UNIT 1 LEARNING AND INSTRUCTION

Structure

1.1 INTRODUCTION

Welcome to Unit 1 – Learning and Instruction of Block 1 pertaining to Course MDE-412: Instructional Design.

For a successful implementation of any educational programme, knowledge about the theories of learning and instruction form a base for designing programmes in open and distance learning. Sometimes it may happen that certain skills are adequately learnt and practised by us without our being aware of the theoretical basis of those skills. But if we know the theories also, the practice of our skills may be improved for better outputs. For example, you may operate a computer, without being a mechanic for repairing hardware or installation of software, but if you know the mechanisms of operating a computer also you may improve your efficiency as a computer operator.

In the field of open and distance education, your knowledge of various theories of learning will be much more useful when you practice and improve your learning skills. Designing instructional materials, learning strategies, assessment methods – all these are based on certain theories of learning. The contributions of different approaches and conditions of learning belonging to different schools of thought and of individual theorist with different theoretical affiliations and their implications for designing instruction do meet the varied demand of the open and distance education system. This has been the primary consideration for discussing the concept of learning, instruction and relationship between instruction and learning. We have discussed these issues in this opening unit 1 with reference to behaviourism, cognivitism and constructivism theories of learning to provide you the foundational platform of knowledge pertaining to the theories of learning and instruction and their implications for designing instruction for self-learning materials. However, you will have a better and more specific understanding of the implications of these theories for open and distance learning in Units 2, 3 and 4 of this Block.

1.2 LEARNING OUTCOMES

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

- explain the concept of learning;
- discuss the conditions of learning;
- differentiate between surface and deep approaches to learning;
- describe different perspectives of learning; and
- explain the concept of instruction and its relationship with learning.

1.3 WHAT IS LEARNING?

Learning is a lifelong process. It affects all aspects of the human behaviour. Learning also influences your habits, preferences and interests, as well as the beliefs you follow in your day to day life. The meanings and use of symbols, and languages are learnt. For example, a symbol of a pen or pencil helps you to think and interpret in different ways. You may say that the symbols, such as a pen or pencil in self-learning materials represent instruction to write an answer for a question or to complete a self-test question. Therefore, you learnt the meaning of symbols and the language for responding to a symbol or a picture. Some other examples of learning include the learning of motor skills, such as operating a computer or driving a vehicle and carrying out a practical activity in a laboratory. There are different types of activities, which are influenced by learning. In this section, along with the meaning of learning, we will discuss the basic conditions of learning.

What follows is an elaboration of the concept of learning.

1.3.1 Learning and Change in Behaviour

What is learning? As described by the American educational psychologist Richard E. Mayer (1982), "Learning is the relatively permanent change in a person's knowledge or behaviour due to experience". This definition has three components: (1) the duration of the change is long-term rather than short-term; (2) the focus of the change is the content and structure of knowledge in the memory or behaviour of the learner; (3) the cause of the change is the learner's experience in the environment rather than fatigue, motivation, drugs, physical condition, or physiological intervention.

Educational psychologists define learning as an active, constructive process that is heavily influenced by an individual's existing knowledge and beliefs and is situated in particular contexts. This definition has two important implications for learning in the digital age. The first is about the individual and the second is about the role of context. An individual's role in the learning process includes the knowledge they bring, their beliefs and their level of motivation. The context provides the learning environment and the learning experience. (Starkey, 2012)

Such a concept of learning assumes that certain conditions in the environment bring about fundamental changes in our behaviour and, that these changes persist for a long time. Learning is not directly observable but can be inferred from performance. We can infer that a person has learnt something when she/he does an activity, which she/he could not do before. For example, you may know something, and yet may not have learnt it. You may 'know' how a computer works, but may not be able to operate it. Thus, the distinction between learning or the acquisition of knowledge (i.e., capability) and performance (i.e., exhibiting this capability in some form of action) is an important

one. In this context, when we speak of a relatively permanent change in behaviour, we refer to a change in performance.

