a situation or a particular task response has a subsequent effect on acquisition or retention of another task. The effect may be positive or negative. That is learning of a specific task may facilitate the learning of a subsequent task or hinder it. But not all transfer of learning is of this kind: some kinds of transfer of learning are non-specific. According to Postman (1969) such non-specific transfer effects do not result from simple similarities between tasks,
but involve a carry-over of skills and habits from one task to another. One of the best example of non-specific transfer is found in the case of the phenomenon, learning how to learn, discussed in the following section.

Check Your Progress 2

Note: Write your answers in the space given below.

1) Define transfer of learning.

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2) Give two examples each of proactive and retroactive transfer.

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3) Cite examples of transfer of learning in non-cognitive areas of learning.

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4) Discuss the role of transfer of learning in complex problem solving.

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5) What is meant by specific transfer and general transfer of learning?

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3.5 LEARNING TO LEARN

The UNESCO Commission on Education (1996) in its report titled “Learning: the Treasure within” identified four pillars of Education. The first of these is Learning to Know. It means what is important in the education of children is not only a body of worthwhile knowledge, understandings, skills and attitude, but is to develop in them the capacity to learn and to know. If the child is able to acquire such ability he/she can develop all that one requires to be called an educated person.

The phenomenon of learning how to learn has been demonstrated in experimental situations. In one of the early laboratory studies Ward (1937) presented a list of syllables to a group of subjects. When they learned it, again another list was given and so on. Ward found that as subjects learned lists of syllables, their speed of learning became faster with each new list. The learning how to learn phenomenon represents a rather permanent kind of learning and is manifested for long periods after the practice has stopped.
In another study, Woodraw (1927) demonstrated that pupils could be taught learning techniques that would improve their learning efficiency. Harlow (1949), first working with monkeys and later extending the studies to human subjects demonstrated the learning how to learn phenomenon. Harlow demonstrated through experiments that as a result of systematic learning sequence monkeys acquired a learning set for problems. A similar phenomenon is shown to occur with young children. As problems of a particular class are solved, new problems in the same class are solved with increasing speed and facility.

A learning sequence that produces the development of a learning set generally consists of a long series of problems that are presented to the subject. These problems are generally distributed over many sessions which take place on successive days. The formative learning sets have been demonstrated in the case of young children with materials very similar to these used in studies with sub-human primates. Same phenomenon has been demonstrated with adults. If individuals are put through problem series one after another, they develop great facility in looking for new rules to solve the problems and also a repertoire of rules that can be applied.

When a learning set is developed, it seems to involve the acquisition of at least two aspects of a skill. One aspect is the learning of strategies. Another is the learning that when a strategy does not work it should be dropped quickly and another strategy should be applied. The rules of strategies may involve verbal skills, but they may as well be at the non-verbal level. Postman (1969) tried to identify strategies in paired associate learning. The strategies which are transferable are numerous and varied. He stated that a learner may acquire not only the rules that simplify the task of acquisition, but may also invent ways of prompting recall.

To have an idea of the development of such learning sets or learning how to learn, you can give to students series of problems like those which appear in verbal and non-verbal tests of intelligence. To solve these problems the students always try to identify some rules which may apply to a series of problems. The students will tend to search for another rule if the earlier one does not apply. If adequate practice is given in solving such verbal and non-verbal problems, the students will acquire capacity or a learning set to solve such problems with speed and facility. In other words you can say that the students have gained experience in solving problems of a particular kind. Thus learning how to learn is the experience one gains in an area, because he/she acquires a learning set by continuously working on the solution of problems in that area.

**Check Your Progress 3**

**Note:** Write your answers in the space given below.

1) Explain the phrase 'learning to learn' by citing appropriate example(s).

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2) What is meant by a learning set? What are its two aspects?

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LEARNING AND RETENTION AS A FUNCTION OF TIME SCHEDULE

For any educational programme a time schedule is decided beforehand. This is done in keeping with the nature of the programme. Some educational programmes require more time than others. Educators find that some time schedules are more efficient than others for learning particular aspects of subject matter. For example, mathematics course in general are spread over a longer period than the language course.

When learning is scheduled on a concentrated basis with a single long period of practice, it is called 'massed' practice. But when learning takes place in a number of learning periods with some change of activity or a period of rest in between, such practice is called distributed or spaced practice. The probe into relative merit of spaced vs massed practice has remained a problem with psychologists interested in finding a systematic solution to problems of learning.

