B.Ed. 1st Year

Paper-VII

ASSESSMENT FOR LEARNING

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Syllabus

Paper-VII

ASSESSMENT FOR LEARNING
Marks: 100 (80 + 20)

Course Objectives:
The student teachers will be able to:
1. Understand the nature of assessment and its role in teaching-learning process.
2. Understand the different perspectives of learning on assessment.
3. Realize the need for school-based assessment.
4. Examine the contextual roles of different forms of assessment in schools.
5. Understand the different dimensions of learning and the related assessment procedures, tools and techniques.
6. Develop assessment tasks and tools to assess learners" performance.
7. Analyze, manage and interpret assessment data.
8. Analyze the reporting procedures of learners" performance in schools.
9. Develop indicators to assess learners" performance on different types of tasks.
10. Examine the issues and concerns of assessment and evaluation practices in schools.
11. Understand the policy perspectives on examinations and assessment and their implementation practices.
12. Trace the technology-based assessment practices and other trends.

BLOCK -1: Perspectives on Assessment
- Concept of measurement, assessment, evaluation and their interrelationship.
- Purposes of Assessment: Prognostic, Monitoring of Learning, Providing Feedback, Selection, Promotion, Placement, Certification, Grading and Diagnostic
- Classification of assessment: based on purpose (prognostic, formative, diagnostic and summative), scope (teacher made, standardized), nature of attribute measured (achievement, aptitude, attitude), nature of information gathered (qualitative, quantitative), mode of response (oral or written; selection or supply), nature of interpretation (norm-referenced, criterion referenced) and assessment context (internal or external).
- Need for continuous and comprehensive school-based assessment; Grading: Concept, Types and Application; Indicators for grading.

BLOCK -2: Assessment of Learning
- Dimensions of learning: cognitive, affective and performance.
- Assessment of cognitive learning: types and levels of cognitive learning: understanding and application; Thinking skills – convergent, divergent, critical, problem solving, decision making and procedures for their assessment.

- Assessment of affective learning: Attitude, values, interests and procedures for their assessment.
- Assessment of Performance: Tools and techniques for assessment of skills; Use of Projects,
- Assignments, Work sheets, Practical work, Performance based activities.

BLOCK -3: Planning, Executing, Interpreting and Reporting of Assessment
- Difference between instructional, learning and assessment objectives; Stating of assessment objectives in behavioral terms.
- Construction/selection of test items; Guidelines for construction of test items; Guidelines for administration and scoring; Preparation of blue-print; performing item analysis.
- Processing test performance: Calculation of percentages and central tendency measures; graphical representations; Analysis and interpretation of learners" performance; Reporting learners" performance – Progress reports, Cumulative records, Portfolios.
- Means of providing remedial instruction for improving learning, Using feedback for reporting to different stakeholders – learners, parents and administrators; Use of feedback for teachers" self-improvement.

BLOCK - 4: Issues, Concerns and Trends in Learning Assessment
- Existing Practices: Unit tests, half- yearly and annual examinations, semester system, Board examinations and Entrance tests, State and National achievement surveys, Use of question banks.
- Issues and Problems: Marking Vs. Grading, Non-detention policy, Objectivity Vs.
- Subjectivity, Impact of entrance tests and public examination on teaching and learning – the menace of coaching
- Policy perspectives on examinations and assessment: Recommendations of NPE, 1986 and NCF, 2005.
- Trends in assessment and evaluation: Online examination, Peer assessment, Self-Assessment, Computer-based examinations and other technology-based assessment practices.

Activity (Any One of the Following):
1. Construct an achievement test in any subject of your interest containing a minimum of 50 items with its marking scheme and scoring procedure.
2. Visit an elementary school and prepare a report on the assessment and evaluation practices adopted by the school teachers.
3. Study the parameters / indicators followed in Continuous and Comprehensive Assessment System of CBSE and HP State Education Department. Prepare a critical report highlighting the similarities and differences in the two systems.

Visit a school and study how the progress reports and cumulative records of students are maintained by the teachers. Prepare a detailed report highlighting the content and format of students" progress reports and cumulative records

CONTENTS

UNIT– 1

CONCEPT OF MEASUREMENT, ASSESSMENT, EVALUATION AND THEIR INTERRELATIONSHIP

Structure

1.1 Introduction

The process of teaching learning in one or the other subjects of the school's curriculum always for the realization of the stipulated teaching-learning objects by following a well thought programme. Measurement in this way is one step ahead to the process of testing. When the work of testing ends measurement comes into picture for assigning numerical values to the test result. However the process of measurement does not necessary rest on test and testing. It is quite a broader concept. Many teachers (and students), "assessment" simply means giving students tests and assigning them grades. This conception of assessment is not only limited, but also limiting. It fails to take into account both the utilityof assessment and its importance in the teaching/learning process.

1.1 Objectives

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

- Explain the meaning of measurement and assessment
- Describe the need and purpose of measurement and assessment
- Define and differentiate between measurement, assessment, and evaluation.
- Analyze the relationship between traditional and progressive assessment approaches.
- Identify stakeholders involved in assessment and their roles.
- Explain different types of assessment methods suited to various purposes.
- Describe the importance of reliability and validity in measurement.
- Utilize assessment data to inform instructional decisions and program modifications.

1.2 Measurement and assessment : concept

WHAT IS MEASUREMENT?

Measurement refers to the process by which the attributes or dimensions of some physical object are determined. One exception seems to be in the use of the word measure in determining the IQ of a person. The phrase, "this test measures IQ" is commonly used. Measuring such things as attitudes or preferences also applies. However, when we measure, we generally use some standard instrument to determine how big, tall, heavy, voluminous, hot, cold, fast, or straight something actually is. Standard instruments refer to physical devices such as rulers, scales, thermometers, pressure gauges, etc. We measure to obtain information about what is. Such information may or may not be useful, depending on the accuracy of the instruments we use, and our skill at using them. There are few such instruments in the social sciences that approach the validity and reliability of say a 12" ruler. We measure how big a classroom is in terms of square feet, we measure the temperature of the room by using a thermometer, and we use an Ohm meter to determine the voltage, amperage, and resistance in a circuit. In all of these examples, we are not assessing anything; we are simply collecting information relative to some established rule or standard. Assessment is therefore quite different from measurement, and has uses that suggest very different purposes. When used in a learning objective, the definition provided on the ADPRIMA for the behavioral verb measure is: *To apply a standard scale or measuring device to an object, series of objects, events, or conditions, according to practices accepted by those who are skilled in the use of the device or scale.* An important point in the definition is that the person be skilled in the use of the device or scale. For example, a person who has in his or her possession a working Ohm meter, but does not know how to use it properly, could apply it to an electrical circuit but the obtained results would mean little or nothing in terms of useful information.

DEFINITION

- Measurement refers to the process of assigning numerals to events, objects etc. according to certain rules (Tyler, 1963).
- Measurement consists of rules for assigning numbers to objects in such a way as to represent quantities of attributes (Nunnally, 1970).
- Measurement of any kind is matter of determining how much or how little, how great or how small, how much more than or how much less than (Micheels& Karnes, 1950).
- Measurement may be defined as the assignment of one of a set of numbers to each of a set of persons or objects according to established rules.(Lindeman and Merenda, 1979).
- Measurement is the assigning of numbers to things according to rules (Glass and Stanley, 1970).

ASSESSMENT DEFINITIONS

Assessment does more than allocate a grade or degree classification to students – it plays an important role in focusing their attention and, as Sainsbury & Walker (2007) observe, actually drives their learning.

Gibbs (2003) states that assessment has 6 main functions:

1. Capturing student time and attention
2. Generating appropriate student learning activity
3. providing timely feedback which students pay attention to
4. Helping students to internalise the discipline's standards and notions of equality
5. Generating marks or grades which distinguish between students or enable pass/fail decisions to be made
6. Providing evidence for other outside the course to enable them to judge the appropriateness of standards on the course. That may be relied on for making decisions.

According to Evangeline Harris Stefankis (2002), "The word assess comes from the Latin assidere, which means to set beside. Literally then, To assess means to sit beside the learner".

According to Fenton (1996), "Assessment is the collection of relevant information Assessment for Learning focuses on the opportunities to develop students' ability to evaluate themselves, to make judgements about their own performance and improve upon it. It makes use of authentic assessment methods and offers lots of opportunities for students to develop their skills through formative assessment using summative assessment sparingly.

Assessment is a process by which information is obtained relative to some known objective or goal. By assessment we mean the processes and instruments that are designed to measure the learner's achievement, when learners arranged in an instructional programme of one sort or another. It is concerned with ascertaining the extent to which the objectives of the programme have been met. The term assessment is often used interchangeably with the terms evaluation and measurement. However, assessment has a narrower meaning than evaluation but a broader meaning than measurement. In its derivation, the word 'assess' means "to sit beside" or "to assist the judge". It, therefore, seems appropriate in evaluation studies to limit the term assessment to the process of gathering the data and fashioning them into an interpretable form; judgment then can be made on the basis of assessment. Assessment is a broad term that includes testing. A test is a special form of assessment. Tests are assessments made under contrived circumstances especially so that they may be administered. In other words, all tests are assessments, but not all assessments are tests. We test at the end of a lesson or unit. We assess progress at the end of a school year through testing, and we assess verbal and quantitative skills through such instruments as the SAT and GRE. Whether implicit or explicit, assessment is most usefully connected to some goal or objective for which the assessment is

designed. A test or assessment yields information relative to an objective or goal. In that sense, we test or assess to determine whether or not an objective or goal has been obtained. Assessment of skill attainment is rather straightforward. Either the skill exists at some acceptable level or it doesn't. Skills are readily demonstrable. Assessment of understanding is much more difficult and complex. Skills can be practiced; understandings cannot. We can assess a person's knowledge in a variety of ways, but there is always a leap, an inference that we make about what a person does in relation to what it signifies about what he knows. In the section on this site on behavioral verbs, to assess means To stipulate the conditions by which the behavior specified in an objective may be ascertained. Such stipulations are usually in the form of written descriptions.

1.2.1 Need and Purpose

A. Purpose of Assessment

The reasons why we assess vary considerably across many groups of people within the educational community. Teaching and learning include a lot of instructional decisions to enhance and increase student learning, and quality of instruction is strongly connected to the structure of information on which these instructional decisions are made . Hence, the most important point is the determination of the way in which good, valid and reliable information about student learning can be provided. Traditionally, assessment process is focused on evaluating student accomplishment, however, contemporarily, it should be focused on increasing student learning and, the heart of assessment is a continuing flow in which the teacher in collaboration with students, uses information to guide the next steps in learning

Who Needs to Assess?	Purposes of Assessment
Policymakers	Policymakers use assessment to Set standards, Focus on goals, Monitor the quality of education, Reward / sanction various practices; Formulate policies, Direct resources including personnel and money, Determine effects of tests
Administrators and school	Monitor program effectiveness planners use assessment to Identify program strengths and weaknesses, Designate program priorities, Assess alternatives, Plan and Improve programs.
Teachers and Administrators	Make grouping decisions use assessment to: Perform Individual diagnosis and prescription, Monitor student progress, Carry out curriculum evaluation and refinement, Provide mastery promotion / grading and other feedback Motivate students, Determine grades.
Parents and students	Gauge student progress assessment to Assess student strengths and weaknesses, Determine school

accountability, Make informed educational and career decisions

B. ROLE OF ASSESSMENT IN LEARNING

Assessment plays a major role in how students learn, their motivation to learn, and how teachers teach.

Assessment is used for various purposes.

- **Assessment for learning:** where assessment helps teachers gain insight into what students understand in order to plan and guide instruction, and provide helpful feedback to students.
- **Assessment as learning:** where students develop an awareness of how they learn and use that awareness to adjust and advance their learning, taking an increased responsibility for their learning.
- **Assessment of learning:** where assessment informs students, teachers and parents, as well as the broader educational community, of achievement at a certain point in time in order to celebrate success, plan interventions and support continued progress.

Assessment must be planned with its purpose in mind. Assessment for, as and of learning all have a role to play in supporting and improving student learning, and must be appropriately balanced. The most important part of assessment is the interpretation and use of the information that is gleaned for its intended purpose.

Assessment is embedded in the learning process. It is tightly interconnected with curriculum and instruction. As teachers and students work towards the achievement of curriculum outcomes,

C. Principles of Assessment for Learning

1. Assessment for learning should be part of effective planning of teaching and learning
2. Assessment for learning should focus on how students learn- Learners should become as aware of the 'how' of their learning as they are of the 'what'.
3. Assessment for learning should be recognised as central to classroom practice
4. Assessment for learning should be regarded as a key professional skill for teachers
5. Assessment for learning should be sensitive and constructive because any assessment has an emotional impact on a learner.
6. Assessment should take account of the importance of learner motivation
7. Assessment for learning should promote commitment to learning goals and a shared understanding of the criteria by which they are assessed
8. Learners should receive constructive guidance about how to improve
9. Assessment for learning develops learners' capacity for self-assessment so that they can become reflective and self-managing
10. Assessment for learning should recognise the full range of achievements of all learners

D. Types of Assessment: Meaning & Features

On the basis of how it is used and how the results are interpreted, assessment is classified into different types.

1. Placement Assessment

2. Formative Assessment
3. Diagnostic Assessment
4. Summative Assessment

Placement Assessment- Meaning and features
In this type of assessment , learner's entry behaviour or capability is assessed to find out whether the student possess knowledge , skills and attitude needed to begin the course of instruction.
   • It is used to find out to what extent student has already mastered the objectives of the planned instruction.
   • assessment made to determine what a student does and does not know about a topic assessment made to determine a student's learning style or preferences
   • used to determine how well a student can perform a certain set of skills related to a particular subject or group of subjects
   • occurs at the beginning of a unit of study
   • used to inform instruction: makes up the initial phase of assessment for learning
   • attempts to quantify what students already know about a topic.

   a) Formative assessment- Meaning and features
It is an assessment used to monitor students' learning progress during instruction with the purpose of providing on-going feedback to students and teachers regarding success and failure of teaching and learning.
   • Formative assessment is an integral part of teaching and learning.
   • It does not contribute to the final mark given for the module; instead it contributes to learning through providing feedback.
   • Focuses on modular analysis of the content and instruction
   • Seeks to identify influential variables
   • Design is quite flexible
   • Monitors teaching learning strategy during instruction
   • Aims at attainment of specific objectives from different domains of development.
   • Feedback to the learner is immediate (or nearly so), to enable the learner to change his/her behaviour and understandings right away.
   • Formative Assessment also enables the teacher to rethink instructional strategies, activities, and content based on student understanding and performance. His/her role here is comparable to that of a coach.
   • Formative Assessment can be as informal as observing the learner's work or as formal as a written test.
   • Formative Assessment is the most powerful type of assessment for improving student

   b) Summative assessment-Meaning and features
Summative assessment demonstrates the extent of a learner's success in meeting the assessment criteria used to gauge the intended learning outcomes of a module or programme, and which contributes to the final mark given for the module.
It is normally, though not always, used at the end of a unit of teaching.

Summative assessment is used to quantify achievement, to reward achievement, to provide data for selection (to the next stage in education or to employment).

For all these reasons the validity and reliability of summative assessment are of the greatest importance.

Summative assessment can provide information that has formative/diagnostic value.

- Concerned with judgements about the merits of an already completed programme.
- Comes at the end of a course or term.
- Terminal assessment of the learners' performance.
- Determines the extent to which broad objectives are achieved.
- Feedback to the classroom teacher for the success or failure of the programme of instruction.

c) Diagnostic assessment-Meaning and features

Like formative assessment, diagnostic assessment is intended to improve the learner's experience and their level of achievement.

This type of assessment is concerned with finding out the reasons for students' persistent or recurring learning difficulties and plan to take remedial actions.

However, diagnostic assessment looks backwards rather than forwards.

- It assesses what the learner already knows and/or the nature of difficulties that the learner might have, which, if undiagnosed, might limit their engagement in new learning.
- It is often used before teaching or when a problem arises.
- Observational techniques or specially prepared diagnostic techniques can be used to diagnose problems.
- Feedback as diagnostic information is of great importance to students.
- The diagnostic feedback can help students in understanding what learning objectives have not been achieved and need additional work.
- Such types of feedback enable students to set specific learning goals and improve their learner autonomy.
- This feedback can help teachers better attain teaching objectives and make relevant instructional adjustments

d) Continuous and Comprehensive Assessment (Meaning, Characteristics and Significance)

Meaning

Continuous and Comprehensive Assessment refers to a system of school based assessment that covers all aspects of student's development . Continuity in assessment of broad based learning and behavioural outcomes.

Characteristics of CCA
- The Continuous aspect
- assessment at the beginning of instruction(placement)
- assessment during the instructional process (formative)
- assessment of performance done at the end of a unit/term. (summative)

The 'comprehensive' component
- takes care of assessment of the all round development of child's personality.
- It includes assessment of Scholastic as well as Co-Scholastic aspects of the pupil's growth.

Characteristics of CCA
- Assessment is done informally and formally.
- Use of multiple techniques of assessment continually and periodically.
- Assessment is done using multiple techniques on the basis of identified criteria / indicators.

Significance of CCA
- CCA is thus a curricular initiative, attempting to shift emphasis from memorizing to holistic learning.
- It helps develop cognitive, psychomotor and affective skills.
- It aims at creating citizens possessing sound values, appropriate skills and desirable qualities besides academic excellence.
- It is hoped that this will equip the learners to meet the challenges of life with confidence and success.
- Co-scholastic assessment will focus on holistic development that will lead to lifelong learning.
- It makes evaluation an integral part of teaching-learning process.
- It helps to use evaluation for improvement of students' achievement and teaching – learning strategies on the basis of regular diagnosis followed by remedial measures.
- It makes assessment a quality control devise to raise standards of performance.
- It helps to determine social utility, desirability or effectiveness of a programme and take appropriate decisions about the learner, the process of learning and the learning environment.
- To make the process of teaching and learning a learner-centered activity.

E. Effects of Traditional Tests

Billions of dollars are spent each year on education, yet there is widespread dissatisfaction with our educational system among educators, parents, policymakers, arid the business community. Efforts to reform and restructure schools have focused attention on the role of school improvement. In the quantity of formalized testing and the consequences of poor test scores, many educators have begun to strongly criticize the measures used to monitor student performance and evaluate programs. They claim that traditional measures fail to assess significant learning outcomes and thereby undermine curriculum, Instruction and policy decisions.

F. Characteristics of Good Assessment

Good assessment information provides accurate estimates of performance and enables teachers or other decision makers to make appropriate decisions. The concept of test validity captures these essential characteristics and the extent that an assessment actually measures what it is intended to measure, and permits appropriate

generalizations about a student'sskills and abilities. For example, a tenitem addition/subtraction test might be administered to a student who answers nine items correctly. If the test safely generalizes that the student will likely do as well on similar items not included on the test. The results of a good test or assessment in short, represent something beyond how students perform on a contained task or a particular set of items they represent how a student perform on the objective which those items were intended to assess. Measurement experts agree that test validity is tied to the purposes for which an assessment is used. Thus, a test might be valid for one purpose but inappropriate for other purposes. For example, our mathematics test might be appropriate for assessing students' mastery of addition and subtraction facts but inappropriate for identifying students who are gifted in mathematics. Evidence of validity needs to be gathered for each purpose for which an assessment is used.

A second important characteristic of good assessment information is its consistency, or reliability. Will the assessment result for .this person or class be similar if they are gathered at some other time or under different circumstances or if they are scored by different raters? For example, if you ask someone what his/her age is on three separate occasions and in three different locations and the answer Is the same each time, then that information is considered reliable. In the context of performance-based and open-ended assessment, inter-rater reliability also is essential it requires that independent raters give the same scores to a given student response.

Other Characteristics of Good Assessment for Classroom purposes

- The content of the tests (the knowledge and skills assessed) should match the teacher's educational objectives and instructional emphases.
- The test items should represent the full range of knowledge and skills that are the primary targets of instruction.
- Expectations student performance should be clear
- The assessment should be free of extraneous factors which
- unnecessarily confuse or inadvertently cue student responses

G. MEASUREMENT

The word measurement means the act or the process of ascertaining the context or quantity of something. In another way measurement is an act or process that involves the assignment of a numerical index to whatever is being measured. Measurement tells about the number, the quantity or the score of something. Measurement is actually the process of estimating the values that is the physical quantities like; time, temperature, weight, length etc. each measurement value is represented in the form of some standard units. The estimated values by these measurements are actually compared against the standard quantities that are of same type. Measurement is the assignment of a number to a characteristic of an object or event, which can be compared with other objects or events. The scope and application of a measurement is dependent on the context and discipline.Measurement of any kind is a matter of determining HOW MUCH or HOW LITTLE? HOW GREAT? Or HOWSMALL? HOW MUCH MORE THAN? or HOW MUCH LESS THAN?

Measurement is an important feature of our daily life from birth to death. Almost every aspect of our life is touched by measurements in its numerous forms. For example,

immediately after birth and in the following days, the infant's temperature, weight, etc., are measured in the hospital and recorded for medical use. The mother gives the infant a measured quantity of food. The tailor takes certain measurements all of our body to stitch a garment of proper size. Electric and water supply lines are metered to determine the amount of electricity or water consumed for preparing the demand bill.

1.4 Difference between measurement and Evaluation

The difference between measurement and evaluation can be explained as follows:

i.   Measurement:

1. Definition: Measurement is the process of collecting and quantifying data about specific attributes or characteristics.
2. Purpose: It aims to gather objective, numerical information about something.
3. Nature: It's a descriptive process that focuses on obtaining raw data.
4. Scope: Measurement is typically narrow in scope, focusing on specific, observable aspects.
5. Output: Results in quantitative data, often in the form of numbers or statistics.
6. Objectivity: Tends to be more objective, as it deals with concrete, measurable facts.
7. Time frame: Often represents a snapshot of a particular moment or period.

ii.   Evaluation:

1. Definition: Evaluation is the process of interpreting and making judgments about data or information.
2. Purpose: It aims to assess the quality, worth, or significance of something based on the measured data.
3. Nature: It's an analytical process that involves interpretation and decision-making.
4. Scope: Evaluation is broader, considering multiple factors and their interrelationships.
5. Output: Results in qualitative assessments, often including recommendations or decisions.
6. Subjectivity: Can involve more subjectivity, as it requires interpretation and value judgments.
7. Time frame: Often considers trends over time and potential future impacts.

iii.   Key differences:

1. Sequence: Measurement typically precedes evaluation. Evaluation uses the data obtained through measurement.
2. Complexity: Evaluation is generally more complex than measurement, as it involves analysis and interpretation.
3. Decision-making: While measurement provides data, evaluation guides decision-making and improvement processes.