From the above discussion, we can summarize that not all changes in behaviour can be related to learning. Some behavioural changes are due to biological development or maturation. In maturation, the growth tendencies are independent of specific learning conditions, and depend entirely on biological growth. For example, the swimming of tadpoles and the flying of birds simply occur at the moment of their anatomical maturation. A child walks once its legs are strong enough to support its weight.

1.3.2 Basic Conditions of Learning

External conditions responsible for learning are very important in various types of learning. A brief description of the basic conditions of learning is given below:

i) **Contiguity:** One of the basic conditions of learning is contiguity – the almost simultaneous occurrence of the stimuli and of the response to them. For example, suppose you heard the doorbell (stimulus) and ran up to open the door (response). Students make connections between a particular stimulus and the response to it. For example, while watching online video programmes, the online learning environments allow students to make connections between the stimulus i.e., online video programmes and response is participating in the activity.

ii) **Practice:** Practice is the repetition of a response in the presence of the stimulus. We usually need to practice or repeat S-R (Stimulus-Response) associations to retain them for a relatively longer period of time. For new stimuli and new responses, more practice is required. In all types of learning under S-R situations (e.g., classical conditioning, operant conditioning, skills learning) practice is of crucial importance. But it is of minor importance in learning concepts or principles and in problem solving, if the other conditions of learning, such as reinforcement, are provided appropriately.

iii) **Reinforcement:** Reinforcement is a major condition required for learning to take place. We can use reinforcement in different ways to produce different effects, i.e., the effect of different types of learning on the students. In the process of reinforcement, a learner is presented with a particular stimulus (i.e., reinforce) before and after it elicits desired responses. In a given situation, the learner will tend to repeat the response for which reinforcement is given and to discontinue the response for which it is not. We can distinguish reinforcement from other stimuli because it has a particular effect on behaviour.

iv) **Feedback:** Feedback is providing the knowledge that the responses are correct or that they require amendment. Feedback also functions as reinforcement in strengthening the responses to be learnt. The term feedback refers to any information that permits learners to judge the quality of their performance. There are various ways in which feedback may be provided. They are immediate or delayed or end-of-session feedback. The importance of supplying feedback has led to several technological innovations, including programmed instruction and computer assisted instruction. Learning efficiency often increases when the student receives feedback about quality of his/her work. The distance teacher/instructional designer needs to make systematic plans to provide feedback before moving on to new learning materials.

v) **Generalization and discrimination:** Both generalization and discrimination are perhaps better defined as phenomena rather than as conditions of learning. We call them learning conditions because they are so closely associated with the basic

conditions of contiguity, practice and reinforcement, which are essential to all learning. A complex learning behaviour can be described in terms of stimulus, generalization and discrimination.

In many situations, we observe that child, when confronted with a new stimulus, makes a response previously learnt to respond to a similar type of stimulus. We call this behaviour generalization (or stimulus generalization). When a child is taught to call a particular colour red, it also learns to call other similar hues red.

Under conditions where discrimination takes place effectively, the individual makes different responses to two or more stimuli. For example, a student can learn to select the colour red and not pink. The extent to which it learns to pick up red and ignore pink is the extent to which it has learned to discriminate.

1.3.3 Approaches to Learning

We have explained the term learning as a relatively permanent change in human behaviour and it is the result of reinforced practice through the process by which stimulus and response bonds are established. There is a quantitative increase in knowledge, acquiring, memorizing and reproducing the facts, making sense of abstract concepts, interpreting, and understanding reality in a different way due to learning.

In this sub-section we will focus on different ***approaches*** to learning and we will explain whether there is an internal relationship between the approaches that students adapt to their learning, and the outcome of that learning. A course developer should be aware of the approaches to learning while designing and developing self-learning materials. It helps her/him to identity whether materials require memorization or understanding or are intended to develop skill and then to work with the materials appropriately. These approaches to learning are described as deep and surface.

According to A.C. Entwistle and N.J. Entwistle (1997) the "student who adopted 'deep approach' was able to understand the academic article; critically analyzing the content; examine the logical argument, relating own experience to previous knowledge and experience organizing principles to integrate ideas, relating evidence to conclusion. The surface approach learners who adopted 'Surface approach' were having the desire to reproduce parts of the content, accepting ideas and information passively, concentrating only on assessment requirements, memorising facts and procedures routinely and failing to recognize guiding principles or pattern".

