

---

# UNIT 13 BASICS OF ASSESSMENT AND EVALUATION

---



Notes

## STRUCTURE

13.0 Introduction

13.1 Learning Objectives

13.2 Assessment of Student's Progress

13.2.1 Measurement, Assessment and Evaluation

13.3 The Process of Assessment

13.3.1 Expected Learning Outcomes, Classroom Processes and Assessment

13.3.2 Formative and Summative Assessment

13.4 Continuous and Comprehensive Evaluation (CCE)

13.4.1 Concept, Process and the need

13.4.2 Use of Quantitative and Qualitative Data for CCE

13.5 Let Us Sum up

13.6 Model Answers to Check Your Progress

13.7 Suggested Readings & References

13.8 Unit-End Exercises

---

## 13.0 INTRODUCTION

---

In the previous blocks, you have been acquainted with the process of learning, planning lessons with different methods and approaches of teaching for facilitating students' learning. Ms. Sheila, a promising teacher like you, chose appropriate methods, planned her lessons meticulously and managed her classroom transactions so well that all her students participated in all the classroom activities she conducted while teaching. After the completion of teaching a topic, what should Ms. Sheila do? Would she proceed on to teach the next topic, or would she ensure that every student has understood the concepts she had taught and is capable of using the concepts in solving problems including those in real life situations? How could she ensure that she was in the right direction while teaching? Did the students face any learning difficulties? Several such questions relating to the efficacy of teaching and learning gains would arise. Sheila needed



## Notes

to know the answer to these questions and take necessary steps before proceeding to the next topic/lesson. But, how can she collect data in response to these questions? She can ask questions to the students to test their understanding, observe their activities in and out of the classroom as to how the students are using their acquired knowledge in real life situation, ask other teachers and parents regarding their performance etc. She can use other means to gather a complete picture of the status of each and every student with respect to his/her learning of the concepts taught. In brief, she can assess or evaluate the performance of each student.

Ms. Sheila can assess one or a few aspects of students' learning which she considers important to take further action or she can assess all possible aspects of students' learning (comprehensive assessment/evaluation) and prepare a report stating all the aspects of each student as obtained from the assessment exercises so that anybody like parents, head teacher, school committee members or Inspectors can have a complete idea of the students' performance.

At present, you might have observed that unit tests, half-yearly and annual examinations are conducted at the school level to know/assess the learning progress of the students in different school subjects and the performance of the students is measured in terms of marks / grades. This process lacks comprehensiveness as there is little scope to assess the all-round development of the students. However, as emphasized in the NPE (1986) and NCF (2005), more focus needs to be given on continuous and comprehensive evaluation (CCE). In this unit, you will come to know the different concepts associated with the process of assessment of learning and how it can be made continuous as well as comprehensive for improving learning and modifying the teachers' strategies so as to facilitate students' learning. For completion of this unit you will need at least 10(ten) *study hours*.

---

### 13.1 LEARNING OBJECTIVES

---

After completing this unit you will be able to:

- Explain the concept of measurement, assessment and evaluation.
- Identify the similarities and differences among measurement, assessment and evaluation;
- Relate assessment with expected learning outcomes and the processes of classroom transaction;
- Use both formative and summative assessment procedures for facilitating students' learning;
- Explain the meaning, need and procedure of Continuous and Comprehensive Evaluation (CCE);

- Make use of both quantitative and qualitative data generated through CCE.
- Employ the outcomes of the continuous and comprehensive evaluation/assessment (CCE) to improve your teaching strategies.



---

## 13.2 ASSESSMENT OF STUDENT'S PROGRESS

---

It is quite natural that, each individual student has some potential abilities or skills which need to be nurtured carefully. As a teacher, you have the responsibility to help each and every student perform to the best of her/his ability. In the teaching-learning process, it is important to know, if the children have learnt what they are supposed to learn, and to find out if their learning progress is satisfactory over time. However, there is another reason. It is not only a teacher, but also the parents and educational administrators who are interested to find out what the students have achieved in different subjects and co-curricular areas. One of the ways for this is to evaluate the achievement of the students through tests and examinations on the subjects being taught to them and score or rate their performance in terms of marks/grades. As a teacher you are quite familiar with this. However, if you really want to help the students learn better, you need to consider what do the marks or grades obtained by the students through tests / examinations actually tell about their learning progress. While thinking about the marks and grades several questions may come to your mind, such as:

- Do the marks or grades obtained in different subjects represent the actual performance of the student?
- Do they tell anything about the learning style or the way of learning of the individual student?
- Do they indicate anything about the difficulties a student is facing during learning?
- Do they provide information on the areas of strength and weakness of the student in learning?
- Do they tell anything about the extent and pace of learning?
- Can all the aspects/areas of learning in all subject contents and co-scholastic competencies be scored or graded?
- Is there any alternative or/ and supplementary mechanism to assess learning in a better way?

If you try to find out the answers to the above questions, possibly, you will realize the limitations of the marks and grades with which we all are very familiar. There are several other ways to ascertain the nature of student's learning. To understand those methods, you need to have clear understanding of the concepts of Measurement, Evaluation and Assessment.



### 13.2.1 Measurement, Assessment and Evaluation

**Measurement:** In your day to day life as well as in the classroom situation, you are quite familiar with measurement. Normally you ask questions like; ‘*how old is Sambit?*’, ‘*how tall is Seema?*’, ‘*How much does Rahim weigh?*’, ‘*what is the area of the classroom?*’, ‘*how much does your pen cost?*’, ‘*what is the temperature today in your area?*’ etc. In the above questions all that you want to know are about age, height, weight, area, price and degree expressed in some quantity. For example ‘*Sambit’s age is 15 years*’, ‘*Seema is 1.8 meters in height*’, ‘*Rahim’s weight is 35 kilogram*’. What exactly does ‘35 kilogram’ mean?

