UNIT 14 ASSESSMENT OF LEARNING

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14.1 INTRODUCTION

As you know by now, learning in school is influenced by a number of factors and is of various types. If some learning is caused by teaching, since these are outcomes of planned interventions, there are also learnings, which are unplanned and incidental by nature. You know how essential it is to assess the planned learning outcomes, since improvement in teaching learning process depends to a great extent on the feedback received from assessment. When the outcomes of learning are of different types, their assessment also needs to be different from one another. This unit would help you to understand the nature and types of assessment of learning of different kinds.

14.2 OBJECTIVES

After studying this unit, you should be able to:
- know the relationship between curriculum experience and learning outcomes;
- understand the varieties of learning outcomes;
- discuss the different approaches to assessment of learning;
- understand that different learning outcomes need to be assessed differently;
- explain the approaches to the assessment of learning of concepts, generalisations, attitude, value and habit;
- state the principles of assessment; and
- justify why curriculum based learning requires an integration of approaches to assessment.
14.3 CURRICULUM-EXPERIENCE-OUTCOME RELATIONSHIPS

Though the primary purpose of this unit is to explore the ways and means of assessing learning in the context of a school, it would be appropriate to review our understanding of the related terms and concepts. The instructional activities of a school emerge from the curriculum. Stated broadly, curriculum is the sum total of experiences to be provided by the school. In other words, curriculum directs the nature and scope of experiences to be provided to the learners. The learning experiences, hence, are designed based on the curriculum with a view to achieve set curricular aims and objectives.

As you know assessment refers to a measurement process of the accrued learning. Assessment in the school context is undertaken in reference to the stated learning outcomes. Every learner enters a situation of learning with certain competencies and skills. Viewed from the perspective of instruction, entry behaviour of learners in an instructional situation refers to the specified competencies and skills necessary for him/her to profit from instruction. A teacher plans the learning experiences with a view to help the student achieve the instructional objectives and reach the terminal behaviour. The terminal behaviour, you may be aware, refers to the behaviour expected to be demonstrated by a learner after receiving a learning experience. Assessment then is necessary for a teacher and a learner to know whether the terminal behaviours, which are the outcomes of learning, are achieved or not. Since assessment is closely related to evaluation, it is better that we revisit our understanding of these two terms in order to achieve clarity. If assessment is the process of measurement of learning, evaluation is the process of making judgment about the value of the information/data collected through assessment. According to Gage and Berliner (1991), evaluation is "the process of collecting, interpreting, and synthesizing information in order to make decisions".

In Text Activity I

In this section, you have studied about a few terms and their relationship with each other. Given below is a diagram with blank boxes to be filled by you by selecting the appropriate terms. Use the above discussion to fill-in the boxes with suitable terms. A correctly filled-in diagram is given at the end of this unit.

![Diagram with blank boxes to be filled]

Note: Terms to be used: Learning Experience, Evaluation, Entry Behaviour, Assessment, Curriculum, and Learning Outcomes.

Check Your Progress 1

Note: Write your answers in the space given below.

1) What is the meaning of assessment?

........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
2) What is the relationship between curriculum and learning experiences?

3) What is the relationship between learning experiences and learning outcomes?

14.4 THE LEARNING OUTCOMES

As stated earlier, learning takes place in a variety of ways and in a variety of areas in a school. In this section, we will attempt to know the various types of learning that occur in school. You would agree that instruction is the antecedent condition for expected learning to occur in a school. Instructional objectives are common to all learners in a class. Hence, the teacher would expect certain common learning outcomes from instruction. While acknowledging that some amount of unanticipated learning occurs in school, the learning to be assessed by the teacher would have resulted from the planned instructional inputs provided in the school. Educationists use the term achievement to connote what a learner knows and what s/he can do after instruction.

Assessment, then is made of those behaviours that a learner is expected to exhibit after undergoing instruction. In other words, formal assessment in a school aims at measuring the extent to which the learners attain the instructional objectives. The teacher undertakes assessment to collect information and performance evidence to prove that a learner has actually achieved an instructional objective. You know that the information and performance evidence needed by a teacher are different for different kinds of learning, and these need to be gathered in different ways for assessing different types of learning. As mentioned earlier, this unit aims at discussing the ways of assessing different kinds of learning. As a pre-requisite let us now try to know the learning outcomes that need to be assessed in a school.