Ebbinghaus (1885) in Germany conducted experiments with massed and spaced (distributed) practice. According to his findings distributed practice was found to be more effective and lasting than the massed practice. His findings were substantiated by some other investigators. Mumford(1994) and Shany(1995) found that distributed practice improved retention and retrieval especially in learning that involve lengthy and unfamiliar contents. According to them it takes less time to learn material if learning is distributed over several spaced sessions than if all the work is done in a single session of longer duration. The explanation put forth is that with massed practice inhibition builds up, that interferes with learning. This inhibition is caused due to what is generally called the mental fatigue. Spaced learning provides opportunity for inhibition to dissipate.

Travers (1977) indicated another possibility. According to him the processes involved in retaining information continue even after formal learning has ended. The processes involved in the consolidation of what is learned may continue for twenty or more minutes after the cessation of the formal learning or practice. Therefore a pause after a learning trial may have the advantage of this continuation of the learning process. In distributed learning a pause is provided for consolidation of learned material.

One relevant question is how long should that learning period be and how much pause in between two spaced sessions work best. Many studies have been conducted but there is no consistency in the findings of these studies. The results of such studies are conflicting because the kinds of tasks learned have probably made a difference.

In one of the studies conducted, the tasks were learned under three conditions. One was massed practice. The second was distributed practice with one minute interval between trials. The third was distributed practice, with twenty four hours interval between trials. With every task the subjects performed more efficiently when practice was distributed than when it was massed. Surprisingly small difference was found between distributed practice with one minute rest intervals and twenty four hours interval.

The work on distributed versus massed practice does have obvious practical implications. One of the most obvious implication may be that the work in schools should be divided into short sessions covering particular area of content. Educational psychologists, however, may not be content by knowing the selective efficacy of one method over other (the distributed practice vs massed practice). He/she wants to know further about the retention of the material learned, because the question of retention is as important as the speed of learning. What would be the use of a speedy method of learning if it were found that retention was poor. Studies have been conducted (Cain and Willey 1932, Cook 1937) to compare retention curves of massed and distributed (spaced) practice both for meaningless and meaningful material. In the case of
meaningless material it was found that after seven days those who had distributed practice retained almost three times as much material as those who had massed practice. In the case of meaningful material Cook's study showed that though the results always were not as dramatic, yet the solutions to problems (puzzles) were retained better over considerable period when the problems had been solved by distributed practice sessions than by massed practice sessions.

Further it was found that the nature of material is also a factor in determining what is retained. The materials used in research often do not resemble the kind of materials used in school. But a study by Leith, Biran, and Appolot (1969) used materials related to teaching of physics in a classroom setting. They found a clear advantage of spaced practice over massed practice.

3.6.1 Total Time Hypothesis

Bugelski (1964) suggested that in a learning task, such as learning a list of words, the most important condition of learning is the total amount of time devoted to the task. Thus the time between each successive presentation of the list is as important as the time spent in presenting the list. The time spent in attempting to reproduce the list is a part of the total time involved in learning. Tulving (1967) has shown that time spent in writing out the words one can recall from a list of words produces about as much learning as reading the original list. This is known as total time hypothesis. Tversky and Sharman (1975) demonstrated the total time hypothesis with picture materials.

Total time is important for two main reasons. First, the more the time available, the greater is the opportunity the individual can have for rehearsal. Second, the greater the amount of total time, the greater is the opportunity for processes related to the consolidation of learning to occur.

In concept learning tasks the learner must be provided sufficient time to assimilate the information given. A series of studies have now well established that a critical factor in solving a concept learning problem is the post-informative feedback interval. This is the time allowed after the learner has made a guess and has been told whether he is correct or incorrect. It is the period that permits the learner to make good use of the information provided. Roweton and Davis (1968) have shown that when the problem is difficult, the length of the post informative feedback interval becomes more critical than when the problem is easy.

Research related to this particular problem shows the importance of providing sufficient time for utilization of information in learning tasks. The findings suggest that learning cannot be speeded up beyond a certain point, because the limiting factor is the amount of information that can be assimilated in a given time. Attempts to provide more information in a given time than the amount that can be assimilated successfully are likely to result in confusion of the learner rather than in increased efficiency.

Check Your Progress 4

Note: Write your answers in the space given below.

1) Explain with examples the concepts of massed and distributed practice.

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2) Explain the reasons for the relative efficiency of distributed practice over massed practice.

3) Explain total time hypothesis.