You may refer to the box for examples:

Deep Approach

- 'I generally put a lot of effort into trying to understand things which initially seem difficult.'
- 'I often find myself questioning things I read in books.'
- 'I usually set out to understand thoroughly the meaning of what I am asked to read.'

Surface Approach

- 'I find I have to concentrate on memorizing a good deal of what I have to learn.'
- 'The best way for me to understand what technical terms mean is to remember the text book definitions.'
- 'Often I find I have read things without having a chance to really understand them.'

A learner who adopts a *deep approach*

- is interested in the academic task and derives enjoyment from carrying it out,
- searches for the meaning inherent in the talk (for example, if a prose passage is read, the intention of the author is sought),
- personalizes the task, making it meaningful to his/her experience and to the real world,
- integrates aspects or parts of the task into a whole (for example, related evidence to conclusion), sees relationships between this whole and previous knowledge, and
- tries to understand the theories of the task; forms hypotheses. In other words if learners want to grow in understanding they will adopt a deep level strategy.

A learner who adopts a *surface approach*

- observes the task as a demand to be met or a necessary imposition if some other goal is to be reached (a qualification for instance),
- sees the different aspects or parts of the task as unrelated to other tasks,
- considers the time required to complete the task without searching for the meaning inherent in the task, and
- relies on memorization and tries to reproduce the surface aspects of the task. In other words, if a learner wants to display symptoms of having learned something, she/he will adopt a surface level approach.

The above discussion emphasizes the importance of understanding the approaches to learning while designing materials, because the distance learners have a general desire to adopt deep learning approach, but their circumstances often lead to them resorting to the surface learning approach. These circumstances are usually external, such as work commitments, family responsibilities, limitations of study space and isolation from the institution.

Check Your Progress 1

Note: i) Write your answers in the space given below.
ii) Check your answers with the answers given at the end of this Unit.

1) Discuss the basic conditions of learning.

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2) Differentiate between surface and deep approaches to learning.

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1.4 PERSPECTIVES OF LEARNING

In the previous section, you have learnt that learning is a relatively permanent change in behaviour, and it is the result of reinforced practice. Such a concept of learning emphasizes that certain conditions in the environment bring about changes in our behaviour. These conditions are also discussed in sub-section 1.3.2. They are contiguity, practice, reinforcement, feedback, and generalizations.

In this section the concept of learning has been discussed based on the view points or perspectives of different schools of thought. These are behaviouristic perspective, cognitive perspective, constructive perspective, and connectivist perspective.

Behaviouristic Perspective

In behaviouristic school of thought emphasis is placed on behaviour. This school has described learning as a relatively permanent change in behaviour due to experience.

The basic emphasis of Behaviourism is on stimulus – response learning. Learning is a product of stimulus – response bond or association. In other words, learning takes place due to presentation of a series of discrete stimuli and the resulting responses. A learner's response is linked to a particular stimulus. As the result, a learner is not able to perceive the learning task in a holistic perspective. This had the psychologists to develop a learning theory as an alternative to stimulus-response learning. (In Unit 2 of this Block, we have discussed in detail about this school of thought and learning theories of Ivan P. Pavlov, J.B. Watson, E.L. Thorndike and B.F. Skinner.)

This learning theory laid the foundation for cognitivist approach in learning. In the next paragraph you will learn about the cognitive perspective of learning.

Cognitive Perspective

According to the cognitivists, learning is the changing or reorganization of cognitive structures, which involves an acquisition of knowledge and the transformation of new knowledge. In other words, we can say that learning is a change in one's knowledge, skills, attitudes, and values brought about through experience, and this change may or may not be expressed in overt behaviour. Cognitive psychologists such as Jerome Seymour Bruner, Jean Piaget and David P. Ausubel worked on cognitive learning. In Block 1, Unit 3, we have discussed in detail about views of these cognitive psychologists. The cognitive approach focuses on 'how information is processed'.

Constructivism Perspective

Constructivism refers to a process where the learner is actively constructing both the knowledge acquired and the strategies used to acquire it. The learner constructs a new version of reality from his or her own unique experiences, and it is this construction that she/he then uses to deal with any new experiences in the field.