4. Value judgment: Measurement does not involve value judgments, whereas evaluation does.
5. Contextual consideration: Evaluation takes into account the context and external factors, while measurement focuses solely on the attribute being measured.

Feature	Measurement	Evaluation
Purpose	Assigns a quantifiable value to a characteristic or performance.	Judges the worth or significance of something based on measurement data.
Focus	Specific aspect or behavior.	Overall effectiveness or value.
Example	Recording a student's score on a test (e.g., 85%).	Determining if the student has mastered the concepts tested (e.g., passing grade indicates mastery).
Use Case	Gauging student achievement on individual tasks or assessments.	Making decisions about curriculum effectiveness, student placement, or instructional strategies.
Additional Notes	Measurement is a component of evaluation.	Evaluation considers multiple factors beyond just measurement data.

Measurement and evaluation are often complementary processes. For example, in education, measuring a student's test scores (measurement) would be followed by assessing their overall academic performance and areas for improvement (evaluation).

1.5   Interrelation among Assessment, Evaluation and Measurement

Assessment, evaluation, and measurement are interconnected processes used in educational settings to understand and improve student learning, as well as to inform instructional practices. Here's a detailed explanation of their interrelation:

A. Measurement

Definition: Measurement refers to the process of quantifying or describing a student's performance, abilities, knowledge, or skills. This is typically done using tools like tests, quizzes, or other standardized instruments.

B. Key Characteristics:
- Objective: Involves numerical scores or ratings.
- Quantitative: Provides data that can be analyzed statistically.
- Tools and Instruments: Utilizes tests, surveys, and other standardized tools.
- Example: A math test that scores students out of 100 points measures their mathematical knowledge and skills.

C. Assessment

Definition: Assessment is a broader term that encompasses various methods and tools used to gather information about student learning. It includes both formal and informal processes to evaluate student progress, understanding, and skills.

D. Key Characteristics:
- Formative and Summative: Can be used to provide ongoing feedback (formative) or to evaluate overall achievement at the end of a period (summative).
- Variety of Methods: Includes tests, quizzes, observations, projects, and portfolios.
- Purposeful: Aimed at understanding student learning and guiding instructional decisions.
- Example: An end-of-unit project where students create a presentation on a historical event. This assesses their understanding, research skills, and ability to communicate information.

E. Evaluation
Definition: Evaluation is the process of making judgments about the quality or value of a student's performance or learning, based on the information gathered through assessments. It involves interpreting assessment data to determine if educational goals and standards are being met.

F. Key Characteristics:
- Judgmental: Involves making decisions or judgments based on assessment results.
- Standards-Based: Compares student performance against predefined criteria or standards.
- Summative: Often used to make final determinations about student achievement or program effectiveness.
- Example: After reviewing the results of multiple assessments, a teacher determines that a student has met the required competencies for a course and assigns a final grade.

Interrelation Among Assessment, Evaluation, and Measurement
1. Sequence and Dependency:
- Measurement provides the raw data.
- Assessment encompasses the process of collecting, analyzing, and interpreting this data.
- Evaluation uses the data and insights gained from assessments to make informed judgments about student performance and instructional effectiveness.

2. **Feedback Loop:**
- Measurement and assessment inform evaluation, which in turn can influence future measurements and assessments.
- For example, if evaluation reveals that students are struggling with a particular concept, teachers can adjust their instructional strategies and develop new assessments to better support learning.

3. **Purpose and Use:**
- Measurement focuses on obtaining accurate data.
- Assessment aims to understand and improve student learning.
- Evaluation focuses on determining the value or effectiveness of educational processes and outcomes.

4. **Data-Driven Decisions:**
- Assessment and measurement provide the data needed for evaluation.
- Evaluation helps educators make data-driven decisions to enhance teaching methods, curriculum design, and overall educational quality.

5. **Continuous Improvement:**
- The cycle of measurement, assessment, and evaluation supports continuous improvement in education.
- Teachers use evaluation results to refine assessments and measurement tools, fostering an iterative process that enhances student learning and instructional effectiveness.

6. **Sequential Relationship:**
- Measurement typically comes first, providing raw data.
- Assessment follows, organizing and interpreting the measured data.
- Evaluation is often the final step, making judgments based on the assessed information.

7. **Complementary Roles:**
- Measurement provides the quantitative foundation.
- Assessment adds qualitative interpretation to the measured data.
- Evaluation synthesizes both to form judgments and make decisions.

8. **Continuous Cycle:**
- The process often cycles back, with evaluation informing new measurements and assessments.

9. **Data Flow:**
- Measurement generates raw data.
- Assessment processes and contextualizes this data.
- Evaluation uses the processed data to draw conclusions.

10. **Scope Expansion:**
- Measurement focuses on specific attributes.
- Assessment broadens the scope by considering multiple measurements.
- Evaluation takes the widest view, considering assessments in context.

11. **Objectivity to Subjectivity:**
- Measurement is typically the most objective.
- Assessment introduces some subjectivity in interpretation.
- Evaluation often involves the most subjectivity in making judgments.

12. **Purpose Alignment:**
- Measurement aims to quantify.
- Assessment aims to understand and interpret.
- Evaluation aims to judge value or worth.

13. **Feedback Loop:**
- Evaluation results often lead to new measurements and assessments.
- This creates a continuous improvement cycle.

14. **Decision-Making Process:**
- Measurement informs what data is available.
- Assessment shapes how the data is understood.
- Evaluation guides what actions should be taken.

15. **Interdependence:**
- Each process relies on the others for comprehensive understanding.
- Weaknesses in one area can affect the reliability of the others.

16. **Time Perspective:**
- Measurement often focuses on the present.
- Assessment may consider short-term trends.
- Evaluation often takes a longer-term view.

17. **Stakeholder Involvement:**
- Measurement may involve fewer stakeholders.
- Assessment often involves more stakeholders for interpretation.
- Evaluation typically involves the widest range of stakeholders.

18. **Skill Requirements:**
- Measurement requires technical skills.
- Assessment needs analytical skills.
- Evaluation demands critical thinking and decision-making skills.

19. **Output Utilization:**
- Measurement outputs are used in assessment.
- Assessment outputs feed into evaluation.
- Evaluation outputs often guide policy or strategy.

20. **Contextual Consideration:**
- Measurement typically considers limited context.
- Assessment brings in more contextual factors.
- Evaluation considers the broadest context, including external factors.

By understanding the interrelation among these three processes, educators can create a comprehensive approach to monitoring and improving student learning, ultimately leading to better educational outcomes.

Self-Check Exercise-1

Q 1. Measurement involves the use of _____ to determine the level of a student's knowledge, skills, or abilities.

Q 2. Evaluation is the process of making _____ about the quality and effectiveness of a program or student performance.

Q 3. Assessment is only conducted at the end of a learning period to evaluate students' final achievements. (True/ False)

Q 4. Measurement, assessment, and evaluation are entirely separate processes with no interrelationship. (True/ False)

Q 5. What is the primary purpose of formative assessment in education?

Q 6. How does reliability differ from validity in the context of educational assessments?

1.6 Summary

Measurement, assessment, and evaluation are critical components of the educational process, each serving distinct but interconnected roles. Measurement refers to the process of quantifying or determining the level of a student's knowledge, skills, attitudes,

or abilities using specific tools or instruments. Assessment is a broader term encompassing various methods and strategies used to gather information about students' learning progress and achievements. Evaluation involves interpreting the data collected through measurement and assessment to make informed judgments about the quality, effectiveness, and efficiency of educational programs or student performance. Understanding the interrelationship between these concepts helps educators design better instructional strategies, provide meaningful feedback, and improve educational outcomes.

1.7   Glossary

Measurement: The process of quantifying the attributes of an individual or an object using specific tools or instruments.

Assessment: A systematic process of collecting, analyzing, and interpreting information to determine students' learning progress, skills, or abilities.

Evaluation: The process of making judgments about the quality, effectiveness, or value of a program, process, or student performance based on the data gathered through measurement and assessment.

Formative Assessment: Ongoing assessments used to monitor student learning and provide feedback for improvement during the instructional process.

Summative Assessment: Evaluations conducted at the end of an instructional period to determine the extent of students' learning and achievement.

Validity: The degree to which an assessment measures what it intends to measure.

Reliability: The consistency of an assessment tool in measuring what it is supposed to measure.

Rubric: A scoring guide used to evaluate the quality of students' constructed responses.

Standardized Test: A test administered and scored in a consistent manner to ensure comparability across different test-takers.

Diagnostic Assessment: Assessments used to identify students' existing knowledge, skills, and abilities before instruction begins.

1.8   Answers to Self-Check Exercise

Ans 1.   specific tools or instruments
Ans 2.   Judgments
Ans 3.   False
Ans 4.   False
Ans 5.   The primary purpose of formative assessment is to monitor student learning and provide ongoing feedback that can be used by instructors to improve their teaching and by students to improve their learning.

Ans 6.   Reliability refers to the consistency of an assessment tool in measuring what it is supposed to measure, whereas validity refers to the degree to which an assessment measures what it intends to measure.

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1.10   Terminal Questions

- Explain the differences between measurement, assessment, and evaluation with examples.
- Discuss the importance of validity and reliability in the context of educational assessments and how they impact the outcomes of evaluation.

UNIT – 2

PURPOSE AND TYPES OF ASSESSMENT

Structure

2.1 Introduction

Educational assessment is the process of documenting, usually in measurable terms, knowledge, skill, attitudes, and beliefs. Assessment can focus on the individual learner, the learning community (class, workshop, or other organized group of learners), the institution, or the educational system as a whole (also known as granularity).]

The final purpose of assessment practices in education depends on the *theoretical framework* of the practitioners and researchers, their assumptions and beliefs about the nature of human mind, the origin of knowledge, and the process of learning.

2.2 Objectives

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

- Explain the prognostic assessment
- Differentiate formative and summative assessment
- Discuss the diagnostic assessment
- Explain the quantitative and qualitative assessment
- Discuss the mode of response: oral or written
- Explain the referenced and criterion referenced assessment
- Explain the internal and external assessment
- Explain the continuous and comprehensive evaluation

2.3 Functions and Purposes of Assessment and Evaluation

Assessment and evaluation are crucial components of the educational process, serving multiple functions:
  a. Measuring student learning: This helps determine how well students have grasped concepts and acquired skills.
  b. Informing instructional decisions: Results guide teachers in adjusting their teaching methods and curriculum.
  c. Providing feedback: Students receive information about their progress and areas for improvement.
  d. Motivating students: Well-designed assessments can encourage students to engage more deeply with the material.
  e. Program evaluation: Assessments help in evaluating the effectiveness of educational programs and curricula.

2.3.1 Prognostic

Prognostic markers are characteristics that help to identify or categorise people with different risks of specific future outcomes. They may be simple clinical measures such as body mass index, but are more often pathological, biochemical, molecular or genetic measures or attributes. Identifying those who are or who are not at risk can facilitate intervention choice, and aid patient counselling.

Prognostic research has to date received much less attention than research into therapeutic or diagnostic areas, and an evidence-based approach to the design, conduct and reporting of primary studies of prognostic markers is needed. Reviews have shown that primary prognostic studies are often of poor quality.

A. Definition and purpose of prognostic assessment

- Prognostic assessment is a form of evaluation designed to predict future performance or potential based on current data and observations. Its primary purpose is to inform decision-making about educational pathways, interventions, or support systems for students.
- Example: A prognostic assessment might be used to predict a student's likelihood of success in an advanced placement course based on their current academic performance, cognitive abilities, and learning behaviors.

B. Tools and techniques for prognostic assessment

Various tools and techniques are employed in prognostic assessment:
  a) **Standardized tests:** These might include aptitude tests, intelligence tests, or subject-specific assessments.
    Example: The SAT or ACT for college admissions in the United States.
  b) **Performance tasks:** These assess a student's ability to apply knowledge in practical situations.
    Example: A project that requires students to design and conduct a scientific experiment.

c) **Portfolio assessments:** These involve collecting and evaluating a body of student work over time.
   Example: A writing portfolio showcasing a student's progress and best work throughout a semester.
d) **Behavioral observations:** Structured observations of a student's learning behaviors and social interactions.
   Example: A teacher's documented observations of a student's problem-solving approach during group work.
e) **Interviews:** Structured or semi-structured conversations with students, parents, or teachers.
   Example: An interview with a student about their academic goals and study habits.

C. Predicting future performance and potential

Prognostic assessment aims to forecast a student's likely future performance or potential in various areas:

a) **Academic achievement:** Predicting performance in future courses or at higher education levels.
   Example: Using middle school math performance to predict success in high school algebra.
b) **Career aptitude:** Identifying potential career paths based on skills, interests, and abilities.
   Example: Using a combination of aptitude tests and interest inventories to suggest suitable career options.
c) **Special education needs:** Predicting the need for additional support or specialized interventions.
   Example: Early identification of potential learning disabilities to provide timely interventions.

D. Use of prognostic assessment in educational planning

Prognostic assessments inform various aspects of educational planning:

a) **Curriculum differentiation:** Tailoring instruction to meet individual student needs.
   Example: Using prognostic data to group students for differentiated math instruction.
b) **Resource allocation:** Determining where to focus educational resources for maximum impact.
   Example: Allocating additional reading support based on prognostic assessments of early literacy skills.

c) **Long-term academic planning:** Guiding course selection and academic pathways.
   Example: Using prognostic data to advise students on appropriate high school course sequences.

d) **Talent development:** Identifying and nurturing specific talents or abilities.
   Example: Using prognostic assessments to recommend participation in gifted and talented programs.

E. Limitations and ethical considerations

While prognostic assessment can be valuable, it's important to recognize its limitations and ethical implications:

a) **Accuracy concerns:** Predictions are not guarantees and can be influenced by various factors.
   Example: A student predicted to struggle might excel due to increased motivation or improved study skills.

b) **Labeling and self-fulfilling prophecies:** Prognostic assessments might inadvertently lead to labeling students, influencing their self-perception and others' expectations.
   Example: A student labeled as "low potential" might receive less challenging work, limiting their growth opportunities.

c) **Cultural and socioeconomic bias:** Some prognostic tools may inadvertently favor certain cultural or socioeconomic groups.
   Example: A verbal aptitude test might disadvantage students who are English language learners.

d) **Overreliance on data:** There's a risk of overlooking qualitative factors or individual circumstances.
   Example: Focusing solely on test scores without considering a student's personal circumstances or motivation.

e) **Privacy concerns:** Collecting and storing predictive data raises questions about student privacy and data security.
   Example: Ensuring that prognostic data is not misused or accessed by unauthorized parties.

To address these concerns, it's crucial to use prognostic assessments as part of a holistic approach, considering multiple data points and individual circumstances. Educators should also be transparent about the use of such assessments and provide opportunities for students to challenge or overcome predicted outcomes.

2.3.2 Monitoring of Learning

When do you know if students have learned what you taught them? The answer to that question changes the culture of your classroom. If you know in real-time how much students have learned, you can help struggling students get back on track as quickly as possible. With effective monitoring the teacher focuses on an instructional strategy's effect on student learning. In other words, in real-time the teacher knows whether the strategy he or she is using is effective. Teachers need to monitor each individual student. Asking a question to the class as a whole, and having one student answer, won't tell you how the strategy is working with all students. The good news is, effective monitoring will actually save you time.

Monitoring of learning is an ongoing process of tracking and assessing student progress throughout the learning journey. It helps educators, students, and parents understand how learning is progressing and where adjustments might be needed.

Certainly. I'll provide a detailed explanation of the Monitoring of Learning section, including examples and explanations for each subsection.

A. Continuous assessment strategies

Continuous assessment involves regularly evaluating student performance throughout a course or academic year, rather than relying solely on final exams.

Key strategies include:

a) **Regular quizzes:** Short, frequent tests to check understanding.
   Example: Weekly vocabulary quizzes in a language class.

b) **Project-based assessments:** Ongoing projects that demonstrate skill application.
   Example: A term-long science project with multiple checkpoints.

c) **Observation checklists:** Structured observations of student behavior and performance.
   Example: A rubric for assessing participation in class discussions.

d) **Periodic skill checks:** Regular assessments of specific skills.
   Example: Monthly math fact fluency tests in elementary school.

B. Formative assessment techniques for monitoring

Formative assessments are used to monitor student learning and provide ongoing feedback. They help identify areas where students are struggling and allow for immediate intervention.

Techniques include:

a) **Exit tickets:** Brief end-of-class assessments to check understanding.

Example: Students write one key takeaway from the day's lesson before leaving.

b) **Think-pair-share:** Students think about a question, discuss with a partner, then share with the class.
Example: In a history class, students consider the causes of a historical event, discuss with a partner, then share insights.

c) **One-minute papers:** Brief written responses to check comprehension.
Example: Students summarize the main point of a lecture in one minute.

d) **Concept maps:** Visual representations of knowledge and connections.
Example: Students create a concept map showing relationships between different literary devices.

C. Learning analytics and data-driven monitoring

Learning analytics involves collecting, analyzing, and reporting data about learners and their contexts to optimize learning and the environments in which it occurs.

Key aspects include:

a) **Performance tracking:** Monitoring student performance over time.
Example: Using digital gradebooks to track assignment scores and identify trends.

b) **Engagement metrics:** Measuring student interaction with learning materials.
Example: Tracking time spent on online learning platforms and participation in discussion forums.

c) **Predictive analytics:** Using data to forecast future performance.
Example: Identifying students at risk of falling behind based on early performance indicators.

d) **Adaptive learning systems:** Platforms that adjust content based on student performance.
Example: An online math program that increases or decreases problem difficulty based on student responses.

D. Self-monitoring and metacognitive strategies

Self-monitoring involves students taking an active role in tracking their own learning progress. Metacognitive strategies help students think about their thinking and learning processes.

Strategies include:

a) **Learning journals:** Students reflect on their learning experiences and progress.
Example: Weekly journal entries where students discuss what they've learned and areas they find challenging.

b) **Goal-setting and tracking:** Students set learning goals and monitor their progress.
Example: Using a goal-tracking sheet to set monthly academic goals and reflect on achievements.

c) **Self-assessment rubrics:** Students evaluate their own work using defined criteria.
Example: Students grade their own essays using the same rubric the teacher will use.

d) **Error analysis:** Students analyze their mistakes to understand their thought processes.
Example: In math, students review incorrect problem solutions to identify where they went wrong.

E. Teacher's role in monitoring student progress

Teachers play a crucial role in monitoring student learning and using that information to guide instruction.

Key responsibilities include:

a) **Regular progress checks:** Consistently assessing student understanding.
Example: Using quick comprehension checks during lessons to ensure students are following along.

b) **Data analysis:** Examining assessment data to identify trends and needs.
Example: Reviewing class-wide performance on a unit test to identify areas needing re-teaching.

c) **Feedback provision:** Offering timely, specific feedback to guide improvement.
Example: Providing written comments on essays that highlight strengths and areas for improvement.

d) **Instructional adjustment:** Modifying teaching strategies based on monitoring data.
Example: Regrouping students for small group instruction based on recent assessment results.

F. Technology-enhanced monitoring tools

Technology offers powerful tools for monitoring student learning more efficiently and effectively.

Examples include:
a) **Learning management systems (LMS):** Platforms that track student submissions, grades, and engagement.
Example: Using Canvas to monitor assignment completion and grade trends.
b) **Student response systems:** Tools that allow for real-time assessment during class.
Example: Using Kahoot! for quick, gamified quizzes to check understanding.
c) **Digital portfolios:** Online collections of student work that show progress over time.
Example: Using Seesaw for students to upload and reflect on their best work throughout the year.
d) **Automated grading systems:** Tools that provide instant feedback on certain types of assessments.
Example: Using online platforms like IXL for math practice with immediate feedback and progress tracking.
e) **Data visualization tools:** Software that presents learning data in easily interpretable formats.
Example: Using Power BI to create dashboards showing class-wide performance trends.

These technology-enhanced tools not only make monitoring more efficient but also provide more detailed and timely data, allowing for quicker interventions and more personalized learning experiences.

2.3.3 Providing Feedback

Quite simply, feedback is the sharing of information about the student's performance. Positive feedback serves to sustain behavior that is appropriate and effective. Negative or corrective feedback serves to change behavior that is inappropriate or ineffective. Thus, the student should receive a mixture of positive and corrective feedback. The feedback should be specific enough that the student understands which behaviors are appropriate and which ones need to be changed. General comments such as "you're doing a really super job!" may be pleasant to give, but do little in the way of teaching. Feedback is most meaningful when it is based on solid data obtained while observing or interacting with the student.

This teaching skill quickly becomes easier with deliberate practice. An experienced preceptor who has worked on developing this skill can incorporate feedback comfortably and quickly into regular interactions with a student.Feedback is a crucial component of the learning process, offering information to learners about their performance and guiding them towards improvement.

A. Principles of effective feedback

Effective feedback adheres to several key principles:

a) **Specific and clear:** Feedback should pinpoint exact areas of strength or improvement.
   Example: Instead of "Good job," say "Your use of vivid adjectives really brought the scene to life."

b) **Timely:** Provided as soon as possible after the performance or submission.
   Example: Returning graded essays within a week of submission.

c) **Actionable:** Offers concrete steps for improvement.
   Example: "Try using topic sentences to start each paragraph to improve essay structure."

d) **Balanced:** Highlights both strengths and areas for improvement.
   Example: "Your argument is strong, but could be enhanced by including more supporting evidence."

e) **Goal-referenced:** Relates to established learning goals or success criteria.
   Example: "Your presentation met 3 out of the 5 criteria we discussed. Let's focus on improving points 4 and 5."

B. Types of feedback (descriptive, evaluative, motivational)

Different types of feedback serve various purposes:

a) **Descriptive feedback:** Provides specific information about the performance.
   Example: "In this math problem, you correctly set up the equation but made an error in the final calculation step."

b) **Evaluative feedback:** Judges the quality of the work against a standard.
   Example: "Your essay meets the expectations for a B grade according to the rubric."

c) **Motivational feedback:** Encourages and supports the learner.
   Example: "I can see the effort you've put into improving your handwriting. Keep practicing!"

C. Timing and frequency of feedback

The timing and frequency of feedback can significantly impact its effectiveness:

a) **Immediate feedback:** Useful for quick, fact-based tasks.