There are two aspects to be remembered when we measure any physical thing (say weight of Rahim): *a number* (35) and *a unit of measure* of weight (kilogram). Can we express the weight with either one of the two? No we cannot—— statements like ‘weight is 35’ or ‘weight is kilogram’ do not convey any meaning. In simple terms *measuring any aspect is to state the particular attribute* (age, weight, height, length, time) *in terms of quantity and quantity is expressed through the number of unit of measurement* (like year for age, gram or kilogram for weight, meter for height or length, hours/minutes/second for time etc.). In other words, *measurement* relates to *the description* of any particular aspect or characteristic of an object or process in terms of certain amount or *quantity*. Measurement of any aspect of an object or phenomenon is its *quantitative description*.



#### ACTIVITY 1:

List out the names of as many objects or items as you can. Specify the possible measuring device(s) and the unit(s) of measurement against each object or item. One example has been given for you.

Sl. No.	Name of the object/item	Possible measuring device(s)	Unit(s) of measurement
1	Weight of Rice	Weighing machine	Kilogram

Generally, some standard instrument or scale is used to measure the extent of any aspect of an object. When you measure the length of the classroom, you need a meter scale and express the result as, say 4 meters. The length of one meter is a fixed quantity of length which is same throughout the world — it is a standard



scale (or unit) for measuring length. In this process, you are simply collecting information by comparing the attribute (e.g. the length of the room) with a standard scale or a unit (i.e. a standard meter scale).

Comparisons can be made in terms of gain (or loss) or progress made over a period of time. Increase in height, or loss in weight in two years, gain in speed of a car in two hours are instances of such comparison which also require measurement on subsequent occasions. In the measurement of physical aspects, the comparisons can be expressed in ratio of two numbers (number of times or number of parts). When we measure to compare same aspect of two similar objects, the results of the measures of the same attribute can be expressed in term of multiples or factors for e.g., a length of 12 meters is twice of a length of 6 meters or in reverse, the length of 6 meters is half of 12 meters.

All the examples described above relate to the measurement of physical objects or processes which can be seen, touched or felt and can be easily quantified. But how can we quantify human characteristics like cleanliness, smartness, aptitude, honesty, etc.? Many methods have been developed to measure and quantify several human qualities.

As a teacher or as a parent, we always want to know the extent of experience (knowledge, understanding etc.) our child has acquired while studying in a class in a school within a period of say, last six months. In other words we want to find out the gain in learning which is termed as *learning achievement* or simply *achievement*. How can the gains from learning over a period of time be quantified?

To measure the learning achievement of students studying in a school, we, as teachers, usually make them to answer questions asked orally or in written form. A question paper in a subject area of examination for each class developed systematically during monthly or half-yearly or annual examination is called a *test*. A test developed to measure extent of achievement is called an *achievement test*. By scoring the answers given by a student or giving appropriate marks to each question responded and then totalling these marks we get the total score a student has obtained in the examination of a particular subject which gives a measure of achievement of the student.

For example, suppose Jaba, a student in class VII, secured 40 out of 100 on a test in Science during the half-yearly examination. Her achievement (what is learnt) has been quantified to be 40 in a scale of 100. In other words, if we consider that there are 100 points of learning included in the test measuring all the concepts in Science taught during the year, Jaba has answered 40 points correctly. If in the annual examination she secures 80 in the same subject, then we can say that she has improved her achievement in Science

Before proceeding further, answer the following question:



---

E1. If Suman takes an achievement test on Percentage and obtains 15 out of 25 marks and then repeats the same test after a month, would she likely to secure more marks? Why?

---

We can thus say that measurement in education, like the measurement of physical objects, is the process of expressing the desired aspect in quantitative terms. But, unlike the comparisons in physical measurements, comparison of marks cannot be done in terms of ratios. In the above example, we cannot say that Jaba's achievement in Science in the annual examination is twice that of the half yearly examination. Similarly, if two students, Jiban and Zinat of class V obtain 50 and 75 marks respectively in Mathematics in the same examination, it would be wrong to say that Jiban's achievement is two third of Zinat's achievement in the subject. All that we can say is that Zinat's performance/achievement in Mathematics is better than that of Jiban.

Further when a student secures the minimum mark 0 or the maximum mark 100 in a subject, we cannot assume that the student knows nothing (in case of securing 0) or knows everything (when securing 100) in the subject concerned. We can only infer that on the first occasion, the performance is 'poor' or on the second occasion, it is 'extremely good'. Based on the marks, we make qualitative remarks on the students' performance like 'poor', 'average', 'good' etc. which may not be always correct. If a student secures a score of 75 in Language in class VII, this score does not tell anything whether he/she likes to read books other than textbooks, gives better response in language classes, takes active parts in language activities, and such other characteristics of the student. Such characteristics which are also the indicators of learning can only be stated through statements and not through numbers. Considering the example of Jaba's achievement in Science, answer the following.

---

E2. In addition to the marks obtained by Jaba in Science, specify any three indicators of learning for assessing her progress in Science.