Constructivism emphasizes the active role of the learner on building understanding and making sense of information.

Constructivism is discussed in detail in Unit 4 of this Block. The basic characteristic of constructivism is identifying the principles of learning and understanding concepts such as scaffolding, zone of proximal development, cognitive apprentice and situated learning.

Social Constructivism Perspective

In recent years, teaching and learning have moved from a conventional transmission to an approach, which emphasizes that learners play an active role in their own learning.

Social constructivism focuses on the belief that social interaction combined with cognitive activity shapes individual development and learning forms the basis of scaffolding. Scaffolding is a form of facilitation that facilitates learning. Scaffolding can be a pre-planned activity being applied when needed. It aims to transfer responsibility for learning from the facilitator to the learner. You will read more about scaffolding in Unit 4 of this Block.

Connectivist Perspective

George Siemens (2005), a Canadian educationist, developed connectivism as a learning theory for the digital era. Connectivism aims to provide a theory that considers how people, organisations and technology can collaboratively construct knowledge. He describes connectivism as:

"Learning (defined as actionable knowledge) can reside outside of ourselves (within an organization or database) and, is focused on connecting specialised information sets, and the connections that enable us to learn more or more important than our current state of knowing."

From the above discussion we can summarize the concept of learning from different perspectives as follows:

- **Behaviorsim** – Learning is the relatively permanent change in a person's knowledge or behaviour due to experience.
- **Cognitivism** – Effective learning occurs when students acquire a general understanding of a subject; that is when they understand the structure of a subject, they see it as a related whole.
- **Constructivism** – According to this theory, learning is considered as knowledge construction. In other words, learning occurs when a learner selects, organizes and integrates information and thereby constructs knowledge.
- **Social constructivism** – Learning is a social process of knowledge construction.
- **Connectivism** – Learning (defined as actionable knowledge) can reside outside of ourselves (within an organization or database), is focused on connecting specialized information sets, and the connections that enable us to learn more or more important than our current state or knowing.

Check Your Progress 2

Note: i) Write your answers in the space given below.
ii) Check your answers with the answers given at the end of this Unit.

1) Explain the difference between behaviourist and cognitivist perspectives with reference to learning with examples.

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2) Discuss the importance of connectivist perspective of learning.

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1.5 WHAT IS INSTRUCTION?

Giving instructions is a human activity. The purpose of instruction is to help other people learn. The effects of instruction on learning are often useful and easy to observe. When an instruction is designed to accomplish a particular goal of learning and is based on specific content, it facilitates learning. Instruction may include events that may have a direct effect on the learning of human being. It may be generated by a printed page by a picture or a television programme, or by a combination of any of the above. So, the purpose of designed instruction is to activate and support the learning of the individual. Instruction is the deliberate arrangement of learning condition to promote the attainment of some intended goal. You may also refer to Unit 5, Block 2 of this course for a detailed discussion pertaining to instruction.

Instruction is a human understanding the purpose of which is to help people learn. Although learning may happen without any instruction, the effects of instruction on learning are often beneficial and easy to observe.

Instruction is a set of events that affect learners in such a way that learning is facilitated. You may think of these events as being external to you. For example, events presented in study materials (printed pages), for the discussion with an academic counsellor. You may recognize that the events that make up instruction may be partly internal when they constitute the learner activity called 'self instruction'. An academic counsellor can play an essential role in the arrangement of any of these events or the learners may be able to manage the instructional events themselves. Instruction is a goal directed teaching process, which is more or less pre-planned.

From the above discussion, we may summarize that instruction is a planned activity for effective learning. Instruction is designed in a systematic way. In the distance education system we follow the plan of a Unit design, which is part of a Block or a Course/ Programme.

Approaches to Instruction

According to educational psychologists 'A humanistic approach to instruction recognizes the individual learner (i.e., student or trainee) in terms of his or her own capabilities, individual differences, present ability levels, and personal development'. These matters do receive attention in the instructional design process. The main elements of the process include examination of learner characteristics and identification of readiness levels for learning. Furthermore, systematic planning is applied to designing various forms of individualized or self-paced instruction to address an individual learner's needs.