Example: Automated feedback in online quizzes that immediately shows correct/incorrect answers.

b) **Delayed feedback:** Can be more effective for complex tasks requiring reflection.
Example: Providing written feedback on a research paper a few days after submission.

c) **Frequent feedback:** Regular check-ins to guide ongoing work.
Example: Weekly progress updates for a long-term project.

d) **Milestone feedback:** Provided at key points in a learning process.
Example: Feedback after completing each chapter in a novel study unit.

D. Peer feedback and self-assessment
Involving students in the feedback process can enhance learning:
a) **Peer feedback:** Students review and comment on each other's work.
Example: Students use a rubric to provide feedback on their classmates' oral presentations.

b) **Self-assessment:** Students evaluate their own work against set criteria.
Example: Students complete a self-reflection form after submitting a science lab report.

c) **Combined approaches:** Using both peer and self-assessment alongside teacher feedback.
Example: A writing workshop where students self-assess, receive peer feedback, and then teacher feedback.

E. Using feedback to improve learning and instruction
Feedback should drive improvement in both student learning and teaching practices:
a) **Feedback loops:** Implementing cycles of performance, feedback, and improvement.
Example: Students revise essays based on feedback, then resubmit for further comment.

b) **Instructional adjustment:** Teachers modify their approach based on common issues identified in feedback.
Example: Reteaching a concept that many students struggled with in a recent assignment.

c) **Goal-setting:** Using feedback to help students set specific learning goals.
Example: After a math test, students use feedback to identify areas for improvement and set goals for the next unit.

d) **Differentiation:** Tailoring instruction based on feedback data.

Example: Forming small groups for targeted instruction based on common areas of difficulty identified in recent feedback.

F. Challenges in providing constructive feedback

Several challenges can arise when providing feedback:

a) **Time constraints:** Providing detailed, individual feedback can be time-consuming.
   Solution: Use a mix of whole-class feedback for common issues and individual feedback for specific concerns.

b) **Student receptiveness:** Some students may be defensive or discouraged by feedback.
   Solution: Frame feedback positively and focus on growth and improvement rather than mistakes.

c) **Consistency:** Ensuring feedback is fair and consistent across all students.
   Solution: Use rubrics and criteria sheets to maintain consistency in evaluation.

d) **Balancing positivity and critique:** Providing honest feedback while maintaining motivation.
   Solution: Use the "sandwich" technique - start and end with positives, with areas for improvement in the middle.

e) **Cultural sensitivity:** Different cultures may interpret feedback differently.
   Solution: Be aware of cultural differences and adapt feedback style as needed.

f) **Overload:** Providing too much feedback can overwhelm students.
   Solution: Focus on the most important points for improvement rather than addressing every minor issue.

g) **Follow-through:** Ensuring students act on the feedback provided.
   Solution: Build in opportunities for students to revise work based on feedback and demonstrate improvement.

Effective feedback is a powerful tool for enhancing learning, but it requires careful consideration and implementation. By understanding these principles and challenges, educators can provide feedback that truly supports student growth and achievement.

2.3.4 Selection

An important consideration in selecting for prospects for student success is that selection measures do not serve to perpetuate social disadvantage. Where universities select for only those characteristics which are also correlated with relative social advantage (which is arguably the case when relying largely or solely on rankings derived from senior secondary school grades), they are in effect selecting for students

that are already doing well, rather than those that are likely to do well. The difference may appear subtle, but has profound social implications over time. Among the challenges in this area, therefore, is the need to identify selection criteria and practices that are good predictors of student success, without inadvertently selecting also for relative social advantage. It is clear however that there are broader student characteristics associated with success in particular disciplines and subject areas Selection in educational contexts refers to the process of choosing individuals for specific programs, courses, or opportunities based on certain criteria. This process often involves various assessment methods to determine the best fit candidates.

A. Purpose and types of selection assessments

Purpose: Selection assessments aim to identify individuals who are most likely to succeed in a particular educational program or role.

i. Types of selection assessments:

a) **Aptitude tests:** Measure potential for learning or performance in specific areas.
Example: A spatial reasoning test for selecting students for an advanced engineering program.

b) **Achievement tests**: Assess current knowledge or skills in specific subjects.
Example: A mathematics placement test for incoming college students.

c) **Personality assessments:** Evaluate behavioral tendencies and traits.
Example: Using the Big Five personality test to select students for a leadership development program.

d) **Skills-based assessments**: Measure specific abilities relevant to the program.
Example: A language proficiency test for admission to a foreign language immersion program.

B. Designing selection criteria and processes

Key steps in designing effective selection processes:

a) **Identify essential competencies:** Determine the critical skills, knowledge, and attributes needed for success.
Example: For a music program, identifying pitch recognition, rhythm skills, and instrumental proficiency as key competencies.

b) **Develop a rubric:** Create a clear, objective scoring system for evaluating candidates.
Example: A point-based rubric for assessing applicants to a competitive STEM program, considering grades, test scores, and extracurricular activities.

c) **Choose appropriate assessment methods:** Select tools that effectively measure the identified competencies.
Example: Using a combination of a written test, portfolio review, and audition for selecting students for a visual arts program.

d) Establish cut-off scores or ranking systems: Determine how assessment results will be used to make selections.
Example: Setting a minimum SAT score for college admissions, but also considering other factors for a holistic review.

C. Standardized tests for selection purposes

Standardized tests are widely used in selection processes due to their consistency and comparability.

i. Common examples:
a) SAT/ACT for college admissions in the United States.
b) GRE for graduate school admissions.
c) LSAT for law school admissions.
d) MCAT for medical school admissions.

ii. Advantages:
- Provide a common metric for comparing applicants from diverse backgrounds.
- Can be administered to large groups efficiently.

iii. Disadvantages:
- May not capture all relevant skills or attributes.
- Can be influenced by factors like test-taking skills and access to preparation resources.

D. Interviews and performance-based selection methods

These methods provide a more personalized assessment of candidates.

a) Interviews:
Types: Structured, semi-structured, or unstructured.
Example: A panel interview for selecting students for a competitive scholarship program.

b) Performance tasks:
Involve candidates demonstrating skills in real or simulated situations.
Example: A teaching demonstration for selecting candidates for a teacher preparation program.
   1) Portfolio reviews:

c) Evaluation of a collection of the candidate's work.
Example: Reviewing an art portfolio for admission to a fine arts program.
   1) Group exercises:

d) Observe candidates' interpersonal and collaborative skills.
Example: A group problem-solving task for selecting students for a team-based learning program.

E. Ethical considerations in selection processes

Key ethical issues to consider:

a) **Transparency:** Clearly communicating selection criteria and processes to all applicants.
Example: Providing detailed information about admission requirements and evaluation methods on a university's website.

b) **Confidentiality:** Protecting applicants' personal information and assessment results.
Example: Ensuring that only authorized personnel have access to application materials and test scores.

c) **Equal opportunity:** Ensuring all qualified candidates have a fair chance to apply and be considered.
Example: Offering fee waivers for standardized tests to low-income applicants.

d) **Avoiding conflicts of interest:** Ensuring selectors don't have personal connections to applicants that could influence decisions.
Example: Requiring selectors to disclose any relationships with applicants and recuse themselves if necessary.

F. Bias and fairness in selection assessments

Addressing bias and ensuring fairness is crucial in selection processes:

a) **Cultural bias**: Ensuring assessments don't unfairly advantage or disadvantage certain cultural groups.
Example: Reviewing test questions for culturally specific references that might not be universally understood.

b) **Gender bias:** Avoiding assessment methods that may favor one gender over others.
Example: Ensuring that physical fitness tests for a sports program don't unfairly disadvantage female applicants.

c) **Socioeconomic bias:** Considering how selection methods might be influenced by socioeconomic factors.
Example: Recognizing that students from low-income backgrounds might have less access to extracurricular activities when evaluating applications.

d) **Language bias:** Ensuring that assessments don't unfairly disadvantage non-native speakers.
Example: Providing additional time on written tests for English language learners.

G. Strategies to promote fairness:

   a. Use multiple assessment methods to get a comprehensive view of each candidate.

b. Regularly review and update selection criteria and processes to ensure they remain relevant and fair.

c. Provide training to selectors on recognizing and mitigating unconscious bias.

d. Monitor selection outcomes for any patterns of bias and adjust processes accordingly.

e. Consider holistic review processes that take into account a wide range of factors beyond just test scores or grades.

Selection processes play a crucial role in educational settings, determining access to opportunities and shaping the composition of student bodies. It's essential that these processes are designed and implemented with careful consideration of their purposes, effectiveness, and ethical implications.

2.3.5 Promotion

Social promotion is the practice of promoting a student (usually a general education student, rather than a special education student) to the next grade only at the end of the current school year, regardless of when or whether they learned the necessary material, in order to keep them with their peers by age, that being the intended social grouping. It is sometimes referred to as promotion based on **seat time**, or the amount of time the child spent sitting in school. This is based on the requirements on how to enroll for Kindergarten normally at 4 or 5 years old (5 or 6 years old for 1st graders) at the beginning of the school year so a student can graduate from the high school level at either 17 or 18 years old.

Advocates of social promotion argue that promotion is done in order not to harm the students' or their classmates' self-esteem, to encourage socialization by age (together with their age cohort), to facilitate student involvement in sports teams, or to promote a student who is weak in one subject on the basis of strength in the other areas.

The opposite of social promotion would be to promote students when they learned the necessary material. This might be called "merit promotion", similar to the concept of a "merit civil service". The scope of the promotion might then be either to the next grade or to the next course in the same field. In a curriculum based on grades, this is usually called "mid-term promotion". In a curriculum based on courses rather than grades, the promotion is open-ended and is better understood as satisfying a prerequisite for the next course.

A. Criteria for promotion in educational settings
Promotion criteria typically include:
a) Academic achievement: Meeting grade-level standards in core subjects.
Example: Achieving a passing grade (e.g., C or above) in math, language arts, science, and social studies.
b) Attendance: Fulfilling minimum attendance requirements.
Example: Attending at least 90% of school days in an academic year.

c) **Social and emotional readiness:** Demonstrating appropriate developmental progress.
Example: Showing the ability to work independently and cooperate with peers.
d) **Physical development:** Meeting age-appropriate physical milestones (particularly in early childhood education).
Example: Demonstrating fine motor skills necessary for writing in promotion from kindergarten to first grade.
e) **Standardized test performance:** Meeting benchmark scores on state or district-wide assessments.
Example: Achieving a "proficient" level on state reading and math tests.

B. Assessment methods for promotion decisions
Various methods are used to assess students for promotion:
a) Summative assessments: End-of-year or end-of-term tests that evaluate overall learning.
Example: Final exams in each subject at the end of the school year.
b) Portfolio assessments: Evaluation of a collection of student work over time.
Example: A writing portfolio showcasing progress throughout the year in language arts.
c) Teacher evaluations: Ongoing assessments based on classroom performance and observations.
Example: Regular progress reports and report cards.
d) Standardized tests: State or district-mandated tests aligned with curriculum standards.
Example: Annual state assessment tests in core subjects.
e) Performance-based assessments: Tasks that require students to apply their knowledge and skills.
Example: A science fair project demonstrating understanding of the scientific method.

C. Continuous vs. point-in-time promotion assessments
Promotion decisions can be based on different assessment approaches:
i. Continuous assessment:
- Involves ongoing evaluation throughout the academic year.
- Provides a more comprehensive view of student progress.
- Allows for early intervention if a student is struggling.
- Example: Using a combination of weekly quizzes, monthly tests, and daily classwork to determine promotion.

ii. Point-in-time assessment:
- Relies on assessments at specific points, usually at the end of the academic year.
- Can be more standardized across a school or district.
- May create high-stakes testing situations.
- Example: Using end-of-year exams as the primary determinant for promotion.

- Many schools use a combination of both approaches to make promotion decisions.

D. Grade retention: pros, cons, and alternatives
Grade retention involves having a student repeat a grade level.
   i. Pros:
   - Can provide struggling students more time to master content and skills.
   - May prevent students from facing greater challenges in higher grades.

   ii. Cons:
   - Can negatively impact student self-esteem and social relationships.
   - Research suggests limited long-term academic benefits.
   - Associated with higher dropout rates in later years.

E. Alternatives to grade retention:
a) Targeted interventions: Providing additional support in specific areas of difficulty.
   Example: After-school tutoring programs for students struggling in math.
b) Summer programs: Offering additional instruction during summer break.
   Example: A six-week summer reading program for students below grade level in reading.
c) Multi-age classrooms: Allowing students to progress at their own pace within a range of grade levels.
   Example: A classroom that includes first and second-grade curriculum, allowing students two years to master the content.
d) Individualized learning plans: Developing customized plans to address specific student needs.
   Example: Creating a plan that includes modified assignments and extra support for a struggling student.

F. Policy implications of promotion practices
Promotion policies can have significant impacts on educational systems and student outcomes:
a) Accountability: Promotion criteria often reflect broader educational accountability measures.
   Example: Tying school funding to promotion rates may incentivize schools to focus on struggling students.
b) Equity concerns: Promotion policies may disproportionately affect certain student populations.
   Example: Students from low-income families or English language learners may be more likely to be retained.
c) Resource allocation: Promotion practices can influence how educational resources are distributed.
   Example: High retention rates might necessitate more remedial programs and support staff.
d) Long-term student outcomes: Promotion policies can impact graduation rates and college readiness.
   Example: Strict promotion policies might lead to higher dropout rates if not coupled with adequate support systems.

e) Curriculum alignment: Promotion criteria should align with curriculum standards and learning objectives.
Example: Ensuring that promotion requirements reflect the skills and knowledge emphasized in the curriculum.

f) Parental involvement: Policies should consider how to effectively communicate with and involve parents in promotion decisions.
Example: Implementing regular parent-teacher conferences to discuss student progress and promotion criteria.

g) Teacher training: Effective implementation of promotion policies requires appropriate teacher preparation.
Example: Providing professional development on using diverse assessment methods for promotion decisions.

Promotion practices in education are complex and multifaceted, requiring careful consideration of individual student needs, educational standards, and broader societal implications. Effective policies balance the need for academic rigor with an understanding of diverse learning paths and the potential long-term impacts of promotion decisions on students' educational journeys.

2.3.6 Placement
Placement in educational contexts refers to the process of determining the most appropriate educational setting, program, or level for a student based on their abilities, needs, and prior knowledge.

A. Purpose and types of placement assessments
Purpose: Placement assessments aim to match students with the most suitable learning environments or programs to optimize their educational experience and outcomes.

B. Types of placement assessments:

a) Subject-specific placement tests: Assess knowledge and skills in particular subjects.
Example: A math placement test to determine whether a student should be placed in algebra or geometry.

b) Language proficiency tests: Evaluate language skills for non-native speakers.
Example: The TOEFL (Test of English as a Foreign Language) for international students entering English-speaking universities.

c) Cognitive ability tests: Measure general intellectual capabilities.
Example: IQ tests used in gifted education placement decisions.

d) Skill-based assessments: Evaluate specific skills relevant to certain programs.
Example: A music audition for placement in a school orchestra.

C. Diagnostic assessments for appropriate placement
Diagnostic assessments provide detailed information about a student's strengths, weaknesses, and learning needs to inform placement decisions.

i. Key features:

a) Comprehensive coverage of skills and knowledge areas.

Example: A reading diagnostic test that assesses phonemic awareness, fluency, comprehension, and vocabulary.
b) Identification of specific areas of difficulty or excellence.
Example: A math diagnostic that pinpoints whether a student struggles with calculation or problem-solving skills.
c) Adaptive testing: Adjusts question difficulty based on student responses.
Example: Computer-adaptive tests that present harder or easier questions based on previous answers.
d) Detailed reporting: Provides in-depth analysis of student performance.
Example: A report that breaks down performance by specific math concepts and suggests targeted interventions.

D. Placement in special education programs
Special education placement involves identifying students with special needs and determining appropriate educational support.
i. **Process typically includes:**
a) Initial screening: Identifying potential special needs.
Example: Teacher observations or standardized screening tools to flag potential learning disabilities.
b) Comprehensive evaluation: In-depth assessment of student abilities and needs.
Example: A battery of tests including cognitive assessments, achievement tests, and behavioral evaluations.
c) Individualized Education Program (IEP) development: Creating a tailored educational plan.
Example: An IEP specifying learning goals, accommodations, and services for a student with dyslexia.
d) Least restrictive environment consideration: Placing students in the most inclusive setting possible.
Example: Determining whether a student with mild autism can be supported in a general education classroom with additional resources.

E. Advanced placement and acceleration
These placements are for students who demonstrate exceptional abilities or advanced knowledge in certain areas.
i. **Types include:**
a) Subject-specific acceleration: Advanced placement in particular subjects.
Example: A 7th-grade student taking 9th-grade math.
b) Grade skipping: Moving a student ahead by one or more grade levels.
Example: A gifted 3rd grader being promoted directly to 5th grade.
c) Early college admission: Allowing high school students to take college courses.
Example: Dual enrollment programs where students earn high school and college credits simultaneously.
d) Gifted and talented programs: Specialized programs for high-ability students.
Example: A pull-out program offering enriched curriculum for gifted students.

F. English language proficiency placement

This involves assessing non-native English speakers to determine appropriate language support and academic placement.

i. **Key components:**

a) Initial language screening: Quick assessment of English proficiency upon enrollment.
Example: A short oral interview and written test for new immigrant students.

b) Comprehensive language proficiency assessment: Detailed evaluation of listening, speaking, reading, and writing skills.
Example: The WIDA ACCESS test used in many U.S. states for English language learners.

c) Academic content knowledge assessment: Evaluating subject knowledge independent of language skills.
Example: A math test given in the student's native language to determine appropriate math placement.

d) Ongoing monitoring: Regular assessment of language progress.
Example: Annual language proficiency tests to determine continued need for language support services.

G. Challenges and considerations in placement decisions

Several factors complicate placement decisions:

a) Balancing multiple factors: Considering academic, social, and emotional readiness.
Example: Deciding whether to accelerate a student who is academically advanced but socially immature.

b) Equity concerns: Ensuring placement processes don't disadvantage certain groups.
Example: Reviewing gifted program placement criteria to ensure they don't unfairly exclude students from diverse backgrounds.

c) Resource limitations: Working within available program and staffing constraints.
Example: Balancing the need for small special education classes with budget limitations.

d) Long-term impacts: Considering how placement decisions affect future academic pathways.
Example: Evaluating how early tracking into advanced or remedial programs might impact college options.

e) Parental expectations: Managing differences between parent wishes and professional recommendations.
Example: Addressing parents who want their child in a gifted program despite the child not meeting placement criteria.

f) Cultural and linguistic considerations: Ensuring placement processes are culturally responsive and linguistically appropriate.
Example: Using culturally neutral cognitive assessments for special education placement of students from diverse backgrounds.

g) Flexibility and reassessment: Building in opportunities to adjust placements as needed.

Example: Implementing a trial period for students placed in advanced classes with the option to change if the placement isn't suitable.

Effective placement processes require a careful balance of standardized assessments, individual considerations, and flexibility. They should aim to provide each student with the most appropriate educational environment to foster their learning and development, while also considering practical constraints and long-term implications.

2.3.7 Certification

Certification is a formal process of making certain that an individual is qualified in terms of particular knowledge or skills. Certification programs are often fostered or supervised by some certifying agency, such as a professional association. Some major computer software and hardware vendors provide a certification program for installers of their product, such as Microsoft's Certified Systems Engineer (MCSE) for its Windows operating systems, IBM's Certified Lotus Specialist (CLS), and Cisco's Certified Internetwork Professional (CCIP). The A+ certification program is a certification that attests to general computer installation and customization knowledge and capabilities.

1.2.8 Grading and Diagnostic

The Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group over the last 13 years developed a rigorous methodology for assessing the quality of the evidence and grading the strength of recommendations in health care the appeal of GRADE lies in its ability to provide structure and transparency in the usually complex process of making evidence-based recommendations. It requires a clear clinical question and outcomes important to the patient to be defined from the outset, followed by a structured systematic review of the available evidence. The quality of the evidence is then assessed by considering eight criteria, of which five criteria such as risk of bias, indirectness, inconsistency, imprecision, and publication bias are used to downgrade the quality of evidence. Three other criteria such as magnitude of the effect, dose–response relation in the effect, and opposing plausible residual bias or confounding can be used to upgrade the quality of the evidence . To come to a recommendation based on the available body of evidence, its quality, assessed according to these eight GRADE criteria, is then considered in the context of benefits vs. harms of the test or intervention in question, patients' values and preferences, and resource implications

Certification in educational and professional contexts refers to the process of verifying and recognizing an individual's qualifications, skills, or knowledge in a specific area through standardized assessment procedures.

A. **Purpose and types of certification assessments**

Purpose: Certification assessments aim to ensure that individuals meet specific standards of knowledge, skills, and competencies in a particular field or profession.

i. **Types of certification assessments:**

a) Knowledge-based tests: Assess theoretical understanding and factual knowledge.
Example: Multiple-choice exams for teacher certification covering educational theory and subject matter.

b) Performance-based assessments: Evaluate practical skills and application of knowledge.
Example: A hands-on test for automotive technician certification where candidates must diagnose and repair vehicle issues.

c) Portfolio assessments: Review of a collection of work demonstrating competencies over time.
Example: Submission of lesson plans, student work samples, and reflective essays for National Board Certification for teachers.

d) Simulation-based assessments: Use of realistic scenarios to assess decision-making and skills.
Example: Flight simulator tests for pilot certification.

B. Industry and professional certification processes

These certifications are often required or highly valued in specific industries or professions.

i. Key aspects:

a) Eligibility requirements: Prerequisites for taking certification exams.
Example: Minimum work experience and education requirements for Certified Public Accountant (CPA) exam candidates.

b) Exam structure: May include written tests, practical exams, or both.
Example: The Project Management Professional (PMP) certification includes a 200-question multiple-choice exam.

c) Continuing education: Ongoing learning requirements to maintain certification.
Example: Registered nurses needing to complete a certain number of continuing education hours every two years to maintain licensure.

d) Specialization tracks: Advanced or specialized certifications within a field.
Example: Information technology professionals can pursue specialized certifications like Cisco Certified Network Associate (CCNA) or CompTIA Security+.

C. Educational certificates and diplomas

These certifications represent completion of educational programs or achievement of specific academic standards.

i. Types include:

a) High school diplomas: Certify completion of secondary education.