For a long time, schooling has been associated with the learning of three 'R's - Reading, Writing and Arithmetic. In other words, learning has been viewed as a process of acquiring these specific skills. Even though educationists do not hold this view any more, the belief prevails that schooling should aim at developing certain basic skills. A list of the basic skills to be learnt and what they probably would contain may read as follows.

Reading: Identify relevant details, facts and specification; locate information in books/manuals and graphs; find meaning of unknown words; judge accuracy of reports; use computer to find information.

Writing: Write ideas completely and accurately in letters and reports with proper grammar, spelling, and punctuation; check, edit, and revise for accuracy and emphasis, use computer to communicate information.
Mathematics: Use numbers, fractions, and percentages to solve problems; use tables, graphs, diagrams and charts; use computer to enter, retrieve, change, and communicate numerical information.

Speaking: Organize and communicate ideas clearly; speak clearly; select language, tone of voice, and gestures appropriate to audience.

Listening: Listen carefully to what person says, noting tone of voice, and other body language; respond in a way that shows understanding of what is said.

According to Benjamin Bloom, the learning outcomes are classified under three domains viz., cognitive, affective and psychomotor. Also, learning under each of the three domains is viewed as hierarchical in nature.

The word cognitive is derived from the Latin term 'cogito', which means 'I think'. It refers to the intellectual functioning of an individual. As you know, the human brain is capable of structuring, perceiving patterns, recalling associations, creating patterns, etc. Cognition involves mental processes of perception, memory, judgment, and reasoning.

Specifically stated, the cognitive domain involves working with and processing facts, procedures, concepts, generalisations and other universals that are used in the intellectual functioning of an individual. The affective domain is concerned with the manner in which we deal with things emotionally - our feelings, appreciation, enthusiasm, motivations, beliefs, attitudes and values. Whereas, the psychomotor domain deals with physical movement, coordination, and use of motor skills necessary in performing an activity, task or job.

In Text Activity 2

You know the different levels at which learning can take place in the cognitive, affective and psychomotor domains. Recall and list them in the table given below:

<table>
<thead>
<tr>
<th>Cognitive Domain</th>
<th>Affective Domain</th>
<th>Psychomotor Domain</th>
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Check Your Progress 2

Note: Write your answers in the space given below.

1) Fill-in the blanks with suitable words/terms
   a) .................................... are common to all learners.
   b) Learning outcome to be .................................... occurs due to planned instructional inputs provided by the teacher.
2) What is the purpose of assessment?

3) Classify the following learning outcomes into cognitive, affective and psychomotor domains by writing ‘C’, ‘A’ or ‘P’ in the space provided:

- Liking for learning of mathematics
- Remembering the historical events
- Writing the procedure of an experiment
- Verifying the property of a substance in the laboratory
- Completing an assigned task on time
- Drawing an equilateral triangle
- Drawing inference from an observation
- Preparing an exhibit

14.5 APPROACHES TO ASSESSMENT OF LEARNING

We have discussed so far that various types of learning take place in the school and the teacher undertakes the assessment to know the extent of learning occurring as a result of instruction. Since there are different types of learning, the same approach can not suit the assessment of all types of learning. In this section, we shall explore how a teacher assesses learning of facts, concepts, associations, generalisations, habits and attitudes. Each of them is discussed under separate sub-sections. But before doing so, let us review our understanding of a few related concepts and ideas.

14.5.1 Classroom Assessment

Broadly speaking, three issues are important for assessment, or data collection with regard to student learning in the classroom.

I) The issue concerned with the data we will use for making judgments, which is the area of assessment and measurement.

II) The issues concerned with the reference to be used for making evaluations based on the assessment, and

III) The issues connected with the tools and techniques used for assessment.