---

**Assessment:** When you go to buy a dress for yourself what do you normally do? You examine several pieces of dress and compare those from different angles such as; the size, colour, brand, price, durability and suitability for your requirements. You select the one that fits your requirements. Similarly, if you really want to measure the performance of a child in a particular school subject, say in Environmental Studies at the end of a specific unit or at the end of the course, you may administer a test and measure the performance in terms of marks, or/and give him/her an assignment or project, observe his/her activities in and out of the classroom relating to his/her understanding and application of the concepts of EVS. Assessment of learning or performance in EVS, thus, refers to the collection of all possible data and evidences with respect to learning of EVS concepts. These data may be numerical or quantitative like marks or scores and



qualitative data like interest in learning of the concepts, interaction capability on the concepts learnt, involvement in subject-related activities and several other characteristics of the student which are the possible outcomes of learning of the concepts. You can very well see that assessment goes beyond measurement which is limited to collection of numerical data. Besides including the numerical scores, assessment is based on data related to qualitative aspects of learning. The information or data for assessment of learning can be gathered from various sources using various tools and procedures like achievement tests, participation of students in classroom and other activities, his/her performance on project work and other assignments and such other various situations where the student can show his/her learning performance. It should be kept in mind that data using a single test or from a single source cannot help in assessing the learning completely and this will be discussed in details in Section 13.5 of this unit.

An assessment of learning is always done with a definite purpose or purposes. Although in school education, all assessment aim ultimately at improving students' learning, but each and every assessment is done to address specific issues of learning that a teacher faces while teaching in the classroom like, '*Recurring spelling mistakes in Mother Tongue at Class V level*', '*Mistakes committed while carrying over is involved in addition of two three-digit numbers*', '*Faulty reading style*', '*Incorrect observations of parts of different types of flowers*'. To know the exact status of the specific learning issue, the teacher tries to assess the students with specific tools.

Thus it can be said that assessment refers to the process of collection of quantitative and qualitative information on specific issues based on which steps can be taken for facilitating/ enhancing learning.

**Evaluation:** All of us judge and take decisions over a number of issues in our life. Let us take a simple example of buying soap for bathing. From among the several brands of bathing soap available in the market, you have to select one that suits you best. You probably ask several questions like, '*Is it quite soft for use?*', '*Does it produce sufficient foam to wipe out dirt from the skin?*', '*Does it produce any reaction on the skin?*'; '*Is the smell pleasant?*'; '*Is the price affordable for me?*' and so on. After getting all information to the queries, you finally judge regarding its suitability for you. You may say, '*It is suitable for me in all respects.*'; '*It smells well*'; '*I cannot afford it*' and the like. You are making judgement about the soap from the point of view of utility. You are making this judgement based on the information gathered on the product. i.e. you are engaged in evaluating the soap you are going to purchase.

Similarly, when you are going to evaluate the learning progress of a child, all dimensions related to learning of the child need to be taken into account. All possible information regarding the learning of the child, both quantitative and qualitative are to be properly collected and carefully analysed before making any judgement on his/her learning status/progress



From the above discussion, the concept of evaluation may be presented in brief as shown in the Box 13.1.

**Quantitative Information and /or Qualitative Information + Value Judgement = Evaluation**

*(Collected through tests)*

*(Collected through observation, analysis of behaviour, portfolio, Project work etc.)*

**Box 13.1 Concept of Evaluation**

Now considering classroom learning, in what way are assessment and evaluation similar and different?

- Assessment refers to the collection of data and the gathering of evidence from different sources through different tools, whereas evaluation refers to bringing meaning to the collected data through interpretation, analysis and reflection.
- Assessment provides feedback on performance of the student specifying his/her strengths and areas for improvement which provides insights for taking appropriate steps for improving the learning. Evaluation, based on the collected evidences, determines the standard met and the levels of success or failure in meeting these standards.
- In both the processes instructional decisions are carefully made by examining evidence of student performance, behaviours toward learning and understanding over a period of time. For this reason, very often both the terms are used synonymously. In this text also we have used the two terms interchangeably focusing more on monitoring and facilitating children's learning.

From the above discussion we can summarise the concepts of measurement, assessment and evaluation, as shown in the Box 13.2.

**Measurement** refers to the process by which the attributes or dimensions of some object or phenomena are quantified.

**Assessment** is a process by which information is obtained relative to some known objective or goal.

**Evaluation** refers to the value judgement made on the phenomenon, taking into consideration the quantitative and/or the qualitative information collected on it over a particular period of time.



### Box13.2: Operational meaning of Measurement, Assessment and Evaluation

In order to strengthen your own understanding about these concepts do the following activity.

#### ACTIVITY 2:

*Prepare a list of information that you would collect for the assessment of progress in learning of EVS at class V.*

## 13.3 THE PROCESS OF ASSESSMENT

Learning is a purposeful activity. Therefore, any subject included in the school curriculum has specified learning objectives. It is expected that after studying each subject, a student shall demonstrate the competencies/behaviours specified. In this context assessment becomes an integral part of instruction, as it determines whether or not the goals of education are being met. Assessment affects decisions about grades, placement, advancement, instructional needs, and curriculum. Assessment inspires us to ask these hard questions: “Are we teaching what we think we are teaching?” “Are students learning what they are supposed to be learning?” “Is there a way to teach the subject better, thereby promoting better learning?”

Searching for the answer to these questions would lead you to see a relationship between learning objectives, classroom processes and assessment. Let us find out.

### 13.3.1 Expected Learning Outcomes, Classroom Processes and Assessment

The process of classroom transaction is usually based on certain curricular areas. These curricular areas, specifically the subjects have some content areas. Each unit/content has certain learning objectives to be achieved. That means after studying the concepts included in the topic/subject, the student shall perform or demonstrate in the expected manner as stated in the objectives. Hence, learning objectives are also called ‘*Expected Learning Outcomes*’. How can you ensure that these learning objectives are achieved at the end of the unit/course? For this you need to assess the achievement of these expected learning outcomes. To make the task of assessment easy and more accurate, the expected learning outcomes need to be ‘*specific*’, ‘*measurable*’, ‘*achievable*’, ‘*realistic*’ and ‘*time-bound*’ (SMART). For example, we may specify an objective of teaching Geography as follows.