Example: General Educational Development (GED) test for those who didn't complete traditional high school.

b) Vocational certificates: Recognize completion of career-specific training programs.
Example: Certified Nursing Assistant (CNA) certificate earned through a community college program.

c) University degrees: Bachelor's, Master's, and Doctoral degrees certifying higher education achievement.
Example: Master of Business Administration (MBA) degree.

d) Professional development certificates: Recognize completion of specific courses or training programs.
Example: Teaching English as a Foreign Language (TEFL) certificate for language instructors.

D. Design and validation of certification assessments

Creating effective certification assessments involves several steps:

a) Job analysis: Identifying key knowledge and skills required for the profession.
Example: Surveying practicing physicians to determine critical competencies for medical board exams.

b) Test specification development: Creating a blueprint for the assessment.
Example: Determining the number of questions, types of questions, and content areas for a nursing licensure exam.

c) Item development: Creating individual test questions or tasks.
Example: Writing scenario-based questions for a project management certification exam.

d) Psychometric analysis: Ensuring the reliability and validity of the assessment.
Example: Conducting item analysis to identify and revise poorly performing questions on a teacher certification exam.

e) Standard setting: Determining passing scores.
Example: Using the Angoff method to set cut scores for a medical specialty board exam.

E. Maintaining certification: renewal and continuing education

Many certifications require ongoing activities to maintain validity:

a) Renewal periods: Timeframes for recertification.
Example: Renewing a teaching license every five years.

b) Continuing education requirements: Ongoing learning to stay current in the field.
Example: Certified Financial Planners (CFPs) needing to complete 30 hours of continuing education every two years.

c) Re-examination: Periodic retesting to ensure continued competence.

Example: Air traffic controllers undergoing annual proficiency checks.
- **d)** Professional development activities: Participating in workshops, conferences, or research.
Example: Lawyers attending legal seminars to maintain their bar certification.

F. International recognition and standardization of certifications

As professions become more global, there's an increasing need for internationally recognized certifications:

- **a)** International agreements: Recognition of certifications across countries.
Example: The Washington Accord for mutual recognition of engineering qualifications among signatory countries.
- **b)** Global standards organizations: Entities that develop worldwide certification standards.
Example: ISO (International Organization for Standardization) certifications for various industries and processes.
- **c)** Credential evaluation services: Organizations that assess foreign credentials for equivalency.
Example: World Education Services (WES) evaluating foreign degrees for U.S. recognition.
- **d)** Harmonization efforts: Initiatives to align certification standards across countries.
Example: The Bologna Process in Europe to ensure comparability in higher education qualifications.
- **e)** Industry-specific global certifications: Widely recognized certifications in particular fields.
Example: Chartered Financial Analyst (CFA) designation, recognized globally in the finance industry.

G. Challenges in international certification include:

- Variations in educational systems and professional standards across countries.
- Language barriers in assessment delivery.
- Ensuring equity and access to certification processes globally.
- Balancing local needs with global standards.

Certification processes play a crucial role in ensuring professional competence, maintaining industry standards, and facilitating mobility within and across professions and countries. As fields evolve and become more globalized, certification systems must continually adapt to remain relevant and effective.

2.4 Diagnostic

Diagnostic assessments (also known as pre-assessments) provide instructors with information about student's prior knowledge and misconceptions before beginning a

learning activity. They also provide a baseline for understanding how much learning has taken place after the learning activity is completed. Instructors usually build concepts sequentially throughout a course. For example, the Coriolis effect may be taught prior to a unit on ocean currents. A diagnostic pre-assessment given after the Coriolis effect activity but before the Ocean current activity will provide an opportunity to determine if students remember the concepts they need. If some students don't remember, then a refresher will make the Ocean current activity more meaningful to your students. Diagnostic assessment data may be gleaned from:

- Summative assessments of the previous learning activity.
- Short assessments that focus on key knowledge and concepts such as ConcepTests and Minute Papers

2.3.8 Grading

A. Purpose and functions of grading

Grading serves several purposes in education:

- Measuring student achievement
- Motivating students
- Providing feedback on learning
- Ranking or comparing students
- Evaluating teaching effectiveness
- Communicating student progress to stakeholders
- Example: A teacher uses grades to show students their progress in mastering course material and to inform parents about their child's performance.

B. Grading systems and scales

Common grading systems include:

- Letter grades (A, B, C, D, F)
- Percentage scales (0-100%)
- Point systems (e.g., 4.0 scale)
- Standards-based grading (e.g., Exceeds, Meets, Approaching, Below)
- Example: A high school might use a letter grade system where A = 90-100%, B = 80-89%, C = 70-79%, D = 60-69%, and F = below 60%.

C. Criteria-based vs. norm-referenced grading

Criteria-based grading: Evaluates students against predefined standards or learning objectives.

- Norm-referenced grading: Compares students' performance to that of their peers.
- Example: In criteria-based grading, all students who score 90% or above on a test receive an A, regardless of how many achieve this. In norm-referenced grading, only the top 10% of students might receive an A, regardless of their actual scores.

D. Alternative grading methods

- Pass/Fail: Students either meet requirements (pass) or don't (fail)
- Narrative evaluations: Detailed written feedback on student performance

- Mastery-based grading: Students progress based on demonstrated mastery of skills
- Portfolio assessment: Evaluation based on a collection of student work
- Example: A medical school clinical rotation might use pass/fail grading to reduce stress and focus on skill acquisition rather than competition.

E. Grade inflation and deflation

Grade inflation: Increase in average grades over time without a corresponding increase in achievement.

a) Grade deflation: Deliberate lowering of grades to counteract inflation or maintain standards.

Example: A university notices that the percentage of A grades has increased from 15% to 45% over 20 years without evidence of increased student ability, indicating grade inflation.

F. Communicating grades to stakeholders

Methods include:
- Report cards
- Parent-teacher conferences
- Online grade portals
- Progress reports
- Student-led conferences
- Example: A school uses an online portal where students and parents can access grades, assignments, and teacher comments in real-time.

G. Impact of grading on student motivation and learning

Grading can influence:
- Student self-efficacy
- Goal-setting behaviors
- Intrinsic vs. extrinsic motivation
- Approach to learning (deep vs. surface)
- Academic stress and anxiety
- Example: A student who consistently receives low grades might become demotivated and develop a fixed mindset about their abilities, while high grades might boost confidence and encourage further effort.

2.3.9 Diagnostic Assessment

A. Purpose and characteristics of diagnostic assessments

Purpose: To identify students' current knowledge, skills, and misconceptions before or during instruction.

i. Characteristics:
- Detailed and specific
- Often ungraded

- Administered before or during learning
- Focuses on identifying strengths and weaknesses
- Example: A math teacher gives a diagnostic test at the beginning of a geometry unit to identify which concepts students already understand and which need more attention.

B. Tools and techniques for diagnostic assessment
- Pre-tests
- Concept maps
- Interviews
- Observation checklists
- Self-assessments
- Performance tasks
- Example: A language teacher uses a combination of a written test and oral interview to diagnose students' proficiency levels in reading, writing, speaking, and listening.

C. Identifying learning difficulties and special needs
Diagnostic assessments can help identify:
- Learning disabilities
- Giftedness
- Language proficiency issues
- Specific skill deficits
- Example: A series of phonics-based diagnostic tests helps identify students who might have dyslexia and need further evaluation.

D. Using diagnostic results to inform instruction
Results can be used to:
- Differentiate instruction
- Form flexible learning groups
- Modify curriculum pacing
- Select appropriate interventions
- Set individual learning goals
- Example: Based on diagnostic results, a teacher creates three groups for a reading intervention: one focusing on comprehension strategies, another on fluency, and a third on vocabulary development.

E. Diagnostic assessment in different subject areas
Each subject area may have specific diagnostic tools:
- Math: Skills inventories, error analysis
- Reading: Running records, phonics assessments
- Science: Misconception checks, predict-observe-explain tasks
- Writing: Writing samples, rubric-based evaluations
- Example: In a chemistry class, students complete a diagnostic assessment identifying common misconceptions about atomic structure, guiding the teacher's approach to the upcoming unit.

F. Limitations and ethical considerations in diagnostic assessment
  i. Limitations:
- Time-consuming to administer and analyze
- May not capture all aspects of student knowledge
- Results can be affected by testing conditions or student factors

  ii. Ethical considerations:
- Avoiding labeling or stigmatizing students
- Ensuring privacy of diagnostic results
- Using results responsibly and not for punitive purposes
- Considering cultural and linguistic factors in assessment design and interpretation
- Example: A school implements a policy where diagnostic assessment results are kept confidential and used solely for instructional planning, not for placement decisions or public comparisons.

Self-Check Exercise-1

Q1. Which purpose of assessment involves predicting future performance?
    a. Diagnostic
    b. Prognostic
    c. Monitoring
    d. Grading

Q2. What type of assessment is used to identify specific learning difficulties?
    a. Certification
    b. Selection
    c. Diagnostic
    d. Placement

Q3. Which assessment purpose involves ongoing tracking of student progress?
    a. Monitoring of Learning
    b. Certification
    c. Promotion
    d. Grading

Q4. _____ assessment helps in choosing candidates for specific programs or opportunities.

Q5. The process of quantifying and communicating student achievement is called _____.

Q6. _____ assessment verifies that individuals have met specific standards or acquired certain skills.

Q7. Diagnostic assessment aims to predict future performance. (True/False)

Q8. Providing feedback is a fundamental purpose of assessment. (True/False)

Q9. Placement assessment determines student readiness for advancement to higher levels of education. (True/False)

Q10. How does prognostic assessment differ from diagnostic assessment?

Q11. What is the main purpose of monitoring learning through assessment?

Q12. Why is providing feedback considered an important purpose of assessment?

2.4   Summary

Assessment in education serves multiple crucial purposes, each contributing to the overall goal of enhancing student learning and educational effectiveness. Prognostic assessment aims to predict future performance or aptitude, helping educators tailor instruction to individual needs. Monitoring of learning involves ongoing assessment to track student progress and adjust teaching strategies accordingly. Providing feedback is a fundamental purpose, offering students and teachers insights into strengths and areas for improvement. Selection assessment helps in choosing candidates for specific programs or opportunities. Promotion and placement assessments determine student readiness for advancement or appropriate placement within educational programs. Certification assessments verify that individuals have met specific standards or acquired certain skills. Grading serves to quantify and communicate student achievement, often for academic records. Diagnostic assessment identifies specific learning difficulties or gaps in knowledge, enabling targeted interventions. These various purposes of assessment are interconnected and often overlap in practice. They collectively form a comprehensive framework for evaluating and supporting student learning, informing instructional decisions, and maintaining educational standards. By understanding and effectively implementing these different assessment purposes, educators can create a more responsive, personalized, and effective learning environment that addresses the diverse needs of students and meets broader educational objectives.

2.5   Glossary

Prognostic: Predicting future performance or aptitude
Monitoring: Ongoing tracking of student progress
Feedback: Information provided about performance to improve learning
Selection: Choosing candidates for specific programs or opportunities
Promotion: Advancing students to higher levels of education
Placement: Assigning students to appropriate educational programs or levels
Certification: Verifying attainment of specific standards or skills
Grading: Quantifying and communicating student achievement
Diagnostic: Identifying specific learning difficulties or knowledge gaps

2.6   Answers to Self-Check Exercise
   Ans1. b) Prognostic
   Ans2. c) Diagnostic
   Ans3. a) Monitoring of Learning
   Ans4. Selection
   Ans5. Grading
   Ans6. Certification
   Ans7. False
   Ans8. True
   Ans9. False
 Ans10. Prognostic assessment aims to predict future performance or aptitude, while diagnostic assessment identifies current learning difficulties or knowledge gaps.

Ans11. The main purpose of monitoring learning is to track student progress over time and adjust teaching strategies accordingly.

Ans12. Providing feedback is important because it offers students and teachers insights into strengths and areas for improvement, facilitating targeted learning and instruction.

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2.8   Terminal Questions

- Discuss the interrelationship between different purposes of assessment and how they collectively contribute to enhancing the learning process.
- Evaluate the importance of diagnostic assessment in addressing individual student needs and improving overall educational outcomes.
- Compare and contrast the purposes of certification and grading in assessment, discussing their roles in educational and professional contexts.

UNIT – 3

CLASSIFICATION OF ASSESSMENT, NEED FOR CONTINUOUS AND COMPREHENSIVE SCHOOL-BASED ASSESSMENT

Structure

3.1 Introduction

This course will delve into the multifaceted world of assessment in educational settings. We'll explore various classifications of assessments based on their purpose (predicting future potential, informing instruction, identifying strengths and weaknesses, or measuring overall achievement), scope (developed by the teacher or standardized), the type of attribute being measured (academic knowledge, natural abilities, or student disposition), the nature of the information gathered (descriptive or numerical), the response format (oral or written, choosing from options or providing answers), how the results are interpreted (comparing students to each other or against a set standard), and the context in which the assessment takes place (within a school or by an external body). We'll also emphasize the need for ongoing and well-rounded school-based assessments. Additionally, we'll unpack the concept of grading, exploring different types and their application, as well as the key indicators used for assigning grades.

3.2 Learning Objectives

- Classify assessments based on various criteria, including purpose, scope, nature of attributes measured, information gathered, response mode, interpretation, and context.
- Explain the need for continuous and comprehensive school-based assessment.

- Define the concept of grading, understand different grading types, and apply them appropriately.
- Identify indicators for effective grading practices.

3.3 Classification of assessment based on purpose

Prognostic Assessment, focusing on its definition, characteristics, uses in educational planning and decision-making, and examples and applications.

(A) Prognostic Assessment

i. **Definition and characteristics:** Prognostic assessment is a type of evaluation designed to predict future performance or potential based on current data and observations. It aims to forecast a student's likely success or challenges in future educational endeavors.

ii. **Key characteristics include:**
1) Future-oriented: Focuses on predicting outcomes rather than measuring current performance.
2) Data-driven: Relies on a combination of quantitative and qualitative data.
3) Multifaceted: Considers various factors that might influence future performance.
4) Probabilistic: Provides likelihood estimates rather than definitive outcomes.
5) Longitudinal: Often involves tracking progress over time to refine predictions.

A. Uses in educational planning and decision-making:

1. Course placement:
- Determining appropriate level or track for students in subjects like math or foreign languages.
- Example: Using a combination of current grades, aptitude tests, and teacher recommendations to place students in honors, standard, or remedial math courses for the upcoming year.

2. Program admission:
- Predicting success in specialized programs or schools.
- Example: Assessing a student's potential for success in a STEM-focused high school based on middle school performance, standardized test scores, and demonstrated interest in science and technology.

3. Career guidance:
- Identifying potential career paths based on current strengths and interests.
- Example: Using aptitude tests, interest inventories, and academic performance to suggest possible career directions for high school students.

4. Early intervention:
- Identifying students who may be at risk of future academic struggles.
- Example: Analyzing reading assessments in early elementary grades to predict which students might need additional support to avoid reading difficulties in later grades.

5. Gifted and talented identification:

- Recognizing students with high potential for advanced learning.
- Example: Using IQ tests, creativity assessments, and teacher observations to identify students for gifted education programs.

6. Long-term educational planning:
- Helping students and families make decisions about future educational paths.
- Example: Using a combination of academic performance, standardized test scores, and career interest surveys to advise students on college preparatory courses in high school.

B. Examples and applications:
1. College admissions:
- Colleges use SAT or ACT scores, high school GPA, and other factors to predict an applicant's likelihood of success in their programs.

2. Advanced Placement (AP) potential:
- The College Board offers an AP Potential tool that uses PSAT scores to identify students likely to succeed in AP courses.

3. Reading level projection:
- Elementary schools might use early literacy assessments to project a student's reading level in subsequent grades and plan interventions accordingly.

4. Dropout prevention:
- Schools use early warning systems that consider factors like attendance, behavior, and course performance to identify students at risk of dropping out.

5. Athletic talent identification:
- Sports programs might use physical assessments, skill tests, and genetic markers to identify young athletes with high potential in specific sports.

6. Language learning prognosis:
- Language aptitude tests like the Modern Language Aptitude Test (MLAT) are used to predict an individual's likelihood of success in learning a new language.

7. Medical education:
- Medical schools might use a combination of undergraduate performance, MCAT scores, and interviews to predict which applicants are most likely to succeed in their rigorous programs.

8. Corporate leadership potential:
- Some companies use prognostic assessments to identify employees with high leadership potential for grooming and advancement.

It's important to note that while prognostic assessments can be valuable tools in educational planning, they should be used in conjunction with other forms of assessment and should not be treated as definitive or unchangeable predictions. Factors such as motivation, changes in circumstances, and targeted interventions can all influence outcomes, potentially altering the trajectory suggested by prognostic assessments.

C. Formative Assessment

i. Definition and Characteristics

Formative Assessment refers to a range of evaluative processes conducted by teachers during the learning process to modify teaching and learning activities to improve student attainment. Unlike summative assessments, which evaluate student learning at the end of an instructional unit, formative assessments are used to provide continuous feedback that can be used to guide both teachers and students.

ii. Characteristics of Formative Assessment:

1. Continuous Feedback: Provides ongoing feedback to students and teachers.
2. Diagnostic: Identifies students' strengths and weaknesses.
3. Interactive: Engages students in the assessment process.
4. Adjustable: Enables modification of teaching methods and learning activities based on assessment results.
5. Non-graded: Typically not used for grading purposes, focusing on learning and improvement.

iii. Role in Ongoing Learning and Instruction

Formative assessment plays a crucial role in the learning process by:

1. Informing Instruction: Helps teachers understand what students are learning and how well they are learning it, allowing them to adjust their teaching strategies accordingly.
2. Supporting Student Learning: Provides students with feedback on their progress, helping them understand their learning goals and how to achieve them.
3. Encouraging Student Involvement: Engages students in self-assessment and peer-assessment, promoting active participation in the learning process.
4. Identifying Learning Gaps: Highlights areas where students are struggling, enabling timely interventions to address these gaps.
5. Enhancing Motivation: Keeps students motivated by showing them their progress and areas for improvement.

iv. Strategies and Techniques for Formative Assessment

1. Observation: Teachers observe students' behavior, participation, and engagement during lessons to gather insights into their understanding and skills.
2. Questioning: Using open-ended questions during class discussions to encourage critical thinking and gauge student comprehension.
3. Quizzes and Polls: Short, informal quizzes or polls to quickly assess student understanding of the material.
4. Exit Tickets: At the end of a lesson, students write down one thing they learned and one question they still have, providing immediate feedback to the teacher.
5. Peer Assessment: Students assess each other's work, which can help them learn to critique constructively and understand different perspectives.
6. Self-Assessment: Encouraging students to reflect on their own learning and identify areas for improvement.

7. Think-Pair-Share: A collaborative learning strategy where students think about a question individually, discuss their thoughts with a partner, and then share with the larger group.
8. Learning Journals: Students maintain journals where they regularly reflect on their learning experiences and progress.
9. Concept Mapping: Students create visual representations of their understanding of a topic, which helps teachers identify misconceptions and gaps in knowledge.
10. One-Minute Papers: Students write a quick summary of what they learned during a lesson, which helps teachers assess comprehension and retention.

Implementing formative assessment strategies effectively can significantly enhance the learning experience by providing valuable feedback, promoting student engagement, and guiding instructional decisions.

D. Diagnostic Assessment
i. Definition and Characteristics
Diagnostic Assessment is a form of pre-assessment that allows a teacher to determine students' individual strengths, weaknesses, knowledge, and skills prior to instruction. The primary goal is to identify students' existing knowledge base and potential learning challenges, allowing teachers to tailor their instructional strategies to meet students' needs.

ii. Characteristics of Diagnostic Assessment:
1. Pre-Instructional: Conducted before teaching a new unit or course.
2. Comprehensive: Aims to assess a wide range of knowledge and skills.
3. Specific: Focuses on identifying specific learning gaps and difficulties.
4. Informative: Provides detailed information about students' prior knowledge.
5. Non-evaluative: Not used for grading but for understanding students' learning needs.

iii. Identifying Learning Gaps and Difficulties
Diagnostic assessment helps in identifying learning gaps and difficulties by:
1. Assessing Prior Knowledge: Evaluating what students already know about a subject to build on their existing knowledge base.
2. Identifying Misconceptions: Detecting incorrect or incomplete understanding of key concepts.
3. Recognizing Learning Styles: Understanding how different students learn best, which can inform differentiated instruction.
4. Detecting Skill Deficiencies: Identifying specific skills that students need to develop or improve.
5. Understanding Student Readiness: Gauging the preparedness of students for new content, allowing for appropriate pacing and scaffolding.

iv. Tools and Methods for Diagnostic Assessment
1. Pre-Tests: Short tests or quizzes administered before a new unit to gauge students' baseline knowledge.

2. Surveys and Questionnaires: Instruments that collect information on students' attitudes, interests, and prior experiences related to the subject matter.
3. Interviews: One-on-one or small group discussions to explore students' understanding and thought processes.
4. Concept Maps: Visual tools that help students organize and represent knowledge, revealing their grasp of the relationships between concepts.
5. Diagnostic Worksheets: Activities designed to uncover students' specific misunderstandings and knowledge gaps.
6. Observations: Teachers observe students' behavior, engagement, and interaction with the material to identify potential learning issues.
7. Standardized Tests: Formal assessments that provide benchmarks for student performance in specific areas.
8. Learning Logs: Students document their learning experiences, challenges, and achievements, offering insights into their learning processes.
9. Performance Tasks: Tasks that require students to demonstrate their knowledge and skills in real-world contexts.
10. Self-Assessment: Encouraging students to reflect on their own learning and identify areas where they feel confident or need improvement.

By utilizing these tools and methods, teachers can effectively diagnose students' learning needs, design targeted instruction, and provide appropriate support to help all students succeed.

E. Summative Assessment
i. Definition and Characteristics
Summative Assessment refers to the evaluation of student learning, knowledge, proficiency, or success at the conclusion of an instructional period, typically at the end of a unit, term, or course. The primary goal is to measure the extent to which learning objectives have been achieved.

ii. Characteristics of Summative Assessment:
1. Cumulative: Assesses the overall learning and understanding of a subject over a period.
2. Evaluative: Provides a final judgment on student performance, often in the form of grades or scores.
3. High Stakes: Often carries significant weight in determining academic progress, qualifications, and future opportunities.
4. Standardized: Frequently involves formal, structured testing conditions to ensure fairness and consistency.
5. Objective: Aims to provide an unbiased measurement of student achievement.

iii. End-of-Term or End-of-Course Evaluations
Summative assessments are commonly used for end-of-term or end-of-course evaluations to:
1. Measure Learning Outcomes: Determine if students have met the learning objectives set for the course or term.