The Data

The issue of data is closely linked to the process you will adopt for assessing the learning of your students. The data indicate whether learning has occurred or not. These may occur in terms of changes in quantity or quality. If these consist of the marks obtained on an achievement test these are quantitative, while the observations and records of behaviours of a learner are qualitative. The assessment involves three steps.
Organising Learning

i) Identifying and defining the quality or attribute that is to be measured.

ii) Determining the set of operations that may represent the attribute in manifest and perceivable form.

iii) Establishing the procedures for assessing the attribute.

The Reference

An assessment requires a reference that is used for comparison. An assessment can take two forms based on the reference used for it. For example, the statements “X is taller than Y” and “X is tall enough”, references are not the same. In the first statement, assessment is made with reference to the height of another person. In the second statement, the reference is to an external criterion. The first statement uses the height of someone else as the “norm”. It is known as “normative assessment”. If a teacher states that Raju is the brightest child in the class, it is a normative statement in which the standard being referred to is the ability of the class. The height mentioned in the second instance is a general reference for comparison. This kind of assessment is “criterion-based”. Criterion-referenced testing is done when we want to know how much a student has learnt vis-à-vis a given standard, while norm-referenced testing is done when we want to know how one student or group of students compares with other students in terms of the content being tested. If the purpose of criterion referenced assessment is to find out how much students know before and after the instruction, the purpose of the normative assessment is to rank each student with respect to the achievement of others in broad areas of knowledge or to discriminate between high and low achievers.

Tools and Techniques

Assessment data are generally collected by using one or more of the following tools/techniques:

1) Paper/pencil Tests: These include self-reports, interviews, questionnaires, tests or other instruments used in the collection of data.

2) Systematic observation: In this technique the teacher looks for specific actions or activities, but is not involved in the actions being observed.

3) Participant observation: Here the teacher is actively involved in the process being described and writes up her observations at a later time.

4) Clinical Tools: Data are collected here in a clinical, one-to-one situation and unlike the above may require the teacher to have some special training.

14.5.2 Assessment of Concept

You have studied earlier the meaning of a concept and the way in which a concept is learnt. Let us recall what is meant by a concept. From the list below, tick mark those items that pertain to the meaning of concept.

- It is a general idea.
- It is either true or false.
- It represents a class or group of instances.
- It may or may not have a definition.
- Instances given have at least one common characteristic.
- It needs to be verified through experimentation.

Since you are already aware of the meaning of a concept, you would have ticked the responses correctly. If you are not sure, you may verify the correctness of your response in the light of the information given below.
Concepts are the means by which we organise information in our minds.

Concepts may be viewed as categories in which we group phenomena within our experience.

A concept is a general idea, usually expressed by words, which represents a category, class or group of people, things, actions or relationships having certain common characteristics called attributes.

Every concept has five elements: name, definition or rule, examples or instances, attributes, and attribute value.

In the context of a school and the classroom, students learn several types of concepts. One way in which the concepts are learnt in school can be grouped as follows:

- Concepts that a student learns incidentally with minimal help from others,
- Concepts which are not discipline based, but, teachers feel they have to develop, and
- Concepts that are derived from disciplines of knowledge.

Out of the three groups of concepts learnt by students in the context of a school, can you identify the group, which is the focus of teacher assessment? You may be right in identifying that the teacher assesses the second and the third group of concepts. Let us discuss how these concepts are assessed.

You would agree that the assessment of concepts learnt by students must be based on the way they have learnt them. Since students learn the concepts by studying the examples and non-examples, identifying attributes, arriving at a definition by using the essential attributes and giving a name, the assessment of a concept could be done by:

1) Seeking examples through the process of recall or recognition;
2) Asking students to identify a non-example from a given list;
3) Seeking the characteristics/attributes of a concept;
4) Asking students to identify similarities and differences between two related/unrelated concepts;
5) Asking them to supply either part or full definition of a concept.

In other words, concepts can be assessed by paper and pencil tests consisting of different types of items depending on the aspect of concept learning that is being tested.

**Check Your Progress 3**

Note: Write your answers in the space given below.

Given below are a few items. Identify the items that test any of the five types of responses mentioned above. Place a 'v' mark in the space provided if you consider that it tests the learning of a concept. Also, write the type of response elicited by the item in front of it.