3.7 INCIDENTAL LEARNING

The concept of attention implies that perceptual systems can be set to receive information from a narrow region of the environment. Does this mean that no other information can be derived at the same time from other regions of the environment? This problem is known as the problem of incidental learning. The earlier researchers in the field contrasted incidental learning with intentional learning. They argued that learners undertake tasks with intent to learn and while learning what they intend to learn, they also acquire and retain information about other aspects of the environment (situation). The other information acquired is referred to as the material incidentally learned.

This definition, however, turned out to be far from satisfactory. One difficulty was that during the course of learning whatever one intended to learn, one's intention may change. Suppose a person is intending to learn printed material he/she may begin by intending to learn/remember the words, but then she may get bored with the task and begin to note the characteristics of printing and type face. When he/she does this he/she would be considered by some researchers and theorists as engaging in an intent, to learn the characteristics of printing but others would classify the resulting learning as incidental. Thus it fails to make a proper link between incidental and non-incidental learning as it defines the two categories of learning in terms of instructions given to the subjects and leaves the issue of what happens outside the task unattended.

Numerous techniques have been devised for the assessment of incidental learning. In one technique a person is asked to read a list of words to another person. The assigned task for the reader is that of reading the words, but if he/she remembers something about the words or can remember the actual words, he/she is known to manifest incidental learning. The listener is assigned the task of learning the words, but he/she may also engage in incidental learning and remember some characteristics of the reader, such as his/her accent, or how the reader was dressed.

However, in children, before they enter school, incidental learning is a typical form of learning. It is highly motivating learning. In most societies preschoolers have advantage of discontinuing any activity that proves boring or frustrating and of engaging only in activities of pursuits that interest and stimulate them. Some scholars call this tendency
effort avoidance motivation, which plays a prominent role in work as well as in school situation. A child, for example, may be highly motivated in sports activities and may show massive forms of effort avoidance in academic subjects and vice-versa. Actually, in such a case the child finds satisfaction in sports and hence learns incidentally by engaging himself/herself in such activities on one's own.

Incidental learning, in fact by its very nature is unintentional, the byproduct of another activity. For example, when people learn from mistakes, assumptions, beliefs or the hidden curriculum, they are engaged in incidental learning.

However, the difficulty with incidental learning, according to Marsick and Watkins (1990, p. 219) is that what people learn incidentally is not inherently correct. According to the authors, the best incidental learners are those who can bring their tacit theories and beliefs to the surface. There are, according to them, certain things which individuals can do to make themselves better incidental learners. These include:

- surfacing tacit theories and beliefs.
- identifying assumptions and associations we have made about the people or situations and looking for examples which will support or change these assumptions.
- engaging in deliberately reflective, transformative learning.
- seeking public support or disconfirmation of our private theories.
- trying to take a holistic or long-term view of a problem or a task.

During the late 1980s and early 1990s some researchers felt the need to establish a new research focus. Marsick (1987), on the basis of work done in the field of incidental learning developed a new paradigm for work place learning which contained a number of elements. Some of these are:

- People learn best about work when their identity and growth are seen as integral to learning.
- Organizations most conducive of learning are flexible where all employees are encouraged to learnt many aspects of the work and participate jointly in decentralized decision-making.
- Individuals should be encouraged to develop a habit of reflectivity in both formal and informal mode (Marsick, 1987, p. 25).

There are wide differences in the amount of incidental learning manifested by different subjects. An observation that ties it closely with the common observation that some individuals pickup a great amount of information about the world around them, where as others limit their information gathering to the particular tasks that they have to undertake. The individual differences, do not seem to be related to measures of intelligence. Incidental learning occurs both among the gifted and the retarded.

Some of the most clear and consistent findings about incidental learning are found in the area of motivation. As drive level or motivation is increased, there is a tendency of the amount of incidental learning to decline. Possibly, it is easy to say that under high motivation attention is restricted to the main task. A more meaningful and testable hypothesis is that visual perception system naturally engages in scanning activity.

Perhaps one conclusion emerges from research on this problem, which was originally reached by Postman (1969), that no rigid line can be drawn between intentional and incidental learning. They are both parts of the unified single process of information reception and short term storage.
Check Your Progress 5

Note: Write your answers in the space given below.

1) Differentiate between intentional and incidental learning.
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2) Give examples of incidental learning.
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3) How incidental learning is related to motivation?
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3.8 OVER LEARNING AND RETENTION

Children in school learn materials either by understanding the connections between parts or by practising the same thing time and again, and are then in a position to recall it immediately. They may also learn beyond this point with continuous practice, and be able to achieve a complete recall of the material learnt. Children over learn to spell certain words or say multiplication tables in arithmetic, that they are able to spell correctly or recall any word they have learnt and table at random. Similarly we learn how to drive a bike or a car. Leave driving for some time, but when start driving after a month, we comfortably and immediately drive the same without making any mistake. This is over learning. Typically the school learning is organized in such a way that considerable over learning becomes possible. Over learning means learning to the point where one can recall, not only immediately, but even after a considerable gap of time. Teachers believe that the single best way of preventing subsequent forgetting is to provide for over learning.