2. Certify Competency: Validate that students have acquired the necessary knowledge and skills to advance to the next level of education or enter the workforce.
3. Inform Stakeholders: Provide valuable information to students, parents, educators, and institutions about student performance and program effectiveness.
4. Guide Future Instruction: Offer insights into the effectiveness of the curriculum and instructional strategies, informing future teaching practices and curriculum design.

iv. Types of Summative Assessments
1. Examinations: Formal tests, including multiple-choice, short answer, and essay questions, that assess students' knowledge and understanding of the material.
2. Final Projects: Comprehensive assignments or projects that require students to apply their knowledge and skills to create a product or solve a problem.
3. Portfolios: Collections of student work over a period that demonstrate learning progress, skills development, and mastery of subject matter.
4. Standardized Tests: Uniform tests administered to all students to ensure consistent and comparable measurement of student performance.
5. Research Papers: In-depth written assignments that require students to investigate a topic, analyze information, and present their findings in a structured format.
6. Presentations: Oral or multimedia presentations where students demonstrate their understanding and ability to communicate their knowledge on a given topic.
7. Practical Exams: Hands-on assessments, such as lab experiments, performances, or technical tasks, that evaluate students' practical skills and application of knowledge.
8. Coursework: A series of assignments, including essays, reports, and problem sets, completed throughout the course and assessed collectively at the end.
9. Capstone Projects: Extensive, integrative projects typically undertaken at the end of a degree program, showcasing students' cumulative knowledge and skills.
10. Oral Examinations: Face-to-face or virtual oral tests where students answer questions posed by instructors, demonstrating their understanding and ability to articulate their knowledge.

By employing these various types of summative assessments, educators can comprehensively evaluate student learning, ensuring that educational objectives are met and providing valuable feedback for continuous improvement.

3.4 Classification of assessment based on scope
A. Teacher-Made Assessments
i. Characteristics and Purposes
a) Characteristics:
1. Tailored Content: Designed to align with specific curriculum objectives and the unique needs of the classroom.

2. Flexible Format: Can be adapted in various forms, such as quizzes, tests, essays, projects, or presentations.
3. Immediate Relevance: Focuses on the material that has been recently taught, ensuring direct applicability to student learning.
4. Adjustable Difficulty: Can be modified to match the skill level of the students, allowing for differentiation.

ii. Purposes:
1. Evaluate Understanding: Assess students' comprehension and retention of recently covered material.
2. Guide Instruction: Provide insights into areas where students may need additional support or instruction.
3. Feedback Provision: Offer timely feedback to students on their performance and understanding.
4. Motivate Students: Encourage students to engage with the material and take responsibility for their learning.
5. Measure Progress: Track student progress over time to inform future teaching strategies and curricular adjustments.

iii. Advantages and Limitations
a) Advantages:
1. Customization: Can be specifically tailored to the curriculum and the needs of the students.
2. Timeliness: Allows for rapid assessment and feedback, which can be immediately used to adjust teaching strategies.
3. Relevance: Focuses on the material that has been taught, ensuring that assessments are directly related to the instructional content.
4. Flexibility: Can be designed in various formats to suit different learning styles and assessment needs.

b) Limitations:
1. Subjectivity: Potential for bias if not carefully designed and scored, which can affect the fairness of the assessment.
2. Time-Consuming: Requires significant time and effort from teachers to design, administer, and grade.
3. Lack of Standardization: Results may not be comparable across different classrooms or schools, limiting their usefulness for broader evaluation purposes.
4. Narrow Focus: May focus too closely on recent material, potentially neglecting broader learning objectives and long-term retention.

c) Design and Development Process
1. Identify Objectives:
- Define clear, measurable learning objectives that the assessment will evaluate.
- Ensure alignment with curriculum standards and instructional goals.

2. Choose Assessment Format:
- Decide on the type of assessment that best suits the learning objectives and the students' needs (e.g., multiple-choice test, essay, project, oral presentation).

3. Develop Assessment Items:
- Create questions, tasks, or prompts that accurately reflect the learning objectives.
- Ensure a variety of question types to assess different levels of understanding and skills.

4. Create a Scoring Rubric:
- Develop clear criteria for scoring or grading the assessment.
- Ensure consistency and fairness in the evaluation process by providing specific guidelines for each performance level.

5. Pilot the Assessment:
- Administer the assessment to a small group of students to identify any issues with question clarity, difficulty level, or overall design.
- Use feedback to make necessary adjustments before full implementation.

6. Administer the Assessment:
- Conduct the assessment under conditions that allow for an accurate measurement of student performance.
- Provide clear instructions and support to ensure all students understand the requirements.

7. Analyze Results:
- Review and analyze student responses to identify patterns of understanding and areas of difficulty.
- Use the results to inform future instruction and to provide targeted feedback to students.

8. Reflect and Revise:
- Reflect on the effectiveness of the assessment in achieving its objectives.
- Make revisions to improve future assessments based on student performance and feedback.

By carefully designing and implementing teacher-made assessments, educators can effectively measure student learning, provide valuable feedback, and adjust their teaching strategies to better meet the needs of their students.

3.5 Classification of assessment based on nature of attribute measured
A. Achievement Tests
i. Measuring learned knowledge and skills:
Achievement tests are designed to measure what an individual has learned or the skills they have acquired, typically as a result of specific instruction or training. These tests aim to assess the extent to which a person has mastered particular content or developed certain abilities within a defined domain.

a) Key aspects of measuring learned knowledge and skills:

1. Content-specific: Tests focus on particular subject areas or skill sets.
2. Criterion-referenced: Performance is often measured against predefined standards or learning objectives.
3. Time-bound: Tests usually assess learning that has occurred over a specific period (e.g., a school year, a course duration).
4. Comprehensive: They aim to cover a range of topics or skills within the domain being tested.

b) Types of achievement tests:

1. Standardized Achievement Tests:
   - Nationally or internationally normed tests administered under standardized conditions.
   - Example: SAT (Scholastic Assessment Test), ACT (American College Testing)
2. Curriculum-Based Tests:
   - Aligned with specific curriculum content taught in a school or district.
   - Example: End-of-unit tests in a textbook series
3. Teacher-Made Tests:
   - Created by individual teachers to assess their students' learning.
   - Example: A weekly quiz in a high school history class
4. Performance-Based Assessments:
   - Require students to demonstrate skills or knowledge through tasks or projects.
   - Example: A lab practical in a chemistry class
5. Computer-Adaptive Tests:
   - Adjust difficulty based on the test-taker's responses.
   - Example: Some versions of the GRE (Graduate Record Examinations)
6. Diagnostic Achievement Tests:
   - Identify specific areas of strength and weakness within a subject.
   - Example: Reading assessments that break down skills into phonics, comprehension, fluency, etc.
7. Summative Assessments:
   - Evaluate learning at the end of an instructional unit.
   - Example: Final exams in college courses
8. Formative Assessments:
   - Ongoing assessments used to inform instruction.
   - Example: Exit tickets at the end of a lesson

c) Design considerations for achievement tests:

1. Alignment with Learning Objectives:
   - Ensure that test items directly relate to the intended learning outcomes.
   - Example: If the objective is to teach long division, the test should include long division problems.
2. Content Validity:

- Ensure the test adequately covers the domain of knowledge or skills being assessed.
- Example: A comprehensive math test should cover all major topics taught in the course.

3. Item Types:
- Choose appropriate question formats (multiple-choice, short answer, essay, etc.) based on what is being assessed.
- Example: Use multiple-choice for factual recall, essays for critical thinking and analysis.

4. Difficulty Level:
- Include a range of item difficulties to differentiate between levels of achievement.
- Example: Include easy, moderate, and challenging questions to distinguish between basic, proficient, and advanced learners.

5. Reliability:
- Ensure consistency in measurement across different administrations or forms of the test.
- Example: Use statistical methods like Cronbach's alpha to measure internal consistency.

6. Fairness and Bias:
- Avoid items that may unfairly advantage or disadvantage certain groups of students.
- Example: Review items for cultural bias or assumptions about background knowledge.

7. Scoring Rubrics:
- Develop clear, objective criteria for scoring, especially for open-ended or performance-based items.
- Example: Create a detailed rubric for grading essays that specifies what constitutes each level of performance.

8. Time Constraints:
- Consider the appropriate length and time limit for the test based on the age of test-takers and the content being assessed.
- Example: Allow sufficient time for complex problem-solving tasks, but limit time for basic recall questions.

9. Test Instructions:
- Provide clear, unambiguous instructions for taking the test.
- Example: Clearly state how to mark answers, whether guessing is penalized, and how much time is allowed.

10. Feedback Mechanism:
- Design the test to provide useful feedback to both learners and instructors.
- Example: Include item analysis to show which topics students struggled with most.

Achievement tests play a crucial role in education by providing measurable data on student learning. When designed thoughtfully, they can offer valuable insights into

individual and group progress, inform instructional decisions, and help in evaluating the effectiveness of educational programs and interventions.

B. Aptitude Tests
i. Assessing potential and innate abilities:
Aptitude tests are designed to measure an individual's potential to develop specific skills or succeed in particular areas. Unlike achievement tests that measure learned knowledge, aptitude tests aim to assess innate abilities or the capacity to acquire skills with training.

ii. Key aspects of assessing potential and innate abilities:
1. Predictive nature: Aim to forecast future performance or learning potential.
2. Skill-independent: Often designed to be less dependent on prior learning or experience.
3. Abstract reasoning: Frequently involve abstract concepts to minimize the impact of specific knowledge.
4. Multiple domains: May assess various cognitive abilities like verbal, numerical, or spatial reasoning.

iii. Types of aptitude tests:
1. General Aptitude Tests:
- Measure overall cognitive abilities across multiple domains.
- Example: Cognitive Abilities Test (CogAT), Wonderlic Personnel Test

2. Specific Aptitude Tests:
- Focus on particular skills or abilities relevant to specific fields.
- Example: Bennett Mechanical Comprehension Test for engineering aptitude

3. Multiple Aptitude Test Batteries:
- Assess several distinct aptitudes to create a profile of strengths and weaknesses.
- Example: Armed Services Vocational Aptitude Battery (ASVAB)

4. Career Aptitude Tests:
- Designed to suggest suitable career paths based on an individual's aptitudes.
- Example: Johnson O'Connor aptitude test

5. Verbal Reasoning Tests:
- Assess ability to understand and analyze written information.
- Example: Watson-Glaser Critical Thinking Appraisal

6. Numerical Reasoning Tests:
- Measure ability to work with numbers and interpret numerical data.
- Example: Numerical reasoning sections in graduate aptitude tests

7. Spatial Reasoning Tests:
- Evaluate ability to manipulate shapes and understand spatial relationships.
- Example: Purdue Spatial Visualization Test

8. Abstract Reasoning Tests:
- Assess ability to identify patterns and logical rules.
- Example: Raven's Progressive Matrices

iv. Uses of aptitude testing:

1. Educational Placement:
   - Identifying students for gifted programs or specialized educational tracks.
   - Example: Using spatial reasoning tests to identify students with potential in STEM fields.

2. Career Guidance:
   - Helping individuals identify careers that align with their natural abilities.
   - Example: Using aptitude test results to suggest suitable college majors or career paths.

3. Employee Selection:
   - Assisting employers in identifying candidates with potential for specific roles.
   - Example: Using numerical aptitude tests for financial analyst positions.

4. Military Placement:
   - Assigning recruits to suitable roles within military services.
   - Example: Using ASVAB scores to determine appropriate military occupations.

5. Identifying Learning Potential:
   - Assessing an individual's capacity to acquire new skills or knowledge.
   - Example: Using aptitude tests to predict success in language learning programs.

6. Research:
   - Studying cognitive abilities and their relationships to various outcomes.
   - Example: Researching the correlation between spatial aptitude and success in engineering fields.

v. Limitations of aptitude testing:

1. Cultural Bias:
   - Tests may favor individuals from certain cultural backgrounds.
   - Example: Verbal reasoning tests may disadvantage non-native speakers.

2. Overemphasis on Innate Ability:
   - May underestimate the role of effort, motivation, and environmental factors in success.
   - Example: A low score on a mechanical aptitude test might discourage a motivated individual from pursuing a related field.

3. Limited Scope:
   - Tests may not capture all aspects of an individual's potential.
   - Example: Artistic or creative aptitudes are often not well-measured by traditional aptitude tests.

4. Test Anxiety:
   - Performance may be affected by anxiety or unfamiliarity with test formats.
   - Example: High-stakes aptitude tests may not accurately reflect the abilities of individuals prone to test anxiety.

5. Predictive Limitations:
   - The relationship between aptitude scores and future performance is not perfect.
   - Example: High scores on a management aptitude test don't guarantee success in leadership roles.

6. Ethical Concerns:

- Using aptitude tests for selection or placement raises questions about fairness and equal opportunity.
- Example: Relying heavily on aptitude tests for college admissions may disadvantage students from under-resourced schools.

7. Potential for Misuse:
- Results may be misinterpreted or used inappropriately.
- Example: Using a general aptitude test to make specific predictions about job performance without considering other factors.

8. Static Nature:
- Aptitudes are often viewed as fixed, which may not account for developmental changes or the impact of training.
- Example: A low score on a spatial reasoning test at age 12 might not reflect an individual's potential after years of practice and development.

While aptitude tests can provide valuable insights into an individual's potential abilities, they should be used as part of a comprehensive assessment process. It's important to consider other factors such as motivation, experience, and specific skills when making educational or career decisions based on aptitude test results.

Certainly. I'll provide a detailed explanation of Attitude Scales, focusing on their purpose in measuring opinions, beliefs, and values, types of attitude scales, and the challenges involved in attitude assessment.

C. Attitude Scales
i. Measuring opinions, beliefs, and values:
Attitude scales are designed to measure individuals' feelings, beliefs, or opinions about a particular subject, issue, or concept. These scales aim to quantify subjective experiences and perspectives, allowing researchers and practitioners to analyze and compare attitudes across individuals or groups.

a) Key aspects of measuring opinions, beliefs, and values:
1. Subjective nature: Attitudes are internal states that cannot be directly observed.
2. Multidimensional: Attitudes often have cognitive, affective, and behavioral components.
3. Variable intensity: Attitudes can range from strongly positive to strongly negative.
4. Context-dependent: Attitudes may vary based on situational factors.

b) Types of attitude scales:

1. Likert Scale:
- Most common type, using a range of agreement levels.
- Example: Strongly Disagree (1) to Strongly Agree (5)
- Statement: "Climate change is a serious threat."

2. Semantic Differential Scale:
- Uses bipolar adjectives at ends of a continuum.
- Example: Harmful 1 2 3 4 5 6 7 Beneficial
- Concept: "Social media"

3. Thurstone Scale:

- Presents statements with pre-determined scale values.
   - Example: Respondents choose statements they agree with, each with a different weight.
   - Topic: Attitudes toward immigration

4. Guttman Scale:
   - Hierarchical scale where agreement with higher items implies agreement with lower items.
   - Example: Willingness to accept social distances (neighbor, coworker, friend, family member)
   - Subject: Attitudes toward a specific social group
5. Q-Sort Technique:
   - Involves sorting statements into categories based on agreement level.
   - Example: Sorting cards with statements about environmental issues from "Most Agree" to "Least Agree"
6. Visual Analogue Scale:
   - Uses a continuous line between two endpoints.
   - Example: A line from "Completely Oppose" to "Completely Support"
   - Issue: Gun control laws
7. Paired Comparison Scale:
   - Respondents choose between pairs of items.
   - Example: Forced choice between environmental protection and economic growth
8. Bogardus Social Distance Scale:
   - Measures willingness to participate in social contacts of varying degrees of closeness.
   - Example: Willingness to accept members of different ethnic groups as citizens, neighbors, coworkers, etc.

   c) **Challenges in attitude assessment:**
1. Social Desirability Bias:
   - Respondents may provide socially acceptable answers rather than their true attitudes.
   - Example: Underreporting prejudiced attitudes in a survey about racial relations.
2. Acquiescence Bias:
   - Tendency to agree with statements regardless of content.
   - Solution: Include both positively and negatively worded items.
3. Central Tendency Bias:
   - Avoiding extreme responses and choosing middle options.
   - Challenge: Distinguishing between truly neutral attitudes and avoidance of extremes.
4. Contextual Influences:
   - Attitudes may be influenced by recent events or the survey context itself.
   - Example: Responses to questions about government trust may vary based on recent political events.
5. Reliability Issues:
   - Ensuring consistency of measurement across time and different items.

- Challenge: Attitudes can be inherently unstable or situationally dependent.

6. Validity Concerns:
  - Ensuring the scale actually measures the intended attitude.
  - Example: A scale intended to measure attitudes toward environmental protection might inadvertently measure economic concerns.

7. Cultural Differences:
  - Attitudes and their expressions can vary significantly across cultures.
  - Challenge: Developing scales that are meaningful and equivalent across different cultural contexts.

8. Response Styles:
  - Different individuals may use rating scales differently (e.g., some may avoid extreme options).
  - Solution: Using ipsative scoring or mixed response formats.

9. Multidimensionality:
  - Attitudes often have multiple components (cognitive, affective, behavioral).
  - Challenge: Capturing all relevant dimensions in a single scale.

10. Implicit Attitudes:
  - Some attitudes may be unconscious or not readily accessible to self-report.
  - Solution: Using implicit measures like the Implicit Association Test (IAT).

11. Scaling Issues:
  - Determining the appropriate number of response options and their labels.
  - Challenge: Balancing between sufficient differentiation and cognitive load on respondents.

12. Interpretation Challenges:
  - Respondents may interpret questions or response options differently.
  - Solution: Cognitive interviewing to ensure common understanding of items.

13. Attitude Strength:
  - Distinguishing between strongly held attitudes and weaker, more malleable ones.
  - Challenge: Capturing both direction and strength of attitudes.

14. Longitudinal Measurement:
  - Tracking attitude changes over time while ensuring measurement equivalence.
  - Challenge: Separating true attitude change from measurement artifacts.

Attitude scales are valuable tools for understanding people's perspectives and predicting behavior, but they require careful design and interpretation. Researchers must be aware of these challenges and employ strategies to mitigate them, such as using multiple methods, carefully wording items, and considering the context of the assessment.

3.6 Classification of assessment based on nature of information gathered
Qualitative Assessments, focusing on their characteristics and purposes, methods of qualitative assessment, and analysis of qualitative data.
  A. Qualitative Assessments
  i. Characteristics and purposes:

Qualitative assessments are designed to gather in-depth, descriptive information about individuals' experiences, perceptions, behaviors, or phenomena. These assessments focus on the quality and richness of information rather than numerical data.

ii. Key characteristics:
1. Open-ended: Allow for a wide range of responses
2. Contextual: Consider the broader context of the subject being studied
3. Subjective: Value individual perspectives and interpretations
4. Flexible: Can be adapted as new information emerges
5. Holistic: Aim to understand the whole picture rather than isolated variables

iii. Purposes:
1. Explore complex phenomena in-depth
2. Understand individual experiences and perspectives
3. Generate hypotheses for further research
4. Provide rich, detailed descriptions of processes or events
5. Uncover underlying motivations and beliefs
6. Evaluate program effectiveness in nuanced ways

iv. Methods of qualitative assessment:
1. Interviews:
   - Structured: Predetermined questions asked in a specific order
   - Semi-structured: Guided by topics but allows for flexibility
   - Unstructured: Open-ended conversations guided by broad themes
   Example: Interviewing students about their experiences with a new curriculum
2. Observations:
   - Participant observation: Researcher actively participates in the setting
   - Non-participant observation: Researcher observes without direct involvement
   Example: Observing classroom interactions to assess teaching methods
3. Focus Groups:
   - Small group discussions on specific topics
   Example: Gathering parent opinions on school policies
4. Document Analysis:
   - Examining written materials for themes and patterns
   Example: Analyzing student journals to understand their learning processes
5. Case Studies:
   - In-depth investigation of a particular individual, group, or situation
   Example: Studying the implementation of a new technology in a specific school
6. Open-ended Surveys:
   - Questionnaires with questions that allow for free-form responses
   Example: Asking teachers about their professional development needs
7. Narrative Inquiry:
   - Collecting and analyzing stories or personal accounts
   Example: Gathering student narratives about their educational journeys
8. Ethnography:

- Immersive study of a culture or community
Example: Long-term study of school culture in a particular district

v. Analysis of qualitative data:
1. Thematic Analysis:
- Identifying, analyzing, and reporting patterns (themes) within data
Process:
a) Familiarization with data
b) Generating initial codes
c) Searching for themes
d) Reviewing themes
e) Defining and naming themes
f) Producing the report
Example: Identifying common themes in student reflections on a new teaching method
2. Content Analysis:
- Systematic categorization and quantification of qualitative data
Process:
a) Define the unit of analysis (e.g., words, phrases, themes)
b) Develop a coding scheme
c) Code the data
d) Assess coding consistency
e) Draw conclusions from the coded data
Example: Analyzing open-ended survey responses about school climate
3. Grounded Theory:
- Developing theory from data rather than testing existing theories
Process:
a) Open coding (identifying concepts)
b) Axial coding (relating concepts to each other)
c) Selective coding (choosing a core category)
d) Theory development
Example: Developing a theory about student motivation based on interview data
4. Narrative Analysis:
- Examining the content and structure of stories
Process:
a) Identifying the story elements (plot, characters, setting)
b) Analyzing how the story is told
c) Interpreting the meaning and significance of the narrative
Example: Analyzing teachers' stories about implementing a new curriculum
5. Discourse Analysis:
- Studying language use and its social context
Process:
a) Identifying the discourse (e.g., conversation, text)
b) Examining linguistic features and patterns
c) Analyzing the social and cultural context

d) Interpreting the meaning and implications
Example: Analyzing classroom discussions to understand power dynamics

6. Phenomenological Analysis:
- Focusing on individuals' lived experiences of a phenomenon
Process:
a) Bracketing (setting aside preconceptions)
b) Identifying significant statements
c) Clustering statements into themes
d) Developing textural and structural descriptions
e) Synthesizing the essence of the experience
Example: Understanding students' experiences of transitioning to online learning

7. Constant Comparative Method:
- Continuously comparing new data with previously collected data
Process:
a) Coding data into categories
b) Comparing new data with existing categories
c) Refining and adjusting categories as needed
d) Identifying relationships between categories
Example: Analyzing teacher feedback on a new assessment system over time

Qualitative assessments provide rich, detailed information that can offer deep insights into educational processes, experiences, and outcomes. However, they also require significant time and expertise to conduct and analyze effectively. The choice of method and analysis approach should be guided by the research questions and the nature of the information sought.