## Notes

*On completion of the topic, the students of Class V will be able to identify important places like Delhi, Mumbai, Chennai and Kolkata in the map of India.*

The objective set here is specific because it specifies what the students will be doing and when they will be doing? This is also measurable through a learning task. This is also within the capacity range of the students and hence achievable. This is realistic in the sense that students can show the places in the map and time bound in the sense that they need to do it after completing the topic.

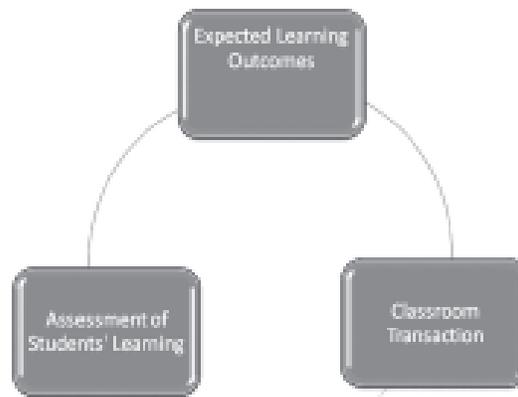
The examples of such expected learning outcomes may be the competencies to be achieved under different curricular areas at different classes. Let's look at the text book on Mathematics for Class – V students and find out the expected learning outcomes for each unit/topic. Some examples have been given in Table 13.1.

**Table 13.1: Exemplars of Expected Learning Outcomes in Class- V Mathematics**

Topic	Expected Learning Outcomes
<i>Fraction</i>	<i>Reduces simple fractions to lowest terms.</i>
<i>Percentage</i>	<i>Finds required percentage of a given number or measure.</i>

On the basis of the learning objectives, the teaching-learning materials and the activities are designed, and accordingly classroom transactions are organized. After the classroom transactions are over, the extent to which the expected learning outcomes have been achieved by the students is assessed. Thus, the entire classroom process has the following three major components/stages as shown in Fig. 13.1:

- (i) deciding the expected learning outcomes,
- (ii) planning and conducting classroom transaction, and
- (iii) assessment of students' progress in learning.



**Fig. 13.1: The Classroom Process**



Although the three components of the classroom process, appears to be logical and natural, in reality the classroom process does not proceed in such a simple and linear fashion. Sometimes, in spite of planning and teaching guided by the learning objectives, you may experience difficulty in fulfilling one of the objectives which you strongly find to be difficult to achieve considering the poor level of the particular group of students. In such a situation, you need to modify the learning objectives. Similarly, assessment of the students' achievement at the end of the classroom transaction of the topic may reveal not only some unexpected weaknesses in the classroom transaction, but also about the expected learning outcomes which might require some modification. Thus each of the three components of the classroom process influence and in turn gets influenced by the other two. Therefore, note in Fig. 13.1 the arrows indicating the direction of influence are not unidirectional.

We can say that the result of assessment of learning outcomes tries to answer the following questions:

 **ACTIVITY 3:**

*Select a unit/topic from any subject of your interest at the elementary level. Go through it thoroughly, and then fill up the following format which requires you to*

- *Formulate the expected learning outcomes for the unit/topic,*
- *Propose processes/methods to be used for classroom transaction,*
- *Suggest at what time assessment can be conducted(during the transaction of the unit/topic, or at the end of the unit/topic, at the end of the year), and*
- *Suggest possible tools and techniques for assessment (from your teaching experience.).*

**Class:** \_\_\_\_\_, **Subject:** \_\_\_\_\_,

**Name of the Unit/Topic:** \_\_\_\_\_

<i>Expected learning outcomes</i>	<i>Processes/methods to be used for classroom transaction</i>	<i>When to conduct assessment</i>	<i>Possible tools and techniques for assessment (Oral/ Written/ Practical/ Observational)</i>



What are the extent and pace of students' learning?

- Are all the stated learning outcomes appropriate for the students?
- Which of the aspects of the classroom transaction need further improvement?
- What are the areas of strengths and weaknesses of the students that require further care?
- How do you evaluate and improve the effectiveness of your efforts to assess and improve student learning?

You might be thinking that assessment/evaluation is either at the end of a unit/ a topic or at the end of the academic session. On the contrary it can be conducted at any time during the school session whenever the teacher feels to check whether his /her strategy of teaching-learning activities in the classroom is efficiently working to facilitate students' learning. Perform the following activity to understand the relationship among processes of stating expected learning outcomes, classroom transaction and assessment of learning outcomes.

### 13.3.2 Formative and Summative Assessment

Assessment can be of different types depending on their purposes. It can be:

- *formal* (like annual or unit tests) or *informal* (like teacher's casual dialogue with students in the classroom interaction or informal observations of students' activities);
- *objective* (centring on definite pre-fixed outcomes) or *subjective* (focusing more on individual variations, needs and achievements);
- *norm-referenced* (comparing student's performance against a group norm or standard) or *criterion-referenced* (comparing student's acquired performance with the desired performance).

As mentioned earlier assessment of learning is an integral part of the learning process. It can be divided into *formative* and *summative* categories. Let us understand these two categories.

- **Formative Assessment**

*Formative assessment is a range of formal and informal assessment procedures employed by teachers during the learning process in order to modify teaching and learning activities to improve student attainment.* It is an on-going process usually carried out by the teacher to continuously monitor student's progress in a non-threatening and supportive environment. It typically involves qualitative feedback (rather than scores) for both student and teacher that focusses on the details of content and performance and such assessment can also involve the student himself/herself (self-assessment) or the peer group (peer appraisal).