However, it is not necessary that to over learn one has to do drill or rote learning. For example, once a child has acquired minimal mastery of number products used in multiplication, the utilization of these products in the solution of daily problems both inside and outside the school will provide extensive over learning. As a result of such over learning the skill is retained ultimately for a life time. There are many skills which are learned to the point where they are retained for life. Few persons ever forget how to ride a bicycle or how to swim once they have learnt it, for, there is extensive opportunity for over learning. Most of what we call "learning how" is over learning. Over learning is in fact a sound investment of pupil’s time particularly if it is coupled with a meaningful activity.

One cannot always count on unplanned opportunity to provide the needed over learning. It is not just trial and error. In music, for example, the learner must acquire a technique before he/she can perform a composition adequately. The great teachers of music, therefore, developed exercises, commonly known as etudes that provide extensive practice. In order to learn violin, one will have to practice these etudes whatever be the level of development of the learner. In Indian music such etudes are: Sa, re, ga,
ma, pa, da, ni, sa. Once the learner masters this technique (etudes) one can easily learn any composition. It is just like over learning of multiplication tables in mathematics, musicians hand down their teaching skills.

Check Your Progress 6

Note: Write your answers in the space given below.

1) Define over learning.

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2) How can over learning be strengthened?

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3.9 INSTRUCTIONAL OBJECTIVES

Children spent a considerable amount of their early life in school. Schools provide organized and curriculum based learning. Children are provided instruction using academic content that are predetermined for each grade. Based on the academic content to be taught teachers formulate instructional objectives. Why should teachers use instructional objectives? Can a teacher plan a lesson without instructional objectives? Some proponents of instructional objectives suggest that all educational goals should be translated into objectives that are specified, observable and measurable of student behaviours. There are educationists who feel that it is not necessary that every objective should be stated with precision. Gage and Berliner (1988) suggest that objectives should act as a road map: “And just like a road map, to be useful, need not specify every town and creek, so objectives for a unit of instruction need not specify every change in student behaviour” (p. 40).

Another issue with precise objectives is that it may often lead to emphasizing those learning outcomes which are easily observable and measurable while important learning outcomes may remain unexplored. However, if the teachers do not plan activities with specific learning outcomes it may result in spending a lot of time going around the curriculum. An alternative to behavioural objectives was proposed by Eisner (1969) which he called expressive objective:

...identifies a situation in which children are to work; a problem in which they are to cope; a problem in which they are to engage; but it does not specify what from that encounter, situation, problem or task they are to learn. An expressive objective provides both the teacher and the student with an invitation to explore, defer, or focus on issues that are of particular interest or import to the inquirer (pp. 15-16).

Zahorik (1975) studied the decisions teachers made before they teach a lesson. He found that teachers made decisions about objectives, content, pupil activities, materials, diagnosis, evaluation, instruction, and organization. He further found that the largest number (81 percent) of teachers mentioned about pupil activities, fifty one percent teachers mentioned content while only twenty eight percent teachers mentioned learning objectives. Other researchers (e.g., Goodlad & Klein, 1970; Peterson, Marx & Clark,
1978; Clark & Peterson, 1985) have reported similar findings. However, Mager, a proponent of specific objectives, emphasizes the importance of objectives and points out that:

if you don’t know where you’re going, the best made maps won’t help you get there... Without a way to communicate your instructional objectives to others:

- You wouldn’t be able to decide which instructional content and procedures would help you to accomplish your objectives.
- You wouldn’t be able to create measuring instruments (tests) that tell you whether your students had become competent enough to move on.
- And your students wouldn’t be able to decide for themselves when to stop practicing. (1997, p. vi)

However, a widely known criticism about behavioral objectives is that it does not allow creativity in teaching activities as teachers are tied to a predecided plan of instruction with every little detail stated. Another issue is that while objectives often increase intentional learning it doesn’t leave much scope for incidental learning.