3.7 Classification of assessment based on mode of response
The different types of assessments based on the mode of response, covering oral assessments, written assessments, selection-type responses, and supply-type responses.

A. Oral Assessments
i. Types and purposes:
1. Interviews: One-on-one conversations to assess knowledge or skills
2. Presentations: Students present on a topic to demonstrate understanding
3. Viva voce: Oral examinations common in higher education
4. Debates: Structured arguments to assess critical thinking and communication
5. Role-plays: Simulations to assess practical skills or interpersonal abilities

ii. Purposes:
- Assess verbal communication skills
- Evaluate depth of understanding through follow-up questions
- Assess real-time problem-solving abilities
- Evaluate practical skills in fields like language or medicine

iii. Advantages:

- Allows for immediate clarification and probing
- Assesses communication skills directly
- Can be adapted in real-time based on student responses
- Mimics real-world situations in many professions

iv. Challenges:
- Time-consuming to administer
- Potential for subjectivity in scoring
- May disadvantage students with speech anxiety
- Difficult to ensure consistency across different examiners

v. Conducting effective oral assessments:
1. Develop clear assessment criteria and rubrics
2. Train examiners to ensure consistency
3. Create a comfortable environment for students
4. Use a mix of prepared and spontaneous questions
5. Record assessments when possible for review and moderation

B. Written Assessments
i. Types of written assessments:
1. Essays: Extended writing on a specific topic
2. Reports: Structured documents presenting information or analysis
3. Research papers: In-depth exploration of a topic with references
4. Short-answer questions: Brief written responses to specific questions
5. Case studies: Analysis of real or hypothetical situations

ii. Design considerations for written tests:
1. Align questions with learning objectives
2. Provide clear instructions and expectations
3. Consider time constraints and question complexity
4. Include a mix of question types when appropriate
5. Ensure questions are unambiguous and culturally sensitive

iii. Scoring and analysis of written responses:
1. Develop detailed scoring rubrics
2. Use multiple raters for high-stakes assessments
3. Conduct moderation sessions to ensure consistency
4. Analyze patterns in responses to identify areas for instructional improvement
5. Consider both content and writing skills in scoring when relevant

C. Selection-type Responses
i. Types:
1. Multiple-choice questions (MCQs)
2. True/False questions
3. Matching questions
4. Ranking questions

5. Likert-scale items

ii. Advantages:
- Efficient to administer and score
- Can cover a wide range of content quickly
- Highly reliable scoring
- Suitable for large-scale assessments

iii. Limitations:
- May encourage guessing
- Difficult to assess higher-order thinking skills
- Can be challenging to write good items
- May not reflect real-world problem-solving scenarios

iv. Item writing guidelines:
1. Ensure a clear stem (question or incomplete statement)
2. Make all options plausible but only one correct
3. Avoid negative wording when possible
4. Keep options similar in length and structure
5. Avoid giving clues to the correct answer
6. Use "All of the above" or "None of the above" sparingly

D. 7.5.4. Supply-type Responses
i. Types:
1. Short answer questions
2. Essay questions (restricted and extended response)
3. Problem-solving questions
4. Completion items (fill-in-the-blank)

ii. Scoring rubrics for supply-type items:
1. Develop clear criteria for each score point
2. Include both content and writing quality when relevant
3. Use a holistic rubric for overall quality or an analytic rubric for specific components
4. Provide examples of responses at each score level
5. Train raters to use the rubric consistently

iii. Advantages:
- Allows for assessment of complex thinking and creativity
- Provides insight into student thought processes
- Difficult to guess correct answers
- Can assess writing skills and content knowledge simultaneously

iv. Challenges:
- Time-consuming to score
- Potential for subjectivity in scoring
- May favor students with strong writing skills

- Can be difficult to cover a wide range of content

Each mode of response has its strengths and weaknesses, and the choice depends on the specific learning objectives, the nature of the content, and practical considerations like time and resources. A well-designed assessment often incorporates a mix of response types to provide a comprehensive evaluation of student learning.

3.8 Classification of assessment based on nature of interpretation
A detailed explanation of Norm-referenced and Criterion-referenced Assessments, focusing on their definitions, characteristics, uses, limitations, and interpretation methods.

A. Norm-referenced Assessments
i. Definition and characteristics:
Norm-referenced assessments compare an individual's performance to that of a defined group, typically peers of the same age or grade level. These assessments are designed to distinguish between individuals and rank them relative to each other.

ii. Key characteristics:
1. Comparative: Results are interpreted in relation to others' performance
2. Standardized: Administered and scored in a consistent manner
3. Bell curve distribution: Scores often follow a normal distribution
4. Emphasis on variability: Designed to spread out scores

iii. Uses and limitations:
a) Uses:
1. Selection processes: College admissions, job applications
2. Identifying gifted students or those needing special education
3. Comparing performance across different schools or districts
4. Tracking individual progress over time relative to peers

b) Limitations:
1. May not reflect mastery of specific skills or knowledge
2. Can promote unhealthy competition
3. May not align closely with curriculum objectives
4. Limited usefulness for instructional planning

iv. Interpreting norm-referenced scores:
1. Percentile Ranks:
   - Indicate the percentage of the norm group scoring at or below a given score
   - Example: A percentile rank of 75 means the student scored as well as or better than 75% of the norm group
2. Standard Scores:
   - Z-scores: Number of standard deviations from the mean
   - T-scores: Standardized scores with a mean of 50 and standard deviation of 10

- Example: A Z-score of +1 indicates performance one standard deviation above the mean
3. Grade Equivalents:
   - Represent the grade level at which the score is average
   - Example: A 5th grader with a grade equivalent of 6.2 is performing like an average student in the second month of 6th grade
4. Stanines:
   - Divide the normal curve into nine parts
   - Ranges from 1 (lowest) to 9 (highest)
   - Example: A stanine of 7 indicates above-average performance
5. Normal Curve Equivalents (NCEs):
   - Normalized standard scores with a mean of 50 and standard deviation of 21.06
   - Useful for comparing scores across different tests

B. Criterion-referenced Assessments
i. Definition and characteristics:
Criterion-referenced assessments measure an individual's performance against a predetermined standard or set of learning objectives, without reference to the performance of others.

ii. Key characteristics:
1. Absolute standards: Performance judged against fixed criteria
2. Aligned with specific learning objectives
3. Can potentially result in all students achieving high scores
4. Focus on individual mastery rather than relative standing

iii. Developing performance standards:
1. Define clear learning objectives
   Example: "Students will be able to solve quadratic equations using factoring."
2. Determine levels of performance
   Example: Below Basic, Basic, Proficient, Advanced
3. Set cut scores for each level
   Example: 0-60% Below Basic, 61-75% Basic, 76-90% Proficient, 91-100% Advanced
4. Use standard-setting methods:
   a) Angoff method: Experts estimate the probability of a minimally competent person answering each item correctly
   b) Bookmark method: Experts determine the difficulty level that separates performance levels
   c) Contrasting groups method: Compare performance of known groups at different levels
5. Validate standards through pilot testing and expert review

iv. Advantages and applications:
a) Advantages:
1. Directly linked to instructional objectives

2. Provides clear information about what a student can or cannot do
3. Allows all students to potentially achieve high scores
4. Useful for tracking individual progress over time

b) Applications:
1. Classroom assessments to determine mastery of specific skills
2. Professional certification exams
3. Competency-based education programs
4. State-wide standardized tests aligned with curriculum standards

c) Interpreting criterion-referenced scores:
1. Mastery levels:
   Example: "The student has achieved Proficient level in reading comprehension."
2. Percentage correct:
   Example: "The student correctly answered 85% of the questions on fractions."
3. Can/Cannot statements:
   Example: "The student can identify main ideas in a text but cannot yet analyze author's purpose."
4. Progress towards standards:
   Example: "The student has met 7 out of 10 5th grade writing standards."

C. Comparison of Norm-referenced and Criterion-referenced Assessments:
1. Purpose:
   - Norm-referenced: Compares individuals to each other
   - Criterion-referenced: Measures performance against defined standards
2. Score Interpretation:
   - Norm-referenced: Relative (percentiles, standard scores)
   - Criterion-referenced: Absolute (mastery levels, percentage correct)
3. Test Construction:
   - Norm-referenced: Designed to maximize score spread
   - Criterion-referenced: Designed to accurately measure specific skills or knowledge
4. Use in Education:
   - Norm-referenced: Often used for selection and placement
   - Criterion-referenced: Often used for instructional planning and measuring learning outcomes

Both types of assessments have their place in education and are often used in complementary ways. The choice between them depends on the specific purpose of the assessment, the nature of the skills or knowledge being assessed, and the intended use of the results.

3.9 Classification of assessment based on assessment context
A. Internal Assessments
i. School-based Assessments
a) Definition:

Internal assessments, also known as school-based assessments, are evaluations designed and administered by teachers within a school. These assessments are tailored to the school's curriculum and are used to measure students' understanding and progress over a particular period.

b) Teacher's Role in Internal Assessments:
1. Designing Assessments: Teachers create assessments that align with the curriculum and learning objectives.
2. Administering Assessments: Teachers administer these assessments in a classroom setting, ensuring that conditions are conducive to fair evaluation.
3. Grading and Feedback: Teachers grade the assessments and provide feedback to help students understand their strengths and areas for improvement.
4. Adjusting Instruction: Based on the results, teachers can adjust their teaching strategies to address any learning gaps or reinforce concepts.
5. Monitoring Progress: Teachers use internal assessments to monitor student progress and inform parents and stakeholders about student achievements.

c) Advantages of Internal Assessments:
1. Customization: Assessments can be tailored to the specific learning needs and abilities of the students.
2. Immediate Feedback: Teachers can provide prompt feedback, which helps students improve in real-time.
3. Flexibility: Allows for a variety of assessment formats, such as projects, presentations, and written tests.
4. Continuous Monitoring: Enables ongoing assessment of student progress, providing a comprehensive view of student learning over time.
5. Relevance: Directly linked to the content and skills taught in the classroom.

d) Challenges of Internal Assessments:
1. Subjectivity: Potential for bias in grading and evaluation.
2. Consistency: Ensuring consistency in assessment standards across different teachers and classrooms.
3. Time-Consuming: Requires significant time and effort from teachers to design, administer, and grade assessments.
4. Resource Intensive: May require additional resources and support for effective implementation.
5. Limited Comparability: Results may not be easily comparable across different schools or districts.

B. External Assessments
i. Standardized Tests and Examinations
a) Definition:
External assessments are evaluations designed and administered by external bodies, often at the state, national, or international level. These include standardized tests and examinations that are used to measure student performance against common criteria.

b) Purpose and Impact of External Assessments:
1. Benchmarking: Provide a way to compare student performance across different regions and schools.
2. Accountability: Hold schools and educators accountable for student outcomes, potentially driving improvements in education quality.
3. College and Career Readiness: Serve as benchmarks for college admissions and career readiness.
4. Policy Decisions: Inform educational policy and funding decisions based on aggregated data.
5. Identifying Gaps: Highlight disparities in achievement among different student populations, prompting targeted interventions.

c) Balancing Internal and External Assessments:
a. Benefits of Balance:
1. Comprehensive Evaluation: Combining both types of assessments provides a more complete picture of student learning and progress.
2. Mitigates Limitations: Internal assessments address the limitations of external assessments, such as lack of customization and immediate feedback.
3. Enhanced Instruction: Data from both sources can inform more effective teaching strategies and curriculum adjustments.
4. Reduced Pressure: Balancing internal and external assessments can help reduce the pressure on students and teachers associated with high-stakes testing.
5. Improved Accountability: A balanced approach ensures accountability while also considering the individual learning contexts of students.

b. Challenges of Balance:
1. Coordination: Requires careful coordination and planning to integrate both types of assessments effectively.
2. Resource Allocation: Balancing may require additional resources, training, and support for teachers.
3. Consistency: Ensuring consistency in assessment standards and expectations across internal and external assessments.
4. Overtesting: Risk of overburdening students with too many assessments, leading to test fatigue.
5. Alignment: Ensuring that internal assessments align with the standards and expectations of external assessments.

By effectively balancing internal and external assessments, educators can provide a more accurate and holistic evaluation of student learning, fostering both accountability and individual growth.

3.10 Continuous and Comprehensive School-Based Assessment
A. Concept and Rationale
i. Concept:

Continuous and Comprehensive Assessment (CCA) is an educational approach that emphasizes regular and varied evaluations of students' academic and co-curricular performance. It aims to provide a holistic view of student development by assessing not only academic achievements but also skills, attitudes, and values.

ii. Rationale:

1. Holistic Development: Encourages the all-around development of students, focusing on intellectual, emotional, and social aspects.
2. Regular Feedback: Provides ongoing feedback to students, helping them improve continuously rather than just at the end of a term or course.
3. Personalized Learning: Allows for more personalized and adaptive learning experiences based on individual student needs and progress.
4. Reduced Exam Stress: Distributes assessment over time, reducing the pressure and anxiety associated with high-stakes testing.
5. Comprehensive Evaluation: Ensures that various aspects of a student's development are evaluated, leading to a more complete understanding of their capabilities.

B. Components of Continuous and Comprehensive Assessment

1. Formative Assessments:
   - Quizzes and Tests: Short assessments to gauge understanding of recent material.
   - Assignments and Projects: Tasks that require application of knowledge and skills.
   - Class Participation: Evaluating involvement and engagement in classroom activities.
   - Observations: Monitoring student behavior and interactions.
2. Summative Assessments:
   - Exams: Formal assessments at the end of a unit or term.
   - Final Projects: Comprehensive tasks that summarize learning over a period.
   - Portfolios: Collections of student work demonstrating progress and achievement.
3. Co-curricular Assessments:
   - Sports and Physical Activities: Evaluating physical development and teamwork.
   - Arts and Music: Assessing creativity and performance in artistic endeavors.
   - Social Skills: Observing interactions and collaboration with peers.
4. Personal Development Assessments:
   - Behavioral Evaluations: Monitoring attitudes, values, and personal growth.
   - Self and Peer Assessments: Encouraging reflection and constructive feedback.

C. Strategies for Implementation

1. Integration into Curriculum:
   - Embed assessment activities into regular teaching practices.
   - Align assessments with learning objectives and outcomes.
2. Diverse Assessment Methods:
   - Use a variety of assessment tools and techniques to cater to different learning styles and intelligences.
   - Incorporate both formal and informal assessment methods.

3. Regular and Timely Feedback:
   - Provide immediate feedback to students to help them understand their progress and areas for improvement.
   - Use feedback to guide future instruction and learning activities.

4. Professional Development:
   - Train teachers in effective assessment practices and data analysis.
   - Encourage collaborative planning and sharing of best practices.
5. Student Involvement:
   - Engage students in self-assessment and goal-setting activities.
   - Foster a growth mindset by emphasizing progress and effort over grades.

D. Challenges and Solutions
i. Challenges:
1. Time Management: Continuous assessment can be time-consuming for teachers.
   - Solution: Streamline assessment processes and integrate them into regular teaching activities.
2. Consistency and Fairness: Ensuring uniformity in assessment standards across different teachers and classes.
   - Solution: Develop clear rubrics and guidelines for assessments.
3. Teacher Training: Need for teachers to be skilled in diverse assessment methods.
   - Solution: Provide ongoing professional development and support.
4. Student Resistance: Students accustomed to traditional assessment methods may resist change.
   - Solution: Educate students on the benefits of continuous assessment and involve them in the process.
5. Resource Constraints: Limited resources and support for comprehensive assessment.
   - Solution: Advocate for additional resources and support from school administration and stakeholders.

E. Impact on Teaching and Learning
1. Enhanced Learning Experience: More engaging and interactive learning activities that cater to different learning styles.
2. Improved Student Outcomes: Continuous feedback and personalized instruction lead to better academic performance and personal growth.
3. Motivated Students: Regular assessment and feedback keep students motivated and focused on their learning goals.
4. Informed Instruction: Teachers can adjust their teaching strategies based on ongoing assessment data.
5. Reduced Stress: Less emphasis on high-stakes exams, leading to a more positive learning environment.

F. Role of Stakeholders
i. Teachers:

1. Implement Assessments: Design and administer a variety of assessment methods.
2. Provide Feedback: Offer timely and constructive feedback to students.
3. Adjust Instruction: Use assessment data to inform teaching practices and support student learning.

ii. Students:
1. Engage in Learning: Actively participate in assessment activities and use feedback for improvement.
2. Self-Assess: Reflect on their own learning and set goals for personal growth.
3. Collaborate: Work with peers in peer-assessment and group activities.

iii. Parents:
1. Support Learning: Encourage and support their children's learning and assessment activities at home.
2. Stay Informed: Engage with teachers and stay informed about their children's progress.
3. Provide Feedback: Offer feedback to teachers and the school on the assessment process and their child's experience.

By effectively implementing continuous and comprehensive school-based assessment, schools can create a more balanced and supportive educational environment that fosters holistic student development.

3.10.1 Grading: Concept, Types, and Application
i. Concept of Grading
a) Definition and Purpose:
- Definition: Grading is the process of evaluating and recording the academic performance of students. It involves assigning symbols (letters, numbers, or descriptors) to represent the level of achievement.
- Purpose:
 - Measurement: To quantify students' understanding and mastery of the material.
 - Feedback: To provide feedback to students about their academic progress and areas needing improvement.
 - Motivation: To motivate students to achieve learning objectives.
 - Accountability: To hold students accountable for their learning and to uphold academic standards.
 - Decision-Making: To inform decisions about student advancement, instructional adjustments, and resource allocation.

b) Principles of Effective Grading:
- Fairness: Grades should be based on clear, consistent criteria that are applied equitably to all students.
- Accuracy: Grades should accurately reflect students' knowledge, skills, and performance.

- Timeliness: Grading should be timely to provide relevant and actionable feedback to students.
- Transparency: The grading process and criteria should be transparent to students and parents.
- Supportive: Grading should support learning by identifying strengths and areas for improvement.

ii. Types of Grading Systems
a) Letter Grading:
- Description: Assigns letters (A, B, C, D, F) to represent a range of performance levels.
- Application: Commonly used in primary, secondary, and higher education.

b) Numerical Grading:
- Description: Uses numerical scores (usually on a scale of 0-100) to represent performance.
- Application: Often used in conjunction with letter grades to provide more detailed feedback.

c) Pass/Fail Grading:
- Description: Students receive a "Pass" or "Fail" based on whether they meet the minimum criteria.
- Application: Frequently used for courses with practical components or non-credit courses.

d) Narrative Grading:
- Description: Provides descriptive feedback in the form of written comments, detailing students' strengths and areas for improvement.
- Application: Often used in elementary education and for subjects where qualitative feedback is more informative than quantitative scores.

e) Standards-Based Grading:
- Description: Measures students' performance against specific learning standards or objectives.
- Application: Increasingly used in K-12 education to provide more detailed information about student learning.

f) Competency-Based Grading:
- Description: Evaluates students' proficiency in specific competencies or skills rather than overall course performance.
- Application: Common in vocational and technical education, as well as in competency-based education programs.

i. Application of Grading Systems
a) Determining Grade Cutoffs:

- Definition: Establishing the thresholds for different grades (e.g., A = 90-100, B = 80-89).
- Considerations: Must be fair, consistent, and reflective of the difficulty of the material and assessments.

b) Weighting Different Assessment Components:
- Description: Assigning different weights to various types of assessments (e.g., exams, quizzes, projects, participation).
- Approach: Ensure the weights reflect the importance and intended learning outcomes of each component.

c) Grading Policies and Practices:
- Definition: Guidelines that govern how grades are assigned, recorded, and reported.
- Examples: Policies on late submissions, makeup work, grade appeals, and academic integrity.

d) Communicating Grades to Students and Parents:
- Methods: Report cards, online grade portals, parent-teacher conferences, and written feedback.
- Principles: Ensure clarity, transparency, and regular communication to keep stakeholders informed.

e) Using Grades for Decision-Making:
- Examples: Decisions about student promotion, graduation, honors, and eligibility for programs or scholarships.
- Approach: Use grades as one of multiple measures to make informed, fair, and holistic decisions about student progress and outcomes.

By understanding and effectively applying various grading systems, educators can provide meaningful assessments that support student learning and development.

3.10.2 Indicators for Grading
A. Academic Performance Indicators
i. Test and Exam Scores:
- Definition: Scores achieved on standardized tests, quizzes, and final exams.
- Purpose: Measure student understanding and retention of material.

ii. Project and Assignment Quality:
- Definition: Evaluation of the quality and completeness of projects and assignments.
- Purpose: Assess skills such as research, analysis, creativity, and application of knowledge.

iii. Class Participation:

- Definition: Engagement and contributions in classroom discussions and activities.
- Purpose: Gauge student involvement, understanding, and communication skills.

iv. Homework Completion:
- Definition: Timeliness and quality of homework submissions.
- Purpose: Encourage consistent practice and reinforcement of concepts learned in class.

B. Non-Academic Indicators
i. Effort and Improvement:
- Definition: The extent of a student's effort and progress over time.
- Purpose: Reward persistence, dedication, and improvement regardless of final performance levels.

ii. Attendance and Punctuality:
- Definition: Regularity and timeliness in attending classes.
- Purpose: Encourage responsibility and reliability.

iii. Behavior and Conduct:
- Definition: Adherence to classroom rules, respect for peers and teachers.
- Purpose: Promote a positive and respectful learning environment.

iv. Collaboration and Teamwork:
- Definition: Ability to work effectively with others in group settings.
- Purpose: Develop social skills, cooperation, and collaborative problem-solving.

C. Holistic Indicators
i. 10.3.1. Portfolio Assessments:
- Definition: Compilation of a student's work over a period, showcasing a range of skills and learning.
- Purpose: Provide a comprehensive view of student development and achievements.

ii. Self-Assessment and Reflection:
- Definition: Student evaluations of their own learning and progress.
- Purpose: Foster self-awareness, responsibility, and independent learning.

iii. Peer Assessments:
- Definition: Evaluations by classmates of a student's contributions and performance.
- Purpose: Encourage critical thinking, constructive feedback, and peer learning.

iv. Teacher Observations:
- Definition: Informal assessments based on teachers' observations of student behavior and performance.
- Purpose: Provide insights into student engagement, attitude, and classroom dynamics.