- a) Differentiate between weight and mass of a substance.
  - Type of response: 
  - Answer:  
- b) Describe the process of preparing oxygen in the laboratory.
  - Type of response: 
  - Answer:  
- c) State the meaning of an 'adjective'.
  - Type of response: 
  - Answer:  
d) Give any three examples for “Mountain range”.

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e) State how would you prove that hydrogen is lighter than air.

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f) Mark ‘Delhi’ on the map of India.

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g) What is the similarity between a rectangle and a parallelogram?

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h) List the properties of a metal.

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14.5.3 Assessment of Generalisation

As you know that much of the learning at school takes place in the form of concept learning and generalisations, it is important to know a little about generalisations too. Generalisations refer to relationships between two or more concepts or statements about a concept.

**In Text Activity 3**

Identify and place a tick mark ‘✓’ against those statements below that are generalisations:

1) Sun rises in the east. ..........................................

2) Temperature rises with increase in pressure. ..........................................

3) Sum of the three angles of a triangle is 180°. ..........................................

4) I like flowers. ..........................................

5) A rectangle has four sides. ..........................................

6) It is better to be late than never. ..........................................

7) Sam is shorter than John. ..........................................

8) Delhi is the capital of India. ..........................................

9) Exploitation is the main cause of revolution. ..........................................

10) Increased human activity leads to environmental degradation. ..........................................

As you are aware, generalisations are made based on a set of observations, evidences, events, and examples. A learner can find certain common feature/s in them and make a general statement. When observations and evidences are limited, the generalisation made is tentative, but subsequently available evidence can be used to help the learner to validate the generalisation drawn. In other words, generalisations are abstractions made from concrete experiences. Since these are abstract, generalisations are assessed through paper/pencil test. In such a test, you could either ask for the generalisation directly as in the case of the statement of a law or principle, or it could be tested indirectly by asking for instances, reasons and applications.

14.5.4 Assessment of Attitudes

As stated earlier, learning in the school is influenced by various factors and is of various types. If some learning is caused by teaching, these are outcomes of planned
interventions, the others may be unplanned and incidental by nature. Children acquire attitudes towards various ‘psychological objects’ in the environment of a school. Their attitude towards what they learn and how they learn, towards teachers and peers, and towards the school and schooling are acquired in the school environment. Teachers do aim at developing certain attitudes through ‘planned curricular experiences’. For instance, a science teacher may aim at developing a scientific attitude in her students whereas a language teacher may aim at literary attitude. Students learn some other attitudes informally and through ‘unplanned experiences’. Attitude towards peers, particularly those belonging to a different gender, language, class or caste group than that of a learner, are acquired and/or strengthened in the environment of a school.

Did you have the same attitude towards all subjects you studied in the school? This is not likely because you would not have shown the same keenness or preference for studying all subjects. Similarly, did you have the same attitude towards all your teachers? It may not be true again, since a student shows normally differential preferences towards different teachers. You would agree that one’s attitude is an outcome of one’s experiences and hence, differences in experiences lead to differences in attitudes.

Attitudes, as you know, are usually defined as a disposition or tendency to respond positively or negatively towards a certain psychological object (idea, object, person, situation). They encompass, or are closely related to, our opinions and beliefs and as stated above, are based on our experiences.

It is generally held that attitudes are composed of affective, cognitive and behavioral components. Hence, measurement of attitude could be done through one or more types of such components. Also, the presence of these components poses some problems in understanding and hence measurement of attitudes. And, of course, we can’t directly observe them—we can only ask people or infer their attitudes from what they do.

Since attitudes refer to the degree of one’s feeling, the measurement of attitudes is done by using rating scales. An attitude scale is constructed following one of the two techniques, namely, the Likert’s technique or the Thurstone’s technique. The Likert technique requires the presenting of a set of attitude statements to the subject/s along with a response format—usually five points. Subjects are asked to express agreement or disagreement to a statement on a five-point scale. Each point representing the degree of agreement is given a numerical value from one to five (in an ascending/descending order). Thus a total numerical value can be calculated by adding up all the responses.