### 3.10 ASSESSMENT OF LEARNING

Assessment of learning is an important activity in all educational institutions. Assessment involves two types of activities: measurement and evaluation. Measurement involves collecting information about how much knowledge and skill students have learned. Evaluation is about making judgments about the adequacy of each student’s level of learning or performance. While measurement is quantitative in nature (e.g., marks/grade) evaluation is the qualitative process in assessment. Why is it important to assess students’ learning? Some of the reasons for assessment are:

- to give feedback to the learner
- to monitor learning progress (essentially to help the teacher to plan for further learning)
- to diagnose the strengths and weaknesses of the learner
- to motivate the learner for further learning
- to certify and compare with other learners.

Different tools are used to measure students’ learning. Teacher made tests are the most common among them. There are summative and formative evaluation, criterion and norm referenced tests. Teacher made tests mostly include selected-response, short-answer and essay type items. You will learn about them in detail in Unit 14, Assessment of Learning. Although there are good reasons for assessing student’s learning, some issues and concerns remain nevertheless.

Assessment is currently viewed as collecting information for other educational institutions (e.g., SSC/HSC exams), for promotion to senior grade in the school or for potential employers (e.g., certification). In most of the situations of assessment of learning only measurement activity is involved. Evaluation activity is very rarely done by teachers. When a student scores 52% in a math test he/she is not communicated about what the 52% stands for. The score 52% does not communicate to the student if he/she has mastered the skills of multiplication and lacks the skill of division in working out sums involving multiple skills and abstract reasoning. Let us take the example of a norm-referenced test to understand what it assesses and what it does not.

In a particular social studies class most students are doing well. Because the previous teachers were very effective, they exposed students to high quality instruction, passed
on their enthusiasm to students and the students used effective study skills. The final test averages ranged from 94 to 98 percent correct. But the teacher who uses a norm-referenced scheme would assign A's, B's and C's to this group. This practice would demotivate the students who had worked hard and performed well. This practice would also miscommunicate to others about the performance of students who received B's and C's (Airasian, 2001).

Next, let us take an example of a criterion-referenced test and examine what the score conveys. In a criterion-referenced test when a teacher specifies a standard such as ninety percent and above correct answers for 'A' grade, it is an arbitrarily decided score. It is difficult to justify to parents, students and others. As the question would definitely arise why not eighty nine percent or ninety four percent correct for grade 'A'. Another point is that even if a teacher's standards may appear to be stable from one test to another (ninety percent correct for an A for all tests), they may in reality fluctuate as a result of unnoticed variation in the difficulty of each test and the quality of instruction (Gronlund, 1998).

Most assessment tools in practice are based on behavioural objectives designed to measure the end product. Most teachers do not explain to the students the basis of the score assigned and, therefore, seldom serves as feed back to the student about his/her strengths and weaknesses. Another problem with assessment tools based on behavioural objectives is that it does not assess the process aspect of student learning. Anxiety is a factor that affects learner achievement. Do all students score according to their potential? Research has indicated that for some students small amounts of anxiety can facilitate learning (Sieber, O’ Neil, & Tobias, 1977). However, if the learner has a high level of anxiety, it can be detrimental in achievement settings (Stipek, 1988).

### 3.11 PARENTAL BEHAVIOUR AND CHILD LEARNING

There is research evidence to show that parental behaviour is related to development of control in their children. In several studies it was found that parents who were identified as “warm”, “encouraging” and “approving” and who expected children to be independent at an early age produced youngsters who developed a more internal locus of control than those children whose parents were identified as “dominant”, “rejecting” and “critical”. It appears that parental factors leading to an internal orientation are similar to the factors leading to development of positive self-concept and high esteem. Coleman et.al. (1966) found that belief in internal control was the most important indication of school achievement. An “external” person perceives having little control over fate and fails to perceive a cause-effect relationship between actions and their consequences. An “internal” person on the other hand, holds the rein of fate securely and understands that effort and achievement (reward) are correlated.

According to achievement motivation theory developed by Atkinson (1964) and McClelland (1965) achievement behaviour is based on the resolution of two competing needs – the need to achieve success and need to avoid failure. Some students work hard for achieving success without seriously worrying about the possibility of failure, other students think less about succeeding than about avoiding failure. The factor that determines the need to achieve or avoid failure is the type of experience in the home. Certain child rearing practices are believed to contribute to greater achievement striving. In particular, parents who provide opportunities for children to explore their environment, accept their children’s strengths and weaknesses, and their clear guidelines for appropriate and inappropriate behaviour are likely to make children attempt success. In addition, these children have parents who reward performance when they are successful, and are neutral towards performance that fall short of their expectations.
The opposite pattern occurs for parents of failures and avoiding children. They punish their children's failure but say little when they are successful.