D. Weighting and Combining Indicators

i. Determining the Relative Importance of Indicators:
- Approach: Establish clear criteria for the importance of each indicator based on educational goals and standards.
- Considerations: Balance academic performance with non-academic and holistic indicators to support well-rounded development.

ii. Methods for Combining Multiple Indicators:
- Weighted Average: Assign weights to different indicators and calculate a composite score.
- Rubrics: Use detailed scoring rubrics to integrate various indicators in a consistent manner.
- Point System: Allocate points to each indicator and sum them to determine the final grade.

iii. Ensuring Fairness and Consistency in Indicator Use:
- Guidelines: Develop and communicate clear guidelines for how indicators are used and weighted.
- Calibration: Regularly calibrate grading practices across teachers to maintain consistency.
- Transparency: Make grading criteria and processes transparent to students and parents.

E. Challenges in Using Grading Indicators
i. Subjectivity and Bias:
- Issue: Personal biases can affect the grading of non-academic and holistic indicators.
- Solution: Use clear rubrics and multiple sources of evidence to mitigate bias.

ii. Reliability and Validity Concerns:
- Issue: Ensuring that indicators consistently and accurately measure what they are intended to.
- Solution: Regularly review and refine indicators and assessment methods.

iii. Aligning Indicators with Learning Objectives:
- Issue: Indicators must align with the intended learning outcomes and educational goals.
- Solution: Design assessments and indicators based on clear and measurable learning objectives.

F. Best Practices for Using Grading Indicators
i. Transparency in Grading Criteria:
- Practice: Clearly communicate grading criteria and indicators to students and parents.

- Benefit: Increases understanding, trust, and acceptance of the grading process.

ii. Regular Review and Adjustment of Indicators:
- Practice: Periodically review and adjust indicators to ensure they remain relevant and effective.
- Benefit: Keeps the grading system aligned with educational goals and evolving needs.

iii. Professional Development for Educators on Effective Use of Indicators:
- Practice: Provide training and support for teachers in using diverse and holistic grading indicators.
- Benefit: Enhances the reliability, validity, and fairness of the grading process.

By thoughtfully incorporating and balancing various grading indicators, educators can provide a more comprehensive and accurate assessment of student performance, fostering both academic excellence and personal growth.

Self-Check Exercise-1
Q1. Which type of assessment aims to predict future performance?
   a. Diagnostic
   b. Formative
   c. Prognostic
   d. Summative
Q2. What kind of test is administered and scored in a consistent manner across different settings?
   a. Teacher-made test
   b. Standardized test
   c. Aptitude test
   d. Achievement test
Q3. Which type of assessment interpretation compares a student's performance to their peers?
   a. Criterion-referenced
   b. Norm-referenced
   c. Standard-referenced
   d. Self-referenced
Q4. _____ assessment is ongoing evaluation used to guide learning throughout an instructional period.
Q5. Tests that measure opinions, beliefs, or feelings are called _____ scales.
Q6. _____ assessment is conducted within the school, while _____ assessment is administered by outside bodies.
Q7. Summative assessment is used to guide learning throughout an instructional period. (True/False)
Q8. Qualitative assessment collects numerical data. (True/False)
Q9. Criterion-referenced interpretation measures performance against set standards. (True/False)

Q10. What is the difference between achievement tests and aptitude tests?
Q11. Why is continuous and comprehensive school-based assessment important?
Q12. Explain the concept of grading and its significance in education.

3.11   Summary

Assessment in education can be classified in various ways, each serving different purposes and providing unique insights into student learning and educational processes. Classifications based on purpose include prognostic (predicting future performance), formative (ongoing assessment to guide learning), diagnostic (identifying specific learning issues), and summative (evaluating learning at the end of an instructional period). Scope-based classification distinguishes between teacher-made assessments and standardized tests. The nature of attributes measured can include achievement, aptitude, or attitude. Assessments can gather qualitative or quantitative information and may require oral or written responses, either through selection (e.g., multiple choice) or supply (e.g., essay) formats. Interpretations can be norm-referenced (comparing to peers) or criterion-referenced (measuring against set standards). The assessment context can be internal (within the school) or external (administered by outside bodies).

Continuous and comprehensive school-based assessment has become increasingly important, recognizing the need for ongoing evaluation that considers various aspects of student development. This approach allows for timely interventions and a more holistic view of student progress. Grading, a crucial aspect of assessment, involves assigning symbols or numbers to represent student achievement. Various grading systems exist, each with its own applications and implications. Indicators for grading are specific criteria or benchmarks used to determine grades, ensuring consistency and fairness in evaluation.This comprehensive approach to assessment classification and implementation reflects the complex nature of educational evaluation and its critical role in supporting effective teaching and learning processes.

3.12   Glossary

Prognostic assessment: Predicts future performance or aptitude
Formative assessment: Ongoing evaluation to guide learning
Diagnostic assessment: Identifies specific learning difficulties
Summative assessment: Evaluates learning at the end of an instructional period
Standardized tests: Uniform tests administered and scored in a consistent manner
Achievement tests: Measure knowledge or skills in specific subjects
Aptitude tests: Assess potential for future learning or performance
Attitude scales: Measure opinions, beliefs, or feelings
Qualitative assessment: Gathers descriptive, non-numerical data
Quantitative assessment: Collects numerical data
Norm-referenced interpretation: Compares performance to peers
Criterion-referenced interpretation: Measures performance against set standards
Internal assessment: Conducted within the school
External assessment: Administered by outside bodies
Grading: Assigning symbols or numbers to represent achievement

Indicators: Specific criteria used to determine grades

3.13   Answers to Self-Check Exercise

Ans1.   c) Prognostic
Ans2.   b) Standardized test
Ans3.   b) Norm-referenced
Ans4.   Formative
Ans5.   Attitude
Ans6.   Internal, external
Ans7.   False
Ans8.   False
Ans9.   True
Ans10.   Achievement tests measure current knowledge or skills in specific subjects, while aptitude tests assess potential for future learning or performance.
Ans11.   Continuous and comprehensive school-based assessment is important because it allows for ongoing evaluation of various aspects of student development, enabling timely interventions and providing a holistic view of student progress.
Ans12.   Grading is the process of assigning symbols or numbers to represent student achievement. It is significant in education as it provides a standardized way to communicate student performance, motivate students, and facilitate decision-making in educational contexts.

3.14   References/Suggested Readings

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3.15   Terminal Questions

- Discuss the various classifications of assessment and how they contribute to a comprehensive understanding of student learning and educational processes.
- Evaluate the importance of using both formative and summative assessments in education. How do they complement each other in supporting student learning?

- Explain the concept of norm-referenced and criterion-referenced interpretations in assessment. Discuss the advantages and disadvantages of each approach in educational evaluation.

UNIT – 4

ASSESSMENT OF COGNITIVE LEARNING

Structure

4.1 Introduction

The major levels of cognitive learning can be classified as memorizing, understanding, and applying. Most content can be learned at any of these three levels of learning. For example, you can memorize a definition of performance-based assessment as indicated by being able to restate it, you can understand what performance-based assessment is by being able to relate it to relevant prior knowledge, and you can learn to use performance-based assessment in your training. Too often we teach at the wrong level or test at the wrong level (inconsistent with our goals).

4.1 objectives

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

- Explain the levels of cognitive learning
- Explain convergent and divergent thinking
- Explain critical thinking
- Discuss the problem solving and decision making

4.2 Levels of cognitive learning

Memorization. This is rote learning. It entails learners encoding facts or information in the form of an association between a stimulus and a response, such as a name, date, event, place or symbol. . The behavior that indicates that this kind of learning has occurred is stating (or "regurgitating"), usually verbatim.

Understanding. This is meaningful learning. It entails learners relating a new idea to relevant prior knowledge, such as understanding what a revolutionary war is. The behaviors that indicate that this kind of learning has occurred include comparing

and contrasting, making analogies, making inferences, elaborating, and analyzing (as to parts and/or kinds), among others.

Application. This is learning to generalize to new situations, or transfer learning. It entails learners identifying critical commonalities across situations, such as predicting the effects of price increases. The behavior that indicates that this kind of learning has occurred is successfully applying a generality (the critical commonalities) to a diversity of previously unencountered situations.

Memorization, though sometimes very important, is greatly overused in most training settings. Understanding is very important, but it is relatively complex, and has not received much attention by instructional theorists until very recently. Application is important and has received much attention by instructional theorists. It therefore provides a good place for us to begin.

4.3 Convergent and Divergent thinking

Convergent thinking is the type of thinking that focuses on coming up with the single, well-established answer to a problem. It is oriented toward deriving the single best, or most often correct answer to a question. Convergent thinking emphasizes speed, accuracy, and logic and focuses on recognizing the familiar, reapplying techniques, and accumulating stored information. It is most effective in situations where an answer readily exists and simply needs to be either recalled or worked out through decision making strategies. A critical aspect of convergent thinking is that it leads to a single best answer, leaving no room for ambiguity. In this view, answers are either right or wrong. The solution that is derived at the end of the convergent thinking process is the best possible answer the majority of the time.

Divergent thinking is a thought process or method used to generate creative ideas by exploring many possible solutions. It is often used in conjunction with its cognitive opposite, convergent thinking, which follows a particular set of logical steps to arrive at one solution, which in some cases is a 'correct' solution. By contrast, divergent thinking typically occurs in a spontaneous, free-flowing, 'non-linear' manner, such that many ideas are generated in an emergent cognitive fashion. Many possible solutions are explored in a short amount of time, and unexpected connections are drawn. After the process of divergent thinking has been completed, ideas and information are organized and structured using convergent thinking.

4.4 Critical thinking

Critical thinking means making reasoned judgments that are logical and well thought out. It is a way of thinking in which you don't simply accept all arguments and conclusions you are exposed to but rather have an attitude involving questioning such arguments and conclusions. It requires wanting to see what evidence is involved to support a particular argument or conclusion. People who use critical thinking are the ones who say things such as, 'How do you know that? Is this conclusion based on evidence or gut feelings?' and 'Are there alternative possibilities when given new pieces of information?'

Additionally, critical thinking can be divided into the following three core skills:

1. **Curiosity** is the desire to learn more information and seek evidence as well as being open to new ideas.
2. **Skepticism** involves having a healthy questioning attitude about new information that you are exposed to and not blindly believing everything everyone tells you.
3. **humility** is the ability to admit that your opinions and ideas are wrong when faced with new convincing evidence that states otherwise.

4.5 Problem solving

Problem solving method is one in which the problems are solved scientifically. It is a method which discipline the mind to approach all problems scientifically and in the same way. It is otherwise known as scientific approach. In this the existence of a problem is pre-supposed. A problem is an obstruction of some sort to the attainment of an objective, a sort of difficulty which does not enable the individual to reach the goal easily. The distinguishing thing about a problem is that is impresses the individual who meets it as a needing challenge. These problems grow in complexity as the individual grows older and older. The solution of these gives him better hold on the environment, increases his store of knowledge and develops his intellectual powers.

Various steps of problem solving:
1. Locating and sensing the problem
2. Defining the problem
3. Analyzing the problem
4. Collecting the data
5. Interpreting and analyzing the data
6. Formatting of hypothesis
7. Drawing conclusion and framing principles.

4.6 Decision making

Decision-making is a concept based on the fundamental principle that individuals who are affected by the decision, possess expertise regarding the decision, and are responsible for implementing the decision, should be involved in making the decision. This concept often is attached to the broader school-system reform efforts of decentralization and school-based management (SBM), where decision-making authority is shifted from the district to the local school level. Some educators use the terms *shared decision-making* and *school-based management* interchangeably; others see shared decision-making as a component of SBM or decentralization. In general, the goal of school-based decision-making is to "empower school staff by providing authority, flexibility, and resources to solve the educational problems particular to their schools" (David, p. 52).

To operationalize school-based decision-making, structures at the school level need to be implemented to facilitate the involvement of key stakeholders in the decision-making process. Schools embracing shared decision-making typically develop councils consisting of representative stakeholders in the school, such as teachers, parents,

support personnel, and administrators. The school's governance structure is supported by guidelines that specify representation, terms of membership, council size, meeting format, and delineated lines of authority. Frequently, site councils further disperse involvement through the use of subcommittees. Subcommittees allow greater numbers of teachers to participate in the formal decision-making process and reduce the overall burden of extended involvement of others.

In addition to decision-making governance councils, schools that embrace shared decision making understand that reaching collective agreement and consensus around difficult decisions require extended discussions, off-site meetings, and collective planning. Thus, schools that engage in shared decision-making at an authentic level set aside time for teachers to meet and places for them to congregate and talk. In addition, school schedules are often redesigned to facilitate teacher interaction by structuring common planning periods.

4.7 Procedure of assessment

In education, the term **assessment** refers to the wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students.

While assessments are often equated with traditional tests—especially the standardized tests developed by testing companies and administered to large populations of students—educators use a diverse array of assessment tools and methods to measure everything from a four-year-old's readiness for kindergarten to a twelfth-grade student's comprehension of advanced physics. Just as academic lessons have different functions, assessments are typically designed to measure specific elements of learning—e.g., the level of knowledge a student already has about the concept or skill the teacher is planning to teach or the ability to comprehend and analyze different types of texts and readings. Assessments also are used to identify individual student weaknesses and strengths so that educators can provide specialized academic support, educational programming, or social services. In addition, assessments are developed by a wide array of groups and individuals, including teachers, district administrators, universities, private companies, state departments of education, and groups that include a combination of these individuals and institutions.

The purpose of an assessment generally drives the way it is designed, and there are many ways in which assessments can be used. A standardized assessment can be a high-stakes assessment, for example, but so can other forms of assessment that are not standardized tests. A portfolio of student work can be a used as both a "formative" and "summative" form of assessment. Teacher-created assessments, which may also be created by teams of teachers, are commonly used in a single course or grade level in a school, and these assessments are almost never "high-stakes." Screening assessments may be produced by universities that have conducted research on a specific area of child development, such as the skills and attributes that a student should have when entering kindergarten to increase the likelihood that he or she will be successful, or the pattern of behaviors, strengths, and challenges that suggest a child has a particular learning disability. In short, assessments are usually created for highly specialized purposes.

In education, there is widespread agreement that assessment is an integral part of any effective educational system or program. Educators, parents, elected officials, policy makers, employers, and the public all want to know whether students are learning successfully and progressing academically in school. The debates—many of which are a complex, wide ranging, and frequently contentious—typically center on how assessments are used, including how frequently they are being administered and whether assessments are beneficial or harmful to students and the teaching process.

Self-Check Exercise-1
Q 1. _____ involves generating multiple solutions or ideas for a given problem.
Q 2. _____ is the ability to analyze, evaluate, and form judgments based on evidence.
Q 3. Convergent thinking involves generating multiple possible solutions to a problem. (True/False)
Q 4. Learning objectives do not influence the assessment process. (True/False)
Q 5. What are the main levels of cognitive learning, and how do they differ from each other?
Q 6. Explain the importance of critical thinking in education.

4.8   Summary
Learning objectives are specific statements that clearly define what learners will know or be able to do as a result of instruction. They guide the teaching and learning process and provide a basis for assessment. Cognitive learning encompasses various levels, from basic knowledge recall to complex evaluation and creation. Convergent thinking involves finding a single correct solution to a problem, while divergent thinking generates multiple solutions or ideas. Critical thinking is the ability to analyze and evaluate information or arguments. Problem solving involves identifying and resolving issues systematically, and decision making is the process of choosing the best course of action from available options. Assessment procedures evaluate students' understanding and skills, guiding instructional decisions and improving learning outcomes.

4.9   Glossary
Cognitive Learning: Mental processes involved in gaining knowledge and understanding.
Convergent Thinking: A thought process that seeks a single correct answer to a problem.
Divergent Thinking: A thought process that generates many possible solutions or ideas.
Critical Thinking: The ability to analyze, evaluate, and form judgments based on evidence.
Problem Solving: The process of identifying solutions to specific issues or challenges.
Decision Making: The process of selecting the best option from a set of alternatives.
Assessment: Methods and procedures used to evaluate student learning and performance.

4.10 Answers to Self-Check Exercise

Ans 1.   Divergent thinking

Ans 2.   Critical thinking

Ans 3.   False

Ans 4.   False

Ans 5.   The main levels of cognitive learning are:
- Knowledge: Recall of facts and basic concepts.
- Comprehension: Understanding information.
- Application: Using information in new situations.
- Analysis: Breaking down information into parts.
- Synthesis: Combining parts to create new meaning.
- Evaluation: Making judgments based on criteria and standards.

Ans 6.   Critical thinking is important in education because it helps students to analyze information, solve problems effectively, make reasoned decisions, and develop independent thinking skills, which are essential for lifelong learning and responsible citizenship.

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4.12 Terminal Questions

- Compare and contrast convergent and divergent thinking with examples of when each might be used.
- Describe the steps involved in the problem-solving process and provide an example of how these steps can be applied to a real-life situation.

UNIT – 5
ASSESSMENT FOR AFFECTIVE LEARNING

Structure

5.1 Introduction

Assessment for learning is best described as a process by which assessment information is used by teachers to adjust their teaching strategies, and by students to adjust their learning strategies. Assessment, teaching, and learning are inextricably linked, as each informs the others. Assessment is a powerful process that can either optimise or inhibit learning, depending on how it's applied. Assessment for learning provides students with information and guidance so they can plan and manage the next steps in their learning. Assessment for learning uses information to lead from what has been learned to what needs to be learned next

Assessment for learning should use a range of approaches. These may include:
- day-to-day activities, such as learning conversations
- a simple mental note taken by the teacher during observation
- student self and peer assessments
- a detailed analysis of a student's work
- assessment tools, which may be written items, structured interview questions, or items teachers make up themselves.

What matters most is not so much the form of the assessment, but how the information gathered is used to improve teaching and learning.

5.2 Learning Objectives

After going through this lesson, you should be able to:
- ➢ Explain the term attitude
- ➢ Discuss term values
- ➢ Explain the term interests

➢ Explain the procedure of assessment

5.3 Assessments for learning:
- Attitude
- Values
- Interests

A. Attitude

Attitudes are initially thoughts, whether conscious or not. If you think about an area in your life where you experience success, try and find where that success started. It no doubt first required a decision as to how you were going to act and behave in the world. For example, I changed careers when I was 27. I remember on the first day feeling so overwhelmed, and so far behind my peers. At that moment I made a decision I would be the best in my job in a year or so. And that eventuated. Now looking back I can see that I used positive self talk to create a winning attitude that served me... an example of the power of positive thinking in action. That attitude to win literally came from the thought that I wanted to be the best on the job and it influenced all of my actions and behaviors at work. When there was extra to do, I gladly did it. And I always made sure my jobs were completed with thoroughness. This was all to serve my "winner" positive attitude.

B. Values

Values can be defined as those things that are important to or valued by someone. That someone can be an individual or, collectively, an organization. One place where values are important is in relation to vision. One of the imperatives for organizational vision is that it must be based on and consistent with the organization's core values. In one example of a vision statement we'll look at later, the organization's core values - in this case, integrity, professionalism, caring, teamwork, and stewardship- were deemed important enough to be included with the statement of the organization's vision. Dr. John Johns, in an article entitled "The Ethical Dimensions of National Security," mentions honesty and loyalty as values that are the ingredients of integrity. When values are shared by all members of an organization, they are extraordinarily important tools for making judgments, assessing probable outcomes of contemplated actions, and choosing among alternatives. Perhaps more important, they put all members "on the same sheet of music" with regard to what all members as a body consider important.

Values are the embodiment of what an organization stands for, and should be the basis for the behavior of its members. However, what if members of the organization do not share and have not internalized the organization's values? Obviously, a disconnect between *individual and organizational values* will be dysfunctional. Additionally, an organization may publish one set of values, perhaps in an effort to push

forward a positive image, while the values that really guide organizational behavior are very different. When there is a disconnect between *stated and operating values*, it may be difficult to determine what is "acceptable." For example, two of the Army's organizational values include candor and courage. One might infer that officers are encouraged to "have the courage of their convictions" and speak their disagreements openly. In some cases, this does work; in others it does not.

The same thing works at the level of the society. The principles by which the society functions do not necessarily conform to the principles stated. Those in power may covertly allow the use of force to suppress debate in order to remain in power. ("death squads" are an example.) In some organizations, dissent may be rewarded by termination-the organizational equivalent of "death squad" action. In others, a group member may be ostracized or expelled.

C. interests

Interests are the things you list under "Interests" on your Profile Page as a way to find others on Dreamwidth who are interested in the same things you are. Listing an interest not only makes it appear on your Profile Page, it also lets others find your journal when they do a search using one of your interests as their search term. That's why instead of just listing "music" as your interest, you might list "Italian Opera" or "New Wave Punk" or "Wagner" or "Metallica". The more specific you are, the more likely it is that other people who share your interest will be able to find you.

Your interests have already influenced many of the choices made in your life: your choice of A-level and degree subjects; the ways in which you spend your spare time; the holidays, and perhaps the jobs, which you have taken during vacations. They may have been responsible for many of the friends you have made and helped you to develop your personal skills. These interests are likely to have a similar influence on your career.

A gifted athlete, for example, may be able to use their interest and ability to succeed in a sporting career. Many more people will be content to play their sport at a recreational level, but will still take this interest into account when selecting a career or an employer. Some may enter sports-related careers, in leisure management, sports administration or promotion, retailing sports goods or teaching physical education. Others will seek out careers in different fields that offer similar opportunities for physical activity, teamwork, competition or challenge. Or they may simply choose between employers on the basis of the company sports facilities.
- Make a note of the activities you most enjoy and why you find them interesting.
- Among these interests, is there one which gives you more satisfaction than others?
- What do you spend most time on now?
- Are there any interests that you would like to develop or to spend more time on?