Three schools of thought (learning theories) have provided guidance for instructional practice: behaviourism, cognitivism and constructivism. Table 1.1 presents the basic approaches to instruction and designing online instructional materials with reference to these three schools of thoughts.

These three schools of thought have been used and explored to provide guidance for instructional practice. Mishra (2002) had analyzed these learning theories in the context of online learning to identify the instructional approaches to be used.

Table 1.1: Approaches to Instruction: Based on Three Schools of Thoughts

Learning Theory	Overall assumption	Instructional approaches	Online approaches
Behaviourism	• Behaviour is a function of its consequences and learning is achieved through frequent response and immediate reinforcement of appropriate behaviour. • Essentially, behaviour and performance are either seen as synchronous or performance is seen as the useful outcome of learning.	• Instruction is designed to promote individual pacing and progress. • Instruction is designed using a task analysis, which breaks down the behaviour into a sequence of observable actions. • Assessment practices measure objectives in which behaviour is operationally defined and measured according to some performance indicators.	• Lessons with explicit objectives in behavioural terms are placed in the webpages. • Use of self assessment questions are added as interactive activities in the learning materials. • Step-by-step description of learning materials in small chunks is presented.
Cognitivism	• New information is built on existing structures. • Relevant processing activities are stimulated and specific strategies are taught to assume that the learner efficiently acquires the information or solves the problem.	• Instruction is designed to promote processing activity akin to that of an expert. • Assessment practices rely on observable behaviour but infer specific mental operations based on the design of the test.	• Use of note-taking and annotation is made. • Instructions for learning to learn are provided. • Peer-assessment of learning is carried out. • Information is sought through search engines.
Constructivism	• Learning is understood as interpretative and emergent, and under the control of the learner. Cognition is situated and must be understood in terms of the setting purposes, tools, and tasks in which the knowledge is to be learned. • Knowledge is to a large extent a negotiated meaning as ascribed to reality and should be achieved via collaborative group work.	• The goal structure needs to be negotiated through teacher-learner interaction. • Learners are at the centre of the design activity. Some form of constructivism stress cooperative learning. • Assessment practices are designed around real-life problems and promote self evaluation and reflection and to maximize learner responsibility.	• Use of discussion forums and chat (both synchronous and asynchronous techniques is made. • Use of e-mail by learners. • Group projects • Streaming media use • Provision for social activities on the internet are made.

Source: Villalba and Romiszoski (2001).
(Ref. Course MDE-418/518, Block-02, Unit-9)

There are principles of instruction that support effective learning. These were propounded by the educationist M. David Merrill, who named these as the *The firstprinciples of instruction*.

Principles of Instruction

These principles are:

1) ***Task Related or Problem Centered:*** Learning is promoted when learners acquire concepts and principles in the context of real-world tasks.
2) ***Activation:*** Learning is promoted when learners activate relevant previous knowledge.
3) ***Demonstration:*** Learning is promoted when learners observe a demonstration of the skills to be learnt.
4) ***Application:*** Learning is promoted when learners apply their newly acquired knowledge and skill.
5) ***Integration:*** Learning is promoted when learners integrate their new skills into their everyday life.

Fig. 1.2 presents the concept of First Principles of Instruction by Merrill.

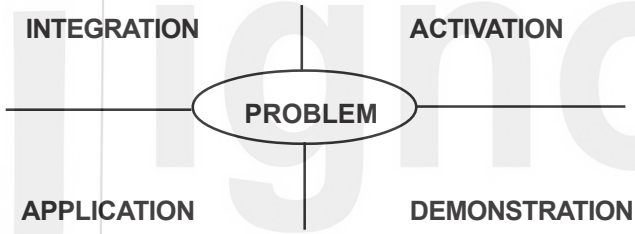

Fig. 1.2: Merrill's First Principles of Instruction

Check Your Progress 3

Note: i) Write your answer in the space given below.
ii) Check your answer with the answer given at the end of this Unit.

Discuss the Merrill's First Principles of Instruction with examples.