A number of researches have shown that parental child rearing practices and behaviour greatly influence children's learning and other behaviour. Erickson's theory of identity formation provides some insight into child's development and learning during different stages. A sense of trust, allowing children to explore their environment, and encouraging them to try new situations while providing support if they fail are important parenting behaviours in the development of children's identity. Coopersmith (1967) observed that parental acceptance of children, parental enforcement of clearly defined behavioural limits and rules, and parental respect for the freedom of their children's actions within the established limits are related to positive self esteem.

Baumrind (1971) demonstrated how different parenting styles influence the social personality development and children's learning. She observed the behaviour of pre-school children aged three and four and interviewed their parents. She noted that parents pursue mainly three categories of parenting styles: the authoritarian, the permissive and the authoritative in relation to the behaviour patterns of their children.

Authoritarian parents attempt to control their children's behaviour and attitudes to make them conform to strict rules of conduct. These parents value obedience and favour punitive measures, if their children attempt to behave contrary to their parents' expectations. They don't like to discuss standards with their children, are more detached, more controlling, and less warm. Their children are more discontented, withdrawn, and distrusting.

Permissive parents make fewer demands on their children, and allow them to regulate their own behaviour. They avoid the exercise of control; hardly punish their children for misbehaviour, make few demands for responsibility at home, and their children are least self reliant, explorative, and self-controlled.

Authoritative parents tend to direct their children's activities by establishing firm rules and standards but are willing to discuss the reasons behind such regulation. They don't threaten their children's independent decisions; their children are the most self-reliant, self-controlled, explorative, and content.

**Parents of Exceptional Children**

The importance of involving parents in their children's educational programme cannot be over emphasized. In particular, parents of exceptional children can play an important role in helping to teach their differently abled children by acquiring the required knowledge and skills to do so. Research has shown that when parents are involved in their children's education, the children do show better school achievement (Bailey and Worley, 1984; Bronfenbrenner, 1974; Zigler and Valentine, 1979).

### 3.12 LEARNING OF ATTITUDES AND VALUES

You must have understood by now that learning has three domains - the cognitive, affective, and psychomotor domains. We have already discussed the problems in the area of cognitive learning and learning of skills. In this section we shall deal with learning that is related to attitudes and values and social learning.

Basically the learning of attitudes is related to approach and avoidance tendencies existent in human beings from childhood and are visible in observable behaviour of the child. These tendencies later on become a part of the internal behaviour. As a result the child starts placing negative or positive values on objects, events, and ideas. Some tendencies to accept or reject things are referred to as attitudes; some as interests, and still others as values. Although it is said that interests refer to preferences for activities, and attitudes refer to positive approach or avoidance of ideas and objects.
However, both attitudes and interests make use of the concept of rejection or acceptance and display some affective response to the object in focus. Values are known to relate to broad goals such as achievement of wealth, power, or social status and attitudes and interests are the channels that determine the choice of means to achieve the value set and goals. A person’s life may be dominated by values and democratic goals but he/she may have positive or negative attitudes towards these and may follow certain practices as means of achieving democratic goals.

### 3.12.1 Components of Attitudes

According to Katz and Stotland (1959), attitudes may involve the following components.

**Affective Components:** These include positive or negative feeling to varying degrees. Some attitudes are highly affective in nature with very little cognitive or other components. Such attitudes are irrational. For example, a person who likes one set of political ideas and discours or dislikes other without giving any reason for his/her extreme likings or dislikings reflects an attitude that has an overwhelming affective component.

**Cognitive Components:** Attitudes also vary in regard to the extent of implicit cognitive component and belief. Some attitudes are highly intellectualized. A person takes a particular position on a political issue as the most acceptable because he/she has thought through the problem and considered all the available evidence. Some attitudes are based on incorrect information and false beliefs, the cognitive basis being the misinformation. A person may hold an attitude with very little affective component, while others may have highly intellectualized attitudes and strong affective components.

**Action Components:** People’s attitude may also vary in terms of action component. One may have a strong liking for a system, showing strong cognitive and affective components, and yet may not participate in it. For example, in India the intellectuals and elites advocate democracy very strongly but do not go for voting at the time of general elections. And when a wrong person or party comes to power they blame the public for their wrong choice of candidates. It shows that the positive attitudes towards democratic institutions often lack appropriate action component. How relationships are established between cognitive and action components of attitudes constitutes problem of transfer of training. Although there is some evidence that transfer can take place from cognitive to action systems, the conditions that make this are important. The teachers cannot remain content with educating to develop the cognitive aspects of attitudes, they must prepare students for moving beyond an arm chair approach to life.