The *formative assessment helps a teacher*:

- To *provide feedback* (knowledge of the results of assessment) to students, their parents and to other teachers, so that you can motivate them to move in right direction facilitating or supporting the learning process.
- To *modify subsequent teaching- learning activities and experiences*. If you observe through the feedbacks of the assessment, that majority of the students in your class are performing below the expected level; you can redesign the teaching-learning strategy and methods to suit to the observed needs of the students.
- To *identify and remediate group or individual deficiencies*. For example, if you find that some students do not understand a concept which you taught them, you can give extra coaching or can take any other timely action to improve their performance. You can identify weak areas to take some remedial actions. You can also design some support materials for the students falling behind.
- To *recognize the potentials of the students* and facilitate for enriching their capabilities. The feedback from the formative assessment may reveal the areas of strength, creative potentials of several students. As teacher, you get opportunity to nurture their qualities by providing enrichment experiences.

The feedback from *formative assessment helps the student*:

- To *monitor his/her own progress of learning* and help in promoting self-learning.
- To move his/her focus away *from achieving grades and onto learning processes*, in order to increase self-efficacy.
- To *improve their*<http://en.wikipedia.org/wiki/Metacognition>*awareness of how they learn*. In most cases students are so dependent on others to be constantly guided to learn that they become rarely aware of their own strength in learning. But feedbacks received on regular basis from the formative assessments make them aware of their own process. This encourages them to manipulate with their own process of learning for improving their performance.
- To *reduce the negative impact of extrinsic motivation*. It is found that once the students become aware of their own ways of learning and their capabilities to modify their own processes, they can learn better. Such awareness about their own learning process and their capabilities to modify those acts as an intrinsic motivation for their learning and their actions are no more contingent on any extrinsic motivation like learning for examination or learning for getting gold medal etc.



## Notes

- *To improve their performance significantly* thereby raising their self-esteem, promoting self-learning through intrinsic motivation and thus reducing the work load of the teacher.

The purpose of this assessment is to improve quality of student learning and should not be evaluative or involve grading of students. This can also lead to curricular modifications when specific courses have not met the student learning outcomes. It can improve instructional quality by engaging the teacher in the design and practice of the course goals and objectives and the course impact on the programme.

A brief summary of the characteristics of the formative assessment and the role it plays in improving the performances of both students and teachers is presented in the Box 13.3.

### ***Formative Assessment:***

- Builds on students' prior knowledge and experience in designing what is taught.
- Is conducted at regular intervals on informal basis.
- Is diagnostic and remedial.
- Ensures provision for effective feedback.
- Provides a platform for the active involvement of students in their own learning.
- Provides feedback enabling teachers to adjust their classroom interaction strategies to the emerging needs of the students.
- Encourages intrinsic motivation and self-esteem of students, both of which have crucial influences on learning performance.
- Recognizes the need for students to be able to assess themselves and understand how to improve.
- Incorporates varied learning styles to decide how and what to teach.
- Encourages students to understand the criteria that will be used to judge their work.
- Offers an opportunity to students to improve their work after they get the feedback.
- Helps students to support their peer group and vice-versa.

(Source: *Continuous and Comprehensive Evaluation: Manual for Teachers, CBSE, 2010*)



### Box 13.3 Features of Formative Assessment

- **Summative Assessment**

*Summative assessment refers to the assessment of the learning that ‘sums’ or ‘summarizes’ the development of students at a particular time. It is a process of assessing (and grading or ranking) the learning of students at a point of time.*

Testing processes like the end of a course, a term or annual examinations are examples of the **summative assessment** and the tests used in these assessment programmes are called **summative tests**. While the formative tests are based on limited objectives or content, summative tests sample the whole of the prescribed content and the universe of the expected learning outcomes and give an overall total picture of the students’ achievement at the time of assessment. In a learning-teaching situation, summative assessments are typically given at the end of a course to determine how much the students have learned from the whole course and if they have met the prescribed academic standards. They are conducted formally and can be in the form of quizzes, essays, tests or projects. The features of summative assessment are given in Box 13.4.

#### **Summative Assessment:**

- Is the assessment of learning performance which is conducted at the end of a course or a unit of a course.
- Generally is taken by students at the end of a course or academic year to demonstrate the “sum” of what they have learned.
- Utilises the most traditional assessment methods of evaluating students’ work.
- The results are used for ranking or grading the students which are required in planning any large scale academic intervention, inter and intra school comparison in terms of achievement.

*(Source: Continuous and Comprehensive Evaluation: Manual for Teachers, CBSE, 2010.)*

### Box 13.4 Features of Summative Assessment

The differences between formative and summative assessment is illustrated in the following table.



**Table 13.2:**  
**Differences between Formative and Summative Assessment**

Formative Assessment	Summative Assessment
Used to determine how much the students have learned and what they still have to learn	Used to determine a student's overall performance in a certain prescribed course
Allows teachers to assess their teaching methods and make changes to help students understand the lesson during the school year	Allows teachers to change their teaching methods for the next school year, if students did not perform well
Grades do not carry much weight	Grades are the basis for determining the readiness of the student to take statewide tests and in evaluating his overall academic performance
Frequently administered during the teaching-learning process	Administered at the terminal stage of a course.
Less formal, conducted at the school level by the classroom teacher	More formal, may be conducted at the school level with instruction from district/state authorities
Can be flexible as per the needs of the students	Inflexible, one test for all students, uniform way of conducting and uniform standard of interpreting test scores.
Process oriented	Outcome oriented

To sum up, summative and formative assessments are often referred to, in a learning context, as *assessment of learning* and *assessment for learning* respectively.

*Assessment of learning* is generally summative in nature occurring at the end of a class, course, semester or academic year and intended to measure learning outcomes and reports these outcomes to students, parents and administrators.

*Assessment for learning* is, generally, formative in nature and helps teachers to monitor their students' progress and to modify the instruction accordingly. It also helps students to monitor their own progress as they get feedback from their peers and the teacher and find opportunity to revise and refine their thinking.

However, it must be remembered that formative assessment supplements summative assessment and each type of assessment has its own importance in the learning process.