Both of these techniques require you to write statements that indicate degree of your feeling towards the psychological object represented. It is necessary to remember that the statements should not be mere facts. Say, if you are constructing an attitude scale for measuring attitude of students towards school, some of the statements that may measure this attitude could be:

1) My school is one of the best in the town.
2) I wish I had attended some other school than this.
3) My school is just as good as any other school.
4) I feel that the life of the students can be made better in this school.

Having a large number of such statements, the students are provided with a five-point scale to indicate their agreement. Given below is an example of what an attitude scale would look like.
For each of the statements below, please indicate the extent of your agreement or disagreement by placing a tick ‘✓’ in the appropriate column.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Criminals convicted for murder should be hanged.</td>
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<tr>
<td>2) There should be a scope for reformation of the convicted person.</td>
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It's generally a good idea to run a pilot survey so as to eliminate any ambiguous statements, negative statements or statements which might seem unduly ‘leading’ in a particular direction, such as the use of the word ‘criminals’ in the example above. In principle, it may be a good idea to run the test on a group whose attitudes are known. For example, you would expect the students who are performing well and participate in other activities in their school to have a positive attitude towards the school. If they do not show positive attitude, there may be something unexpected/incorrect in your survey. If they do, then your test is appropriate. In practice, though, it is not always possible to find such a group. You may also like to ensure that an expert in the field you are dealing can check out the content validity of your questionnaire. This would help in establishing that the content of the scale is measuring what you are trying to measure (attitudes).

14.5.5 Assessment of Values

As told earlier, the learning outcomes in the cognitive domain focus on the intellectual development related goals of the school, while those related to the development of students’ feelings, attitudes, values and emotions are in the affective domain. Lorin Anderson and Jo Anderson (1982) described some of the affective goals and the affective measurement techniques in the classroom. They pointed out that attributes like honesty and truthfulness are ends in themselves, whereas goals like positive attitude towards mathematics or science instruction may be viewed as means toward an end.

You know that values, as educational outcomes, are classified under the affective domain. You can recall from earlier discussion that Receiving (attending), Responding, Valuing, Organisation, and Characterisation by a Value or Value Complex are the five major categories in this domain. If taken through each category of the taxonomy, the learner would begin by willing to receive a particular attitudinal or value position and would conclude by incorporating or internalising this position into his her life style.

Some examples, cited in Orlich and others (1985), of the learning outcomes under these categories are given below.

Receiving or Attending

- Students will listen to and not have any ill feelings towards other students who disagree with their own point of view.

- Students will be willing to learn about the teachings of the religions other than their own.

Responding

- Students will develop an appreciation for poetry, so that during a free reading period they will select a book of poetry as one of their choices.
Valuing
- Social studies students will learn to value the democratic process, so that in a school election they will not only vote but will also urge others to do the same.

Organisation
- Students will learn the importance of good study habits and will demonstrate this by organising their free time, both in school and out of it, so as to complete their assignments.

Characterisation of a value or value complex
- Students will learn to value honesty and will show this by monitoring their own behaviour on tests and assignments and by discouraging others from cheating.
- Students will value the importance of free speech in a society and will demonstrate this by protecting the rights of others—including those they disagree with.

Check Your Progress 4

Note: Write your answers in the space given below.

1) Getting a student to listen to a value is the first step to getting her or him to act on that value. (True / False)

2) Categorise the following statements as cognitive or affective by inserting C or A as the case may be.

a) Given a list of ten words, the student will identify all of the five that are nouns. ................................

b) The student will follow classroom rules as prescribed by the teacher. ................................

c) The student will recite the preamble to the Constitution of India. ................................

2) In an unsupervised classroom setting, the student will use objectives to plan for instruction at least three times per week. ................................

e) The student will listen to others and use their ideas in her/his comments during a discussion. ................................