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1.6 RELATIONSHIP BETWEEN LEARNING AND INSTRUCTION

In the above sections we have discussed about the concept of learning and instruction and the different perspectives of learning. Learning is the acquiring of specific information from the environment. Instruction is about how to teach or facilitate learning. Let us now discuss the relationship between instruction and learning with reference to the different perspectives of learning.

According to P.K. Biswas (2007), the three theories of learning and their corresponding approaches for designing instruction form a relationship between instruction and learning. These relationships are described below:

Behavioural theory and the approach to design instruction

The theory of behaviourism concentrates on the study of overt behaviour that can be observed and measured. Some of the theorists in the development of the behaviourist theory were Ivan P. Pavlov, John. B. Watson, Edward L. Thorndike, and B.F. Skinner.

Principles of learning based on Behavioural theory

- Learning takes place when a correct response is seen due to the presentation of a specific stimulus.
- Learning can be determined by observing an organism/human being over a period of time.
- Emphasis is placed on observable and measurable behaviour.
- It is concerned with immediate, recognisable changes in behaviour.
- The reinforcing consequence increases the likelihood of the recurrence of a particular type of behaviour.

Principle of instruction based on Behavioural theory

- Instruction is to elicit the desired response from the student who is presented with an effectively structured material.
- Instruction utilizes consequences and reinforcement of learned behaviour.
- Instructional goal is framed in specific, behavioural, and observable terms.
- Students must know how to execute the proper response or behaviour and the conditions under which the response or behaviour is made.
- Instruct the focus of presentation and interaction. He/ She designs the learning environment.
- Instructor builds an academic relationship with each student.

Learning outcomes expected

The statement which describes learning outcome starts with a description of the conditions under which the behaviour will take place. This includes:

- a description of the actions the student will be able to carry out to indicate his/her understanding with the help of action verbs;
- a criterion or measure of success that defines what would be an acceptable level of performance.

Students' role needed for achieving the learning outcome

- The students have to absorb instructional presentations and material.
- Their main activities include reading, review and analysis of the materials, attending individual tests and activities; submitting individual work directly to the instructor for evaluation.

Cognitive theory and the approach to design instruction

The theory of cognitivism is based on the process behind the behaviour. Changes in behaviour observed are used as indicators as to what is happening inside the human mind. Some key researchers and thinkers in the development of cognitivism are Jean Piaget, Jerome S. Bruner, and David P. Ausubel.

Principles of learning based on Cognitive theory

- Learning is a change of knowledge state.
- The focus of learning is on how the students remember, retrieve and store information in their memory.
- Learning involves deep processing (organizing, exploring, analyzing and synthesizing contents).

Principles of instruction based on Cognitive theory

- The focus of instruction is to create learning or change by encouraging the learner to use appropriate learning strategies.
- The instructor suggests problem-solving and structured-search activities, especially with group learning strategies.
- The instructor is responsible for assisting the student in organizing information in an optimal way so that it can be readily assimilated.

Learning outcomes expected

- The outcome states how the learner would be able to think or solve problems differently when they complete the study.
- The learning outcome focuses more on what the student does to process, store and retrieve information.

Students' role needed for achieving the learning outcome

- They have to explore the learning environment.
- They should focus on interactive problem solving.
- They should give emphasis on discussion, application of principles to case studies and projects.

Constructivist theory and the approach to design instruction

The theory of constructivism is based on the assumption that people construct their own perspective of the world, through individual experiences and schema (an internally existing knowledge structure). Theorists such as Jean Piaget and Lev Vygotsky have contributed to the field of comstructivism.

Principles of learning based on Constructivist theory

- Students impose meaning on the world and "construct" their own understanding based on experiences and interactions.
- Learning is a process in which experience forms the basis for understanding the concepts.
- There are several ways (multiple perspectives) of structuring the world and its entities.
- Knowledge is embedded in the context in which it is used (meaningful realistic settings).
- Learning involves collaboration and cooperation.

Principles of instruction based on Constructivist theory

- Instruction is a process of supporting knowledge construction rather than communicating knowledge.
- Instruction should engage students in the actual use of the tools in real world situations.
- Instruction should encourage reflective thinking, higher order learning skills.
- Instructor is a facilitator and mentors peer interaction.