---

E3. Give a reason as to why the marks are important in summative assessment and not in formative assessment.

---



## 13.4 CONTINUOUS AND COMPREHENSIVE EVALUATION (CCE)

Evaluation measures not only the progress and achievement of the students but also the effectiveness of the learning-teaching materials and methods used for curricular transaction. It is an integral component of curriculum with the purposes of effective delivery and further improvement in the learning-teaching process. Hence, it is important not only for the students, but also for the teachers.

Very often we view evaluation or assessment as something administered by the teachers and taken by the students at the terminal stage of learning. When evaluation is seen as an end of the learning exercise, both the teachers and the students are likely to keep it outside the teaching-learning process, rendering assessment broadly inappropriate and strange to the curriculum. Further, such a perception is associated with anxiety and stress for students. On the contrary, if evaluation is seen as an integral part of the learning-teaching process, it tends to become continuous. Every situation for learning is also a situation for evaluation. When it is included in the learning-teaching process, students will not perceive tests and examination with fear. It will rather lead to identification of students' strength and weakness. Once students' strength is explored, it will be easier to take follow-up action which may be either remedial to remove their learning difficulties or enrichment to enhance their learning level.

The scope of evaluation in schools extends to almost all the areas of students' personality development. It includes both scholastic and co-scholastic areas to be called as *comprehensive*. For example, scores or grades in Mathematics represent the scholastic competency and attitude towards the subject, interest in the subject represent co-scholastic competency. Both the aspects are interrelated and are in line with the goals of education. If evaluation is continuous, the strengths and weaknesses of students will be more prominent giving them opportunity to understand and improve themselves. It also provides feedback to the teachers for modifying their teaching strategies.

### 13.4.1 Concept, Process and the Need of CCE

Education intends to promote all-round development of the student. Hence, Continuous and Comprehensive Evaluation (CCE) is to be carried out in relation to students' cognitive, affective and psycho-motor growth. Cognitive growth refers to the intellectual development of students (such as students' knowledge, comprehension, application, analysis, synthesis and evaluation). Affective growth emphasizes students' attitude, interest and personal development. Psycho-motor growth deals with students' ability to perform some activity or do some practical work. Therefore, if the learning-teaching process is to ensure all-round development, evaluation of the students has to be continuous and comprehensive.



## Notes

To bring about improvement in the quality of education and the holistic development of the child, evaluation process needs to focus adequately on both scholastic and non-scholastic areas of development. The comprehensive evaluation also needs to have continuity at regular intervals throughout the academic year.

Now analyse the on-going evaluation practice in elementary schools and try to answer the following questions?

- Does it give a complete picture of the child about what s/he knows and what s/he can apply in the real life?
- Does it say something about the students' potentials?
- Does it help us as teachers to do something good enough?
- Does the result of evaluation help the teachers and the planners to improve the quality of education?

You will realise that you donot get satisfactory answers to these questions. The need for CCE is apparent and we can say that CCE is needed to:

- provide a holistic profile of the student through assessment of both scholastic and non-scholastic aspects of education;
- identify the latent talents of the students in different contexts;
- identity strategies for raising students' achievement;
- plan a Comprehensive Evaluation Programme for improving schools;
- suggest suitable tools and techniques for achieving continuous comprehensive evaluation;
- use evaluation as a tool for continuous improvement of the school and the students;
- suggest ways and strategies of sensitizing school administrators, parents and the community about CCE.

(Source: *Continuous and Comprehensive Evaluation: Manual for Teachers*, CBSE, 2010)

The term '*continuous*' emphasizes that evaluation of identified aspects of student's growth and development is a continuous process rather than an event, built into the total learning-teaching process and spread over the entire span of academic session. It means regularity of assessment, frequency of unit testing, diagnosis of learning gaps, use of corrective measures, retesting and feedback of evidence to teachers and students for their self-evaluation.



The term '*comprehensive*' means that this process attempts to cover both the scholastic and the co-scholastic aspects of the student's growth and development. Since abilities, interest, attitudes and aptitudes are manifested in different forms and activities, the term implies application of variety of tools and techniques (both testing and non-testing) and aims at assessing a student's development in areas of learning, like: Knowing, Understanding, Applying, Analysing, Evaluating, Creating, and Innovating etc.

We can hence define CCE as follows

*CCE is a process of ensuring learning performance of students through both formative and summative evaluation in different areas such as cognitive, affective and psycho-motor to promote all round development of the students.*

The features of CCE are:

- It is school based evaluation of students covering all aspects of students' development.
- The 'continuous' aspect of CCE takes care of 'continual' and periodicity aspect of evaluation.
- Continual, means assessment of students in the beginning of instructions (placement evaluation) and assessment during the instructional process (formative evaluation) done informally using multiple techniques of evaluation.
- Periodicity means assessment of performance done frequently at the end of unit/term using certain standards (i.e. acceptable level of performance based on the objectives).
- The 'comprehensive' component of CCE takes care of assessment of all round development of the child's personality. It includes assessment in Scholastic as well as Co-Scholastic aspects of the student's growth.
- Scholastic aspects include subject specific areas, whereas Co-Scholastic aspects include Personal-Social Qualities, Co-Curricular Activities, Attitudes and Values.
- Assessment in Scholastic areas is done informally and formally using multiple techniques of evaluation continually and periodically. The diagnostic evaluation takes place at the end of a unit/term as a test. The causes of poor performance and the areas of poor performance are diagnosed using diagnostic tests. These are followed with appropriate interventions followed by retesting.
- Assessment in Co-Scholastic areas is done using multiple techniques on the basis of identified criteria, while assessment of personal-social qualities is done on the basis of Indicators of Assessment and Checklists.

(Source – Position Paper, National Focus Group: Examination Reforms, p.25).