Now that we have reviewed the learning outcomes in the affective domain, you would agree that the assessment of values learnt by the students is done differently from the learning outcomes in the cognitive domain. Whereas the cognitive outcomes are assessed using written tests, the assessment of a value requires observation of behaviours of students in situations where a value manifestation is possible. Hence, techniques such as “rating scale” are more appropriate for assessment of values. A teacher could also create “life-like situations” for students to participate and undertake an analysis and assessment of behaviours indicating values held by the students. Since creating life-like situations or undertaking anecdotal observation is difficult, if not impossible, paper-pencil instruments called “inventories” are frequently used for assessing values. A value inventory may either present statements to students for showing their agreement or disagreement or may present a written situation or episode and ask students to respond to them by indicating what they would do or what should be done in those situations. Assuming that the respondent does the same thing even in real life situations, the values held by them are inferred. You might be thinking whether a respondent would always state the true response or whether they would fake their responses on such instruments. It is true that the assessment of values based on inventories, unlike direct observation, suffers from faking or response in the direction
of those that are socially desirable. However, the likelihood of faking of responses can be somewhat controlled if the tool is subjected to standardisation.

14.5.6 Assessment of Habits and Hobbies

A habit, as you know, refers to that behaviour which one acquires through repetitive practice. Though one would be aware and analytical at the time of its acquisition, upon becoming a habit, one tends to perform it mechanically. For example, the fact that most of us use our right hand for certain activities such as writing is habitual. The ways in which we talk, walk, stand or sit are all habitual. In other words, most of our psychomotor behaviours are acquired through repetitive practice and have become habits. Similarly, the fact that we do certain things at certain times and in certain ways is due to our cultural habits.

In Text Activity 4

Write any three habits which are acquired by students in the school environment.

1) .................................................................
2) .................................................................
3) .................................................................

You would have identified correctly the habits such as standing while answering to a question in the classroom or social habit such as wishing a teacher who is passing by as the habits acquired in the school environment.

Apart from certain habits that are either acquired or fostered by a school, most schools aim at nurturing or developing hobbies among students. A hobby, unlike a habit, refers to an activity which one enjoys doing and often finds time to undertake. They are, in a way, the avocation of an individual. A school plans and provides for the learning of several academic, subject centric or personal avocations. Photography, painting, writing poetry or stories, bird watching, stargazing are some of the hobbies which a school may seek to develop in the students.

A teacher, who attempts at developing a set of habits and hobbies in students, needs to assess them to know whether the students have acquired them. In the lower classes, for example, a teacher may have to assess ‘regularity in work’ or ‘cleanliness’ as a habit. Study habits related to time and place of study, preparedness for study are important for benefiting from what one studies. A teacher may wish to know and correct them as well.

Habits and hobbies are usually assessed either by observation or by administering a questionnaire or checklist. Habitual behaviours in areas such as regularity, punctuality, cleanliness, interpersonal and social skills can be observed over a period of time or periodically by the teacher and rated. Whereas those that may not be accessible for observation such as study habits and hobbies are assessed using questionnaire or checklist. Given below are a few items that measure study habits of students.

Study Habits Checklist (sample)

For each of the following questions, read them carefully and put a tick mark (√) if it applies to you. If not, put a cross mark (×)

Do you study outside of class every day? ................................

Do you complete your assignments on the day they are assigned? ................................

Do you review regularly what is taught in each class? ................................

Do you survey a lesson or chapter before reading it in detail? ................................
As you read a lesson, do you have questions in mind that you are actually trying to answer?

Do you keep a calendar for listing the due dates for submitting assignments?

Do you try to learn what you get wrong on a test?

**Study Habits Questionnaire (sample)**

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<th>Always</th>
<th>Sometime</th>
<th>Never</th>
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<tbody>
<tr>
<td>1) Are you distracted by phone, computer, or TV, in the place where you study?</td>
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<td>2) Do you get up in between your study?</td>
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<td>3) Do you have the habit of eating snack during study?</td>
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<td>4) Do you take breaks when you study?</td>
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<td>5) Do you study while lying on the bed?</td>
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<td>6) Do you need music when you study?</td>
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<td>7) Do you keep all study related things ready for study?</td>
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**In Text Activity 5**

Write three questions, the responses to which would indicate a habit learnt in the school environment.

1) .................................................................

2) .................................................................

3) .................................................................