Learning outcome expected

- The outcome states how the learner can create his own unique education because learning is based on prior knowledge.
- The outcome is defined more in terms of a new common perspective rather then particular task or action that individual will be able to carry out.
- The outcome is framed in experiential terms, the kinds of problems addressed, the kinds of control students exercise over the learning environment, the activities in which they engage and the ways in which students reflect on the results of their activity together.

Student's role needed for achieving the learning outcome

- To explore the learning environment in consultation with others and construct meaning from learning experiences.
- To apply knowledge in personally meaningful context.
- To give emphasis on discussion and collaboration.
- To prepare report on authentic experiences, activities and projects.

From the above discussion pertaining to the relationship between instruction and learning, you can recall that learning is concerned with acquisition of specific information from the environment, whereas instruction is concerned with how to guide and facilitate learning. According to R.M. Gagne different functions of instruction are: guiding the students, gaining and maintaining attention, arranging for remembering and stimulating recall, assessing outcomes of learning and providing feedback to the students (Ref. Section 5.4, Block-2).These functions are performed by various media (printed text or electronic media) and by the learner himself or herself. Therefore, a carefully designed combination of media may be required to achieve the kind of instruction that is most effective. For example, within a given topic, attention might be maintained by the introduction of pictures, whereas guiding learning might be accomplished by printed visual (pen or hand for activity). Instructions, frequent questions are included in the printed text for self-assessment and feedback is in the form of answers provided at the end of a unit/text.

In the above discussion you have also learnt how each of these theories has implications for the design of instructional activities. You can design instructional materials for courses and programmes in ODL using the principles of instruction and implications of theories of learning based on behaviourism, cognitivism and constructivism (Ref. Units 2, 3 and 4 of this Block) suitable for students with appropriate content and the context. Therefore, designing instruction is concerned with understanding, improving and applying the approaches of instruction.What is instructional design? It is the process of deciding what approaches of instruction are required for bringing about desired changes in student knowledge and skills for specific course content and a specific student population. According to Charles M. Reigeluth the result or the product of instructional design as a professional activity is an architect's blueprint for what the instruction should be like. This 'blueprint' is a prescription as to what methods of instruction should be used for that course content and those students. We have discussed in detail about instructional design in Unit-5, Block-2 and about instructional design processes in Block-3 of this course.

1.7 LET US SUM UP

In this unit we have discussed the two important concepts. These are learning and instruction. Learning is the modification of behaviour brought about by experience. The concept of learning explains that learning is an increase in knowledge. Instruction is a pre-planned activity which facilitates learning. This unit suggests the ways in which distance learners learn and the factors, which facilitate learning. This unit also presents you with the conditions of learning, perspectives of learning and the different approaches to learning. The Unit describes the relationship between instruction and learning in three different scenarios of behaviourism, cognitive and constructive approaches.

1.8 CHECK YOUR PROGRESS: POSSIBLE ANSWERS

Check Your Progress 1

1) Basic conditions of learning:
   a) Contiguity
   b) Practice
   c) Re-enforcement
   d) Feedback
   e) Generalization and discrimination
2) Surface approach to learning – This implies memorization, with different aspects of a task being unrelated to other tasks (also see sub-section 1.3.3).

   Deep approach to learning – This implies interest in the task and personalizing the task integrating it with the whole task and wanting to develop relationship with the whole and previous knowledge.

Check Your Progress 2

1) Behaviourism implies that learning is relatively permanent change in a person's knowledge on behaviour due to experience whereas cognitivism implies that learning occurs where the learner acquires an understanding of a subject as they see it as a whole.
2) Connectivist perspective of learning focused on connecting specialized information sets, where connections help us to learn more so that learning takes place.

Check Your Progress 3

Merrill's First Principles of Instructions:

1) Tasks centred
2) Activation
3) Demonstration
4) Application
5) Integration

Check Your Progress 4

1) Gaining of attention;
2) Recall of previously acquired knowledge;
3) Guiding the learners;
4) Providing feedback;
5) Establishing conditions for remembering and transfer of learning; and
6) Assessment of outcomes of learning.