Let us consider the objectives of CCE.

The objectives of CCE are:

- To help develop cognitive, psychomotor and affective aspects of the students' personality;
- To lay emphasis on thought process and de-emphasize memorization;
- To make evaluation an integral part of teaching-learning process;
- To use evaluation for improvement of students achievement and teaching-learning strategies on the basis of regular diagnosis followed by remedial instructions;
- To use evaluation as a quality control device to bridge the gap between actual performance and desired performance, and to maintain desired standard of performance;
- To take appropriate decisions about the student, the process of learning and the learning environment;
- To make the process of learning and teaching a learning-centered activity.

(Source: *Continuous and Comprehensive Evaluation: Manual for Teachers, CBSE, 2010*)

### Box 13.5 Objectives of CCE

Thus we can say that the major emphasis of CCE is on the continuous growth of the students ensuring their intellectual, emotional, physical, cultural and social development and therefore it will not be merely limited to assessment of students' scholastic attainments. CCE uses assessment as a means to provide feedback to both teachers and students to make suitable changes in their efforts to improve learning. It also motivates students and gives a comprehensive picture of the students' profile.

---

E4. As a teacher, while evaluating learning of the students, what should you do and what should you avoid to do?

---

### 13.4.1 Use of Quantitative and Qualitative Data for CCE

Evaluation methods and the data they produce are grouped into two basic categories: quantitative and qualitative. In general, quantitative methods produce 'hard numbers' while qualitative methods capture descriptive data. The method(s) you generally use are determined by the purpose(s) of your evaluation and the resources you have to design and use.



What do the teachers do? They want both a ‘number’ and ‘a description of the number explaining it’. So, both quantitative and qualitative techniques produce a richer and more comprehensive understanding about students’ learning in its varied aspects.

At the most basic level, data are considered quantitative if they are in terms of numbers and qualitative if they are in terms of words. However, qualitative data can also include photos, videos, audio recordings and other non-text data. For example; when you say ‘*Soma has secured 80 marks out of 100 in Mathematics in Class – V*’, this indicates a quantitative picture about Soma in mathematics. But when you say, ‘*Tapu is good at dancing*’ or ‘*Mahesh’s handwriting is excellent*’ or ‘*Akshaya attracts everybody while singing*’, these represent some qualitative information about the individual student.

There are different methods of collecting data. Some methods provide quantitative data while some methods provide qualitative data. *Quantitative methods* (e.g. experiments, questionnaires, psychometric tests, etc.) which focus on numbers and frequencies rather than on meaning and experience provide information which can be easily analysed statistically and are fairly reliable but hardly provide in-depth description. *Qualitative methods* (e.g. case studies and interviews, etc.) which are concerned with describing meaning, rather than with drawing statistical inferences provide a more in-depth and rich description but are subjective in nature.

Different tools and techniques used to collect and analyse quantitative and qualitative data are given in following Table 13.3.

**Table 13.3 Tools and Techniques for analyzing Quantitative and Qualitative Data**

Quantitative	Qualitative
<ul style="list-style-type: none"> <li>● Achievement Tests</li> </ul>	<ul style="list-style-type: none"> <li>● Observation, Interview, portfolio, case study, project, assignment</li> </ul>
<ul style="list-style-type: none"> <li>● Surveys</li> </ul>	<ul style="list-style-type: none"> <li>● Focus Group Discussion</li> </ul>
<ul style="list-style-type: none"> <li>● Questionnaires</li> </ul>	<ul style="list-style-type: none"> <li>● Field notes, Diaries</li> </ul>
<ul style="list-style-type: none"> <li>● Pre/post Tests</li> </ul>	<ul style="list-style-type: none"> <li>● Video, Audio recordings, photographs</li> </ul>
<ul style="list-style-type: none"> <li>● Existing Database</li> </ul>	<ul style="list-style-type: none"> <li>● Documents (reports, meeting minutes, etc.)</li> </ul>

How are quantitative and qualitative data different?

The differences between quantitative and qualitative data are given in the following Table 13.4.



Notes

**Table 13.4 Differences between Quantitative and Qualitative Data**

<b>Quantitative data</b>	<b>Qualitative data</b>
Explains 'who', 'what', 'when' 'how much', and 'how many'	Explains ' <i>how</i> ' and ' <i>why</i> '
Deals with numbers	Deals with descriptions
Data can be observed and measured exactly	Data can be observed and assessed approximately/indirectly
Usually gathered by surveys from large number of respondents	Data can be collected individually or from the group of respondents
It is useful when pieces of information required can be counted mathematically and analyzed using statistical methods	It is useful when a broader understanding and explanation is required on a particular topic for which quantitative data alone is not sufficient
It is used when 'accurate' and 'precise' data are required	When information is needed on 'what students think about a particular situation, and what are their priorities'; it is useful. It is also useful while seeking to understand 'why students behave in a certain way'.
Ensures objectivity, reliability and the ability to generalize; but hardly provides any in-depth description	It can't be generalized
Data can be generated through the same tool irrespective of context	Context is important in qualitative data

Data from multiple sources enrich decision making about learning that leads to increased results for every student. Multiple sources include common formative and summative assessments, performance assessments, observations, work samples, portfolios, assignments, projects and self-report, etc. The use of multiple sources of data offers a balanced and more comprehensive analysis of students than any single type or source of data. You must realise that, data alone can do a little to inform decision making and increase effectiveness. Thorough analysis and cross-checking of data are essential for taking decisions relating to learning.