**14.6 SOME PRINCIPLES OF ASSESSMENT**

A teacher needs to undertake assessment during as well as at the end of instruction as part of formative and summative evaluation. While doing so, one needs to keep in mind the following principles of assessment discussed by James H. McMillan (2000).

**Assessment is a process of making judgment**

A teacher needs to make interpretations and decisions in the construction of test questions, scoring responses, grading participation and interpreting of the behaviors.

**Assessment is based on principles of measurement and evaluation**

For effective assessment, you need to know the difference between evidence and measurement i.e. differentiating degrees of a trait by description or by assigning scores and evaluation, which involves interpreting the description or scores. Moreover, you may also need a conceptual understanding of the statistical techniques for such tasks as interpreting student strengths and weaknesses. Schafer,(1991) states that these concepts and techniques comprise part of an essential language for educators. They also provide a common basis for communication of results, interpretation of evidence, and appropriate use of data.
Assessment can influence student learning
You would agree that the nature of assessment would influence what is learned and also the degree to which they are meaningfully engaged in the learning process. Assessments should not be limited to finding out the extent to which learning has occurred. It should also provide feedback to the students and opportunities for improvement. While using a particular type of assessment, a teacher may confront questions such as, "Will students be more interested if assessment is problem-based?", "How do students study when they know the test consists of a certain type of items such as multiple—choice items or short answer-type?", "How and in which form should feedback be given?" and "In what way does assessment affect student effort?"

Assessment may be erroneous
Teachers need to know that there is error in all classroom assessments. It is possible that the specific type of assessment used may under or over estimate the learning.

Good assessment enhances instruction
It has been stated above that the assessment affects student learning. It also has an influence on the nature of instruction in the classroom. When assessment is integrated with instruction, it informs teachers about the nature of activities and assignments that may prove to be useful, the level at which teaching is needed, and the areas of instruction that have not resulted in the requisite learning. During instruction, informal, formative assessment helps teachers to know when to proceed, when to ask more questions, when to give more examples, and how to respond to student questions.

Good assessment requires multiple methods
Assessment that is fair, leading to valid inferences with a minimum of error, is a series of measures that show student learning through multiple methods. Experts emphasise that important decisions should not be made on the basis of a single test score. A teacher should understand the entire range of assessment techniques and methods and their limitations.

To summarize, what is most essential about assessment is an understanding of how assessment principles and ideas can be used to enhance the student learning and teacher effectiveness. This will be achieved if teachers learn about conceptual and technical aspects of assessment for both large-scale and classroom assessments.

<table>
<thead>
<tr>
<th>Check Your Progress 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note: Write your answers in the space given below.</td>
</tr>
<tr>
<td>Fill in the blanks, to state the principles of assessment.</td>
</tr>
<tr>
<td>1) Assessment is a .................. of making judgment.</td>
</tr>
<tr>
<td>2) Assessment is based on principles of ..................and ..................</td>
</tr>
<tr>
<td>3) Assessment can influence .................. ..................</td>
</tr>
<tr>
<td>4) Assessment may be ..................</td>
</tr>
<tr>
<td>5) Good assessment .................. instruction.</td>
</tr>
<tr>
<td>6) Good assessment requires .................. ..................</td>
</tr>
</tbody>
</table>

14.7 INTEGRATING APPROACHES FOR ASSESSING CURRICULUM BASED LEARNING
A fundamental change in thinking about the nature of instruction was initiated in 1963 when John B. Carroll argued for the idea of mastery learning. Mastery learning suggests
that the focus of instruction should be the time required for different students to learn the same material. This contrasts with the classic model in which all students are given the same amount of time to learn with a view to identify the differences in ability. Carroll even redefined aptitude as primarily a measure of time required to learn.

The key elements in mastery learning are: (1) clearly specifying what is to be learned and how it will be evaluated, (2) allowing students to learn at their own pace, (3) assessing student progress and providing appropriate feedback or remediation, and; (4) testing that learning has been achieved.