### 3.12.2 Functions of Attitudes

Attitudes serve a variety of functions. Some of these functions are discussed below:

**Cognitive functions:** Attitudes sometimes serve cognitive functions similar to those served by concept formation, which result in generalizations that are gross over simplifications of complex world. The communists who take the position that all capitalists are a menace to an egalitarian society or someone who takes the position that communism is dead, both are expressing over simplified attitudes to a dangerous level towards the real world. Often such over simplifications produce problems.

**Need Gratification:** There are some attitudes which directly gratify human needs. For example, men have positive attitude towards women and women towards men. We have positive attitude towards good food, friendly company, and a warm and accepting environment.

**Ego-defense functions:** Some attitudes are held to strengthen or reinforce individual’s own evaluation of himself/herself. Some savarna caste Hindus, for example, believe that they belong to a superior race. To maintain this belief, they accept at the same time that other castes are inferior to them. Similarly Nazis considered Jews inferior to
them and American Whites considered Blacks inferior to them. In such situations pent up hostility gets directed towards the other group, against whom extreme cruelty can be exerted without feeling guilty of it.

In education the development of attitudes has been regarded as the core of the socialization of the individual. In fact, how individuals relate to one another depends upon their social attitudes.

Information and Attitude

Psychologists have attempted to see how information impacts attitudes. We constantly acquire new pieces of information related to our attitudes. Some of the information strengthens the position already held, and some run counter to our position and endorses alternative position. This is known as information integration theory. It proposes that a piece of information received by a person is assigned both a weight and a position on a scale with respect to particular attitude. For example, my attitude about death penalty is that it deters crime and hence a necessary evil. But suppose I read an article giving data that wherever death penalty was given there was no reduction in crime rate. This piece of information (evidence) would have an impact on my existing attitude. The weight and scale value I give to the information will reflect the impact the information would have on my attitude.

According to Anderson (1972), the individual does not deliberately and consciously start behaving after having been informed further on the subject. Anderson theory further claims that a person’s attitude represents an average of all attitudinal values assigned to different items of information related to attitude object. This automatically produces average values, and was named by Anderson as averaging hypothesis.

Another point about this theory is on the use of information. When the information is received, it is assigned an attitude value, which becomes integrated immediately into the attitude. The information may be forgotten, but it leaves its impact on attitude. The attitude is not dependent on verbal memory. This theory thus de-emphasizes reinforcement concepts that have little to do with formation of attitude. Learning of attitudes for Anderson is a cognitive process.

Predictive Value of Attitudes

The research on attitudes has mainly centered on the development of attitudes and the conditions that produce attitude change. The accumulated research now shows that under some conditions, measures of attitude may predict behaviour in specific situation. An attitude scale, to have a predictive value, should focus on action in the real situation, and should be related to the context in which the action is to occur. Thus a measure of attitude towards a candidate for office may well predict voting behaviour. For the same reason the attitude of the individual towards a particular Mandir or Masjid or Church to which he/she belongs is likely to predict the extent to which he/she actually attends the same. Fishbein and Ajzen (1974) have proposed that an attitude scale might be expected to predict the general trend of a sequence of acts, but not single acts. Conversely, in predicting a single act, a multiplicity of attitudes should be taken into account. If it is a relationship of the work supervision, attitude towards authority should be taken into account. If the other person is an employee, the attitude towards employees is a factor.

Communication and Attitude Change

In educational settings, written or spoken communication is most likely to bring about attitude change. A considerable quantum of work is known at this time about the particular conditions that occur during a communication and lead to effective attitude changes. Its main components are:
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- characteristics of the communicator
- characteristics of the communication, and
- characteristics of the receivers of communication.

The best explained characteristics of the communicators are expertness and trustworthiness. The more expert or credible is the source of a communication, the greater is the effect on attitudes.

- Studies by Berscheid and Walster (1969) suggest that communications over heard, as if by accident, produce greater attitude change than those directed to the listener. However, to be effective in attitude change, the over heard communication should have relevance for the listener.

- The effect of size of the discrepancy between communicators attitude and that of the listener has also been studied. It is found that the greater the discrepancy between the listener and speaker, the greater will be the attitude change. This finding, however, is a strong blow to dissonance theory.

Simons, Beerkowitz, and Moyer (1970) bring out some other characteristics that generally make for a persuasive communicator; he/she is generally more competent than the other members of his/her peer group, gregarious, and tends to belong to the top crust of the social class with which he/she is identified.

**The Characteristics of the Communication:** Eagly and Himmelfarb's (1978) review of work pointed out that information given, will not produce a change in attitude unless it is accepted or the person yields to it. An old finding in the field is that an information that has unexpected content is more likely to produce attitude change than one that is anticipated.