## 13.5 LET US SUM UP

- Measurement refers to the process by which the attributes or dimensions of some object or phenomena are quantified.
- Assessment is a process by which information is obtained relative to some known objective or goal.
- Evaluation refers to the value judgement made on the phenomenon, taking into consideration the quantitative and/or the qualitative information collected on it over a particular period of time.
- The entire classroom process has three major components/stages such as; (i) deciding the expected learning outcomes, (ii) planning and conducting classroom transaction, and (iii) assessment of students' progress in learning.
- The expected learning outcomes need to be 'specific', 'measurable', 'achievable', 'realistic' and 'time-bound' (SMART).
- The assessment that is conducted during the formative stage of learning i.e. when the student is actually in the process of learning is called *formative assessment*. It is an on-going process usually carried out by the teacher to continuously monitor student's progress in a non-threatening and supportive environment. Such assessment can also involve the student himself/herself (self-assessment) or the peer group (peer appraisal). It is carried out during the period of teaching-learning for providing continuous feedback to both the teachers and the students.
- Summative assessment refers to the assessment of the learning that 'sums' or 'summarizes' the development of students at a particular time. It is a process of assessing (and grading or ranking) the learning of students at a point of time. In a learning-teaching situation summative assessment is generally carried out at the end of a course or a term in which typically a course grade is assigned to students to determine how much the students have learned from the whole course and if they have met the prescribed academic standards. Summative assessments are conducted formally and can be in the form of quizzes, essays, tests or projects.
- In CCE, the term 'continuous' emphasize that evaluation of identified aspects of student's growth and development is a continuous process rather than an event, built into the total learning-teaching process and spread over the entire span of the academic session. It means regularity of assessment, frequency of unit testing, diagnosis of learning gaps, use of corrective measures, retesting and feedback of evidence to teachers and students for their self-evaluation. The term '*comprehensive*' means that this process of evaluation attempts to cover both the scholastic and the co-scholastic aspects of the student's growth and development.



## Notes

- CCE is a process of ensuring learning performance of students through both formative and summative evaluation in different areas such as cognitive, affective and psycho-motor to promote all round development of the students.
- Evaluation methods and the data they produce are grouped into two basic categories: quantitative and qualitative. In general, quantitative methods produce 'hard numbers' while qualitative methods capture 'descriptive data'. Both quantitative and qualitative techniques produce a richer and more comprehensive understanding about students' learning in its varied aspects. The method(s) generally used are determined by the purpose(s) of the evaluation.
- Quantitative methods (e.g. experiments, questionnaires and psychometric tests etc.) are those which focus on numbers and frequencies rather than on meaning and experience and provide information which is easy to analyse statistically and fairly reliable but hardly provide in-depth description. Qualitative methods (e.g. case studies and interviews etc.) are ways of collecting data which are concerned with describing meaning, rather than with drawing statistical inferences providing a more in-depth and rich description subjective in nature.

---

### 13.6 MODEL ANSWERS TO CHECK YOUR PROGRESS

---

- E1. Suman takes an achievement test on Percentage and obtains 15 out of 25 marks. If she repeats the same test after a month, she would likely to secure more marks because of the following possible reasons:
- She would have memorized the answers
  - She would have thoroughly practised the test
  - She could have clarified her doubts in consultation with her teacher / parents / peers
- E2. In addition to the marks obtained by Jaba in Science, you may choose any three of the following aspects for assessing her progress in learning Science:
- Skill of observing the nature and natural elements;
  - Skill of experimentation;
  - Skill of analyzing, categorizing and synthesizing things objectively;
  - Conducting projects which are scientific in nature;
  - Skill of asking questions; etc.



E3. The marks are important in summative assessment but not in formative assessment because summative assessment

- determines how much the students have learned from the whole course and if they have met the prescribed academic standards.
- determines the position of a student in relation to other students in the class at the end of the term/course.
- helps in assigning students a course grade.

E 4. As a teacher, while evaluating learning of the students one *should*

- Use a variety of ways to collect information about the student's learning and progress in all subjects
- Collect information continuously and record the same
- Give importance to each student's way of responding and learning and the span of time he/she or the child it takes to do so
- Report on a continuous basis and be sensitive to every student's response
- Provide feedback that will lead to positive action and help the student to do better
- As a teacher, while evaluating learning of the students one *shouldn't*;
- Label students as slow, poor, intelligent etc.
- Make comparisons between them
- Give negative statements

---

## 13.7 SUGGESTED READINGS AND REFERENCES

---

1. Bridges, L. (1995). *Assessment: Continuous learning*. California: Stenhouse Publishers.
2. Central Board of Secondary Education (2010). *Continuous and Comprehensive Evaluation: Manual for Teachers*. Shiksha Kendra, Delhi.
3. Gallagher, J.D. (1998). *Classroom assessment for teachers*. New Jersey: Prentice-Hall Inc.
4. Grauwe, A.D. & Naidoo, J.P. (2002). *School Evaluation for Quality Improvement: An Asian Network of Training and Research Institutions in Educational Planning (ANTRIEP) Report (Ed.)*. Kuala Lumpur, Malaysia.
5. Gronlund, N.E. & Linn, R. (1990). *Measurement and Evaluation in Teaching (6th Ed.)*. Macmillan Publishing, New York.
6. Hogan, T.P. (2007). *Educational Assessment: A practical introduction*. Danvers: Wiley.



## Notes

7. Hopkins, K. D. & Stanley, J. C. (1981). Educational and Psychological Measurement and Evaluation. Englewood Cliffs, N. J. Prentice Hall.
8. National Council of Educational Research and Training (2005). National Curriculum Framework – 2005. Sri Aurobindo Marg, New Delhi - 110 016.
9. National Council of Educational Research and Training (2006). Position Paper: National Focus Group on Examination Reforms. Sri Aurobindo Marg, New Delhi - 110 016.

---

### 13.8 UNIT-END EXERCISE

---

1. Describe the roles of summative and formative assessments for effective promotion of students' learning.
2. As a teacher, how would you like to implement CCE in your school?