You have studied in this unit that several learning outcomes are to be achieved by a school directly or indirectly. You also know by now that there are several types of learning and hence what needs to be assessed is different. Looking at this from the perspective of mastery learning, a teacher needs to undertake assessment both at the formative as well as at the summative stage of instruction. Therefore, one needs more than one test or more than one way of testing to ensure that the validity of assessment is not affected. In other words, a teacher should be able to integrate the approaches used for assessing the learning that accrues from implementing a curriculum. This is possible only when a teacher has a definite plan or assessment or when he/she has a blueprint of it. This would not only take away the chance factor in assessment but would also ensure that the assessment is comprehensive. Such a plan would also specify the way out of the several that could be employed for assessing a particular type of learning. Observation, checklist, anecdotal notes, teacher/student conference notes, rating scales and achievement tests are the main ways through which a teacher assesses the learning outcomes. Lastly, the plan must consist of guidelines for what to observe and evaluate.

### 14.8 LET US SUM UP

Assessment refers to the measurement process of the accrued learning. It is necessary for a teacher and a learner as it helps to know whether the terminal behaviors, which are the outcomes of learning, are achieved or not. Since instructional objectives are common to all learners in a class, the teacher would expect certain common learning outcomes from instruction. A teacher undertakes assessment to collect knowledge and performance evidence that a learner has actually achieved an instructional objective. As you are aware, learning outcomes are classified under three domains viz., cognitive, affective and psychomotor. The cognitive domain involves working with and processing facts, procedures, concepts, generalizations and other universals that serve in intellectual functioning of an individual. The affective domain is concerned with the manner in which we deal with things emotionally - our feelings, appreciation, enthusiasms, motivations, beliefs, attitudes and values. The psychomotor domain deals with physical movement, coordination, and use of motor skills necessary in performing an activity, task or job.

The data, the reference and the tools and techniques are the three important issues in assessment. Assessment of concepts learnt by students is required to be based on the way they have learnt them. Hence, the assessment of a concept could be done by: seeking examples through the process of recall or recognition; asking them to identify a non-example in a given list; seeking the characteristics/attributes of a concept; asking students to identify similarities and differences between two related/unrelated concepts; asking them to supply either the part or full definition of a concept. Generalizations are relationships between two or more concepts or statements about a concept. Generalizations are assessed through paper/pencil test, by asking for the generalization directly as in the case of the statement of a law or principle, or it could be tested indirectly by asking for instances, reasons and applications. Attitudes are usually defined as a disposition or tendency to respond positively or negatively towards a certain psychological object. We can not directly observe them. We can only ask people, or
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infer their attitudes from, what they do. Since attitude refers to one’s degree of feeling, the measurement of attitude is done on a rating scale. A habit refers to that behavior which one acquires through repetitive practice. Habits and hobbies are usually assessed either by observation or by administering a questionnaire or checklist. Some of the principles of assessment are: assessment is a process of making judgment, assessment is based on principles of measurement and evaluation, assessment can influence student learning, assessment may be erroneous, good assessment enhances instruction, and good assessment requires multiple methods.

Responses to in Text Activity

In Text Activity 1

In this section, you have studied about a few terms and their relationship with each other. Given below is a diagram with blank boxes to be filled by you by selecting the appropriate terms. Use the above discussion to fill-in the boxes with suitable terms. A correctly filled-in diagram is given at the end of this unit.

In Text Activity 2

You would have filled the table as shown below.

<table>
<thead>
<tr>
<th>Cognitive Domain</th>
<th>Affective Domain</th>
<th>Psychomotor Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synthesis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In Text Activity 3

1) Sun rises in the east.
2) Temperature rises with increase in pressure.
3) Sum of three angles of a triangle is $180^\circ$.
4) I like flowers.
5) A rectangle has four sides.
6) It is better to be late than never.
7) Sam is shorter than John.
8) Delhi is the capital of India.
9) Exploitation is the main cause of revolution.
10) Increased human activity leads to environmental degradation.
14.9 UNIT END EXERCISES

1) Select a grade & subject of your choice and make a list of all learning outcomes to be attained in the course of its teaching.

2) Select a topic of your choice and prepare a test to measure the concepts contained in it.

3) Select a question paper of your choice and identify what learning is assessed by each of the items contained in it.

4) Prepare a tool and survey the study habits of students of a class.

14.10 REFERENCES AND SUGGESTED READINGS