**Characteristics of the Receivers of Communication**

Individuals differ in their ability to influence but the source of the differences are complex. One obvious source is the extent to which individuals listen to communication. Those who listen are more likely to be influenced than those who do not. Secondly, self esteem has been considered to be a possible source of influenceability. Dogmatic or authoritarian persons have long been viewed as individuals whose attitudes could not be easily changed.

**Strengthening Attitudinal Positions**

Most religious teachers, have long been interested in whether attitudes can be bolstered by deference in a way that they become highly resistant to change. Considerable thought has been given to the problem of how to make attitudes resistant to attack. The techniques that are commonly adopted for this purpose are deep commitment to a belief and association of deep guilt feelings with deviant opinion. Most religions do it by developing in the young the belief that any deviations from the teachings of the particular religion is extremely sinful. A second such technique is that of denying the individual access to either printed material or discourse that might produce a change, so they prohibit their members from having access or attending meetings of other religious groups. The third technique is called the anchoring technique. A prejudice may be given stability by tying it to strongly held beliefs. For example, the traditional prejudice of the Anglo-Saxon towards those with darker skin has been anchored to a set of beliefs such as that those with other shades of skin are stupid, unmotivated, and immoral. But experiments in strengthening attitudes to make them resistant to change have generally taken an intellectual approach to problem. Another technique is how to rebut arguments presented to change the person's attitudes. Evidence from experiments show that the learning of either supporting or rebutting arguments protects attitudes from being changed.
Rokeach has shown that values vary among different sections of American society. For example when Blacks and Whites were compared on terminal dimension, the most striking difference was found on the category of equality. For the Blacks this is a much more significant value than it is for the whites. Then there are also striking differences between values of men and women. Men place a much higher value than women on a comfortable life, social accomplishment, freedom, pleasure, and women place more value for a world of peace, happiness, inner harmony, salvation, self respect, and wisdom. Rokeach, for the most part, finds a constancy between values and attitudes. For example, he found that the value most closely associated with attitude towards race, the poor, church activism, and student protest is equality. An interesting application of Rokeach's system of values is found in his work on the relation of system to political ideology. He finds that two main values dominate political thought and action: equality and freedom.

3.13 LET US SUM UP

In this unit we have discussed some of the issues and concerns about human learning. Learned behaviours are only relatively permanent. They are modifiable in the light of fresh evidence/perceptions. Our stable learned behaviour can be modified giving rise to new accommodating structures and equilibrating our learning structures. The facilitation of learning in new situations by the application of earlier learning is referred to as transfer of learning. There are two kinds of transfer of learning: specific transfer and general transfer. Learning of a specific task may facilitate the learning of a subsequent task or hinder it. Some kinds of transfer of learning are non specific. When learners are put through one series after another problems, they develop a great facility in looking for new rules to solve the problems and also a repertoire of rules that can be applied. Learning may be scheduled as mass practice or distributed practice. Research findings have substantiated that distributed practice improved retention and retrieval. In learning tasks the learner must be provided sufficient time to assimilate the information given. Learning cannot be speeded up beyond a certain point, because the amount of information that can be assimilated in a given time is limited. Intentional and incidental learning are parts of the unified single process of information reception and short term storage. In school, most learning is organized to effect over learning. Over learning means learning to the point where one can recall, not only immediately, but even after a considerable gap of time. Instructional objectives are framed to guide the learning outcomes. The insistence on precise objectives may lead to emphasizing only easily observable and measurable learning outcomes while important learning outcomes may remain unexplored. Present day assessment practices do not explain much to the students about their strengths and weaknesses. Sometimes assessment tools do not reveal and measure the actual competency level of the learner. Teacher related factors and anxiety may also affect the performance of the learner. Research studies have shown that parental child rearing practices and behaviour influence children's learning. Learning of avoidance tendencies that exist in human beings from childhood. Development of attitudes is the core of the socialization process of the individual.

3.14 UNIT END EXERCISES

1) Discuss the implications of learning as a relatively permanent change in behaviour.

2) "The attitude of parents can facilitate or debilitate a child's learning". Discuss the statement giving examples from your experience.

3) Differentiate between incidental and intentional learning giving appropriate examples.
4) Cite appropriate examples to explain the concept of over learning.

5) Specify the steps as a teacher you can take to set your instructional objectives.

6) What factors can affect school performance and what can you do to control them?

3.14 REFERENCES AND SUGGESTED READINGS