D. procedures of their assessment

Educational assessment is the process of documenting, usually in measurable terms, knowledge, skill, attitudes, and beliefs. Assessment can focus on the individual learner, the learning community (class, workshop, or other organized group of learners),

the institution, or the educational system as a whole (also known as <u>granularity</u>). The final purpose of assessment practices in education depends on the *theoretical framework* of the practitioners and researchers, their assumptions and beliefs about the nature of human mind, the origin of knowledge, and the process of learning

When conducting assessments, professionals must be careful to consider the client's/patient's level of acculturation to the mainstream culture. It is important to determine how familiar and comfortable individuals are with social, interpersonal, academic, and testing practices in the United States. An appropriate evaluation may have to be completed over timeUnder the Individuals with Disabilities Education Act 2004, schools can employ "early intervening" services to determine which children have intrinsic learning problems that cannot be explained on the basis of lack of experience with the tasks. Responsiveness to intervention (RTI) and dynamic assessment (DA) are both early intervening approaches that can be used to decrease unnecessary referral to special education for struggling children who can benefit from modified instructional techniques

Self-Check Exercise-1

Q 1. Which of the following is NOT typically considered in assessments for learning?
    a) Attitudes
    b) Values
    c) Interests
    d) Physical fitness

Q 2. What type of scale often uses opposite adjectives to measure attitudes?
    a) Likert scale
    b) Semantic differential
    c) Interval scale
    d) Ratio scale

Q 3. Which assessment method relies on individuals providing information about themselves?
    a) Observational technique
    b) Projective technique
    c) Self-report measure
    d) Peer assessment

Q 4. _____ focuses on students' feelings and predispositions towards learning or subjects.

Q 5. _____ assessment explores students' preferences and inclinations towards specific subjects or activities.

Q 6. Ethical considerations in assessment include issues of _____ and appropriate use of collected information.

Q 7. Assessments for learning should only be conducted at the end of a learning period. (True or False)

Q 8. Value assessments examine the principles and ideals that guide students' decision-making and behavior. (True or False)

Q 9. Interest assessments are irrelevant for personalizing learning experiences. (True or False)

Q 10. H ow does attitude assessment contribute to effective learning?
Q 11. What are some common methods used for assessing students' values?
Q 12. Why is it important to consider ethical issues in assessments for learning?

5.8 Summary

Assessment for learning is a crucial aspect of education that goes beyond traditional testing, encompassing the evaluation of attitudes, values, and interests. This approach recognizes that effective learning involves not just knowledge acquisition, but also the development of positive attitudes, ethical values, and genuine interests in various subjects and activities. Attitude assessment focuses on students' feelings, beliefs, and predispositions towards learning, subjects, or school in general. It helps educators understand and potentially influence students' approach to education. Value assessment examines the principles and ideals that guide students' decision-making and behavior, which is essential for character education and ethical development. Interest assessment explores students' preferences and inclinations towards specific subjects, activities, or career paths, aiding in personalized learning and future planning.

The procedures for assessing these aspects often differ from traditional academic assessments. They may include self-report measures like questionnaires or surveys, observational techniques, interviews, or projective methods. These assessments often use Likert scales, semantic differentials, or open-ended questions to capture nuanced responses. Behavioral observations and performance tasks can also provide insights into students' attitudes, values, and interests.

Importantly, these assessments should be ongoing and integrated into the learning process, rather than treated as one-time evaluations. They should inform instructional strategies, curriculum design, and individualized support for students. The goal is to create a more holistic educational experience that nurtures not just academic skills, but also personal growth and character development. Educators must be mindful of the subjective nature of these assessments and potential biases. Ethical considerations, such as privacy and the appropriate use of collected information, are paramount. When implemented thoughtfully, these assessments can significantly enhance the educational experience, promoting well-rounded development and lifelong learning.

5.9 Glossary

Attitude: Feelings, beliefs, and predispositions towards learning or subjects
Values: Principles and ideals that guide behavior and decision-making
Interests: Preferences and inclinations towards specific subjects or activities
Likert scale: A rating scale used to measure attitudes or opinions
Semantic differential: A rating scale using opposite adjectives to measure attitudes
Projective techniques: Indirect methods to assess personality or attitudes
Self-report measures: Assessment tools where individuals provide information about themselves
Observational techniques: Methods of gathering data through watching and recording behaviors
Holistic education: An approach that focuses on the overall development of a person
Character education: Teaching of values and ethical behavior in schools
Personalized learning: Tailoring education to individual student needs and interests

Ethical considerations: Moral principles guiding the conduct of assessment

Bias: Prejudice in favor of or against one thing, person, or group

Formative assessment: Ongoing evaluation used to modify teaching and learning activities

5.10 Answers to Self-Check Exercise

Ans 1.   d) Physical fitness

Ans 2.   b) Semantic differential

Ans 3.   c) Self-report measure

Ans 4.   Attitude assessment

Ans 5.   Interest

Ans 6.   Privacy

Ans 7.   False

Ans 8.   True

Ans 9.   False

Ans 10.   Attitude assessment contributes to effective learning by helping educators understand students' predispositions towards learning, which can inform teaching strategies and help address negative attitudes that may hinder learning.

Ans 11.   Common methods for assessing students' values include questionnaires, ethical dilemma scenarios, observational techniques, and reflective writing assignments.

Ans 12.   Considering ethical issues in assessments for learning is important to protect student privacy, ensure fair and unbiased evaluation, and maintain trust in the educational process.

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5.12 Terminal Questions

- Discuss the importance of assessing attitudes, values, and interests in education. How do these assessments contribute to a more holistic approach to learning?
- Compare and contrast the procedures for assessing attitudes, values, and interests. What are the challenges in each type of assessment, and how can educators overcome them?
- Evaluate the role of assessments for learning in promoting personalized education and lifelong learning. How can these assessments be integrated effectively into the curriculum?

UNIT – 6

ASSESSMENT OF PERFORMANCE

Structure

6.1 Introduction

Performance assessment, also known as alternative or authentic assessment, is a form of testing that requires students to perform a task rather than select an answer from a ready-made list. For example, a student may be asked to explain historical events, generate scientific hypotheses, solve math problems, converse in a foreign language, or conduct research on an assigned topic. Experienced raters--either teachers or other trained staff--then judge the quality of the student's work based on an agreed-upon set of criteria. This new form of assessment is most widely used to directly assess writing ability based on text produced by students under test instructions.

More important, performance assessment can provide impetus for improving instruction, and increase students' understanding of what they need to know and be able to do. In preparing their students to work on a performance task, teachers describe what the task entails and the standards that will be used to evaluate performance. This requires a careful description of the elements of good performance, and allows students to judge their own work as they proceed.

6.2 Learning objectives

After going through this lesson, you should be able to:
- Discuss the use of projects
- Explain the assignment ant work sheets
- Explain the practical work
- Discuss the performance based activities

6.3 Tool and techniques for assessment of skill

- Use of projects
- Assignments
- Worksheets
- Practical work
- Performance based activities

6.3.1 Use of projects

The use of project-based assessment techniques has continued to grow within education curriculums as resources and concepts beyond traditional testing applications have evolved. There can be extensive value to the student's overall learning process with the addition of project-based learning to supplement standard curriculum material. Often the project-based component of a lesson plans can help to make the concepts relatable for students.

Assignments that compile into a project-based assessment are also a technique option for educators looking to review the ability of students to be creative, diverse and authentic with their course work and the experience gained throughout the time frame of the class. Learning is guided by much more than study skills and the completion of worksheets and lesson plans. The ability of teachers to apply additional assessment techniques to determine the level of understanding of a topic can be highly beneficial to the overall development of a student.

Project-based assessments are an opportunity to utilize and measure the higher order thinking skills of students. A project-based assessment will apply multi-faceted skills to be encompassed into a cumulative project. This can be a singular project at the end of a grading period or it can be done at designated intervals throughout the marking period. The intent is to design the project-based assessment to encompass the lesson plans, teacher worksheets and any additional teacher resources which will ultimately provide a physical example of what was has been learned and what can be applied by the student.

6.3.2 Assignments

The basic objectives of assigning homework to students are the same as schooling in general: to increase the knowledge and improve the abilities and skills of the students. However, opponents of homework cite homework as rote, or grind work, designed to take up children's time, without offering tangible benefit. Homework may be designed to reinforce what students have already learned, prepare them for upcoming (or complex or difficult) lessons, extend what they know by having them apply it to new situations, or to integrate their abilities by applying many different skills to a single task.

Homework also provides an opportunity for parents to participate in their children's education.

Homework, or a **homework assignment**, is a set of tasks assigned to students by their teachers to be completed outside the class. Common homework assignments may include a quantity or period of reading to be performed, writing or typing to be completed, problems to be solved, a school project to be built (such as a diorama or display), or other skills to be practiced.

6.3.3 Worksheets

Worksheet commonly refers to a **sheet** of paper with questions for students and places to record answers. The term may also refer to a single array of data in spreadsheet software or an informal piece of paper that an accountant uses to record information.

Worksheet generators are often used to develop the type of worksheets that contain a collection of similar problems. A worksheet generator is a software program that quickly generates a collection of problems, particularly in mathematics or numeracy. Such software is often used by teachers to make classroom materials and tests. Worksheet generators may be loaded on local computers or accessed via a website.

In the classroom setting worksheets usually refer to a loose sheet of paper with questions or exercises for students to complete and record answers. They are used, to some degree, in most subjects, and have widespread use in the math curriculum where there are two major types. The first type of math worksheet contains a collection of similar math problems or exercises. Theses are intended to help a student become proficient in a particular mathematical skill that was taught to them in class. They are commonly given to students as homework. The second type of math worksheet is intended to introduce new topics, and are often completed in the classroom. They are made up of a progressive set of questions that leads to an understanding of the topic to be learned

6.3.4 Practical work

By 'practical work' we mean tasks in which students observe or manipulate real objects or materials - for themselves (individually or in small groups) or by witnessing teacher demonstrations.

Practical work can:
- motivate pupils, by stimulating interest and enjoyment
- teach laboratory skills
- enhance the learning of scientific knowledge
- give insight into scientific method and develop expertise in using it

- Develop 'scientific attitudes', such as open-mindedness and objectivity

(This list is based on Hodson, D. 1990, "A critical look at practical work in school science" School Science Review, Vol 70 (Number 256), pp 33-40.)

As with all classroom activities, the effective teacher plans practical work with specific learning objectives in mind. Different practical tasks have different learning objectives and may be more or less successful in achieving the intended learning outcomes.

For some practical tasks, the learning is about objects and observables. Students are expected to recall what they have observed. Other tasks involve making links between observables and scientific ideas. Students generally find the latter harder, as they involve thinking as well as seeing and doing.

For each approach there are example lesson plans, resources and guidance. A general introduction for each topic encourages teachers to transfer the approaches exemplified in the resources to new topics of their choice.

Start by watching this short film which raises questions such as: Are all practical lessons really effective for learning? Can we achieve more with practical work by thinking differently about how we approach it?

6.3.5 Performance based activities

Performance-based learning and assessment achieve a balanced approach by extending traditional fact-and-skill instruction (Figure 1). Performance-based learning and assessment are not a curriculum design. Whereas you decide what to teach, performance-based learning and assessment constitute a better way to deliver your curriculum. Teachers do not have to "give up" units of study or favorite activities in a performance-based classroom. Because authentic tasks are rooted in curriculum, teachers can develop tasks based on what already works for them. Through this process, assignments become more authentic and more meaningful to students.

Performance tasks build on earlier content knowledge, process skills, and work habits and are strategically placed in the lesson or unit to enhance learning as the student "pulls it all together." Such performance tasks are not "add-ons" at the end of instruction. They are both an *integral part of the learning* and an *opportunity to assess the quality of student performance*. When the goal of teaching and learning is knowing and using, the performance-based classroom emerges.

Performance tasks range from short activities taking only a few minutes to projects culminating in polished products for audiences in and outside of the classroom. In the beginning, most performance tasks should fall on the short end of the continuum. Teachers find that many activities they are already doing can be shaped into performance-learning tasks.

Two initial concerns of teachers moving toward performance-based classrooms include the amount of time needed for performance tasks and the subjectivity traditionally associated with teacher assessment and assigning "grades."

Self-Check Exercise- 1

Q 1. Which assessment tool is best suited for evaluating a student's ability to apply theoretical knowledge in a hands-on setting?
- a) Worksheets
- b) Assignments
- c) Practical work
- d) Projects

Q 2. What type of assessment activity typically involves students demonstrating their skills through action?
- a) Worksheets
- b) Performance-based activities
- c) Assignments
- d) Projects

Q 3. Which tool is most appropriate for quick, focused assessment of understanding on a single topic?
- a) Projects
- b) Practical work
- c) Worksheets
- d) Performance-based activities

Q 4. _____ are extended learning activities that allow students to explore topics in depth, often integrating multiple skills and subjects.

Q 5. _____ involve hands-on activities and are especially important in sciences, arts, and technical subjects.

Q 6. _____ are structured tasks that can range from short homework exercises to more complex, multi-step problems.

Q 7. Worksheets are the best tool for assessing complex, long-term skill development.

Q 8. Performance-based activities assess not just knowledge, but also the ability to apply skills in realistic contexts.

Q 9. Projects are typically short, single-session activities focused on one specific skill.

Q 10. How do assignments differ from projects in skill assessment?

Q 11. What are the benefits of using practical work in skill assessment?

Q 12. How can performance-based activities provide a more authentic assessment of student skills?

6.9 Summary

The assessment of skills in education employs a variety of tools and techniques designed to evaluate students' practical abilities, problem-solving capabilities, and application of knowledge. These methods go beyond traditional paper-and-pencil tests to provide a more comprehensive and authentic assessment of student competencies. Projects are extended learning activities that allow students to explore topics in depth, often integrating multiple skills and subjects. They provide opportunities for students to

demonstrate research, planning, execution, and presentation skills. Assignments are structured tasks that can range from short homework exercises to more complex, multi-step problems. They allow for the assessment of specific skills or knowledge application in a controlled setting. Worksheets are focused, often single-topic tools that can quickly assess understanding or skill application. They are particularly useful for formative assessment and practice. Practical work involves hands-on activities, especially important in sciences, arts, and technical subjects. It assesses students' ability to apply theoretical knowledge in real-world scenarios. Performance-based activities require students to demonstrate their skills through action, such as giving presentations, conducting experiments, or creating products. These activities assess not just knowledge, but also the ability to apply skills in realistic contexts.

These tools and techniques collectively provide a multi-faceted approach to skill assessment. They allow educators to evaluate not just what students know, but how well they can apply their knowledge and skills in various contexts. This comprehensive approach to assessment aligns with modern educational philosophies that emphasize the importance of practical skills, critical thinking, and real-world application of learning. By using a combination of these methods, educators can gain a more accurate and holistic view of student capabilities, informing both instruction and student development.

6.10 Glossary

Projects: Extended learning activities integrating multiple skills and subjects
Assignments: Structured tasks for assessing specific skills or knowledge application
Worksheets: Focused tools for quick assessment of understanding or skill application
Practical work: Hands-on activities assessing application of theoretical knowledge
Performance-based activities: Tasks requiring demonstration of skills through action
Formative assessment: Ongoing evaluation to guide learning and instruction
Authentic assessment: Evaluation of skills in real-world contexts
Rubric: Scoring guide defining performance expectations for assignments
Portfolio: Collection of student work demonstrating progress and achievement
Peer assessment: Evaluation of students' work by their peers
Self-assessment: Students' evaluation of their own work or skills
Collaborative projects: Group activities assessing teamwork and individual contributions
Problem-based learning: Teaching method using complex real-world problems
Skill acquisition: Process of learning and mastering new abilities
Competency-based assessment: Evaluation based on demonstration of specific skills

6.11 Answers to Self-Check Exercise

Ans 1.   Practical work
Ans 2.   Performance-based activities
Ans 3.   Worksheets
Ans 4.   Projects
Ans 5.   Practical work
Ans 6.   Assignments
Ans 7.   False
Ans 8.   True

Ans 9. False

Ans 10. Assignments are typically more structured and focused on specific skills or knowledge application, while projects are extended activities that often integrate multiple skills and allow for more student autonomy and depth of exploration.

Ans 11. Practical work allows students to apply theoretical knowledge in real-world scenarios, develop hands-on skills, and gain experience with tools and techniques relevant to the subject area.

Ans 12. Performance-based activities provide authentic assessment by requiring students to demonstrate their skills in realistic contexts, mimicking real-world applications of knowledge and abilities.

6.12 References/Suggested Readings

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6.13 Terminal Questions
- Discuss the advantages and limitations of using projects as a tool for skill assessment. How can educators maximize the effectiveness of project-based assessment?
- Compare and contrast the use of worksheets and performance-based activities in skill assessment. In what situations might each be most appropriate, and why?
- Evaluate the role of practical work in skill assessment across different subject areas. How can educators ensure that practical assessments are both effective and fair?

UNIT-7

MEASUREMENT AND ASSESSMENT: CONCEPT, NEED AND PURPOSE

Structure

7.1 Introduction

7.2 Learning Objectives

7.3 Measurement and assessment: concept

    Self-Check Exercise-1

7.4 Need and Purpose

    Self- Check Exercise-2

7.5 Summary

7.6 Glossary

7.7 Answer to Self-Check Exercise

7.8 References/ Suggested Reading

7.9 Terminal Questions

7.1 INTRODUCTION

Dear Learner,

The process of teaching learning in one or the other subjects of the school's curriculum always for the realization of the stipulated teaching-learning objects by following a well thought programme. Measurement in this way is one step ahead to the process of testing. When the work of testing ends measurement comes into picture for assigning numerical values to the test result. However, the process of measurement does not necessary rest on test and testing. It is quite a broader concept. Many teachers (and students), "assessment" simply means giving students tests and assigning them grades. This conception of assessment is not only limited, but also limiting. It fails to take into account both the utility of assessment and its importance in the teaching/learning process.

7.2 Learning OBJECTIVES

After studying this, you should be able to:

- Explain the meaning of measurement and assessment
- Describe the need and purpose of measurement and assessment
- Discuss prognostic and monitoring of learning
- Explain selection and promotion
- Discuss certification and grading

7.3 MEASUREMENT AND ASSESSMENT: CONCEPT

Measurement refers to the process by which the attributes or dimensions of some physical object are determined. One exception seems to be in the use of the word measure in determining the IQ of a person. The phrase, "this test measures IQ" is commonly used. Measuring such things as attitudes or preferences also applies. However, when we measure, we generally use some standard instrument to determine how big, tall, heavy, voluminous, hot, cold, fast, or straight something actually is. Standard instruments refer to physical devices such as rulers, scales, thermometers, pressure gauges, etc. We measure to obtain information about what is. Such information may or may not be useful, depending on the accuracy of the instruments we use, and our skill at using them. There are few such instruments in the social sciences that approach the validity and reliability of say a 12" ruler. We measure how big a classroom is in terms of square feet, we measure the temperature of the room by using a thermometer, and we use an Ohm meter to determine the voltage, amperage, and resistance in a circuit. In all of these examples, we are not assessing anything; we are simply collecting information relative to some established rule or standard. Assessment is therefore quite different from measurement, and has uses that suggest very different purposes. When used in a learning objective, the definition provided on the ADPRIMA for the behavioural verb measure is: To apply a standard scale or measuring device to an object, series of objects, events, or conditions, according to practices accepted by those who are skilled in the use of the device or scale. An important point in the definition is that the person be skilled in the use of the device or scale. For example, a person who has in his or her possession a working Ohm meter, but does not know how to use it properly, could apply it to an electrical circuit but the obtained results would mean little or nothing in terms of useful information.

Assessment is a process by which information is obtained relative to some known objective or goal. Assessment is a broad term that includes testing. A test is a special form of assessment. Tests are assessments made under contrived circumstances especially so that they may be administered. In other words, all tests are assessments,

but not all assessments are tests. We test at the end of a lesson or unit. We assess progress at the end of a school year through testing, and we assess verbal and quantitative skills through such instruments as the SAT and GRE. Whether implicit or explicit, assessment is most usefully connected to some goal or objective for which the assessment is designed. A test or assessment yields information relative to an objective or goal. In that sense, we test or assess to determine whether or not an objective or goal has been obtained. Assessment of skill attainment is rather straightforward. Either the skill exists at some acceptable level or it doesn't. Skills are readily demonstrable. Assessment of understanding is much more difficult and complex. Skills can be practiced; understandings cannot. We can assess a person's knowledge in a variety of ways, but there is always a leap, an inference that we make about what a person does in relation to what it signifies about what he knows. In the section on this site on behavioural verbs, to assess means to stipulate the conditions by which the behaviour specified in an objective may be ascertained. Such stipulations are usually in the form of written descriptions.

Self-Check Exercise-1

1. Which of the following is a characteristic of effective assessment?

a) Subjective judgment

b) Focus on ranking

c) Emphasis on feedback

d) Lack of clear criteria

2. What is measurement in education?

a) The process of assigning numbers or labels to characteristics of objects, events, or people

b) The process of evaluating student learning

c) The process of teaching students

d) The process of grading students

7.4 NEED AND PURPOSE

Teaching and learning include a lot of instructional decisions to enhance and increase student learning, and quality of instruction is strongly connected to the structure of information on which these instructional decisions are made. Hence, the most important point is the determination of the way in which good, valid and reliable information about student learning can be provided. Traditionally, assessment process is focused on evaluating student accomplishment, however, contemporarily, it should be focused on

increasing student learning and, the heart of assessment is a continuing flow in which the teacher in collaboration with students, uses information to guide the next steps in learning.

Scientific knowledge on student learning at science courses can be taken with multiple-measurement tools; for example, different kinds of testing methods are used to determine students' achievement levels and performance levels. Thus, science teachers have to know all these methods and be good evaluators of learners' progress. In addition, assessment has an important effect on learners' growth, achievement and self-esteem. In case of science teachers' using new and modern measurement and assessment methods throughout their teaching practices, it is believed that they can plan sequential learning activities for their students. In this context, assessment methods such as project work, group work, higher levels of inquiries and using technological materials will increase the motivation of students to apply science knowledge into their own cognitive worlds. This implies that a teacher should understand the particular student or group; that is to say, the teacher should assess students' actual strengths and learning needs, which require classroom- based performance assessment.

Prognostic

Prognostic markers are characteristics that help to identify or categorise people with different risks of specific future outcomes. They may be simple clinical measures such as body mass index, but are more often pathological, biochemical, molecular or genetic measures or attributes. Identifying those who are or who are not at risk can facilitate intervention choice, and aid patient counselling.

Prognostic research has to date received much less attention than research into therapeutic or diagnostic areas, and an evidence-based approach to the design, conduct and reporting of primary studies of prognostic markers is needed. Reviews have shown that primary prognostic studies are often of poor quality.

Monitoring of Learning

When do you know if students have learned what you taught them? The answer to that question changes the culture of your classroom. If you know in real-time how much students have learned, you can help struggling students get back on track as quickly as possible. With effective monitoring the teacher focuses on an instructional strategy's effect on student learning. In other words, in real-time the teacher knows whether the strategy he or she is using is effective. Teachers need to monitor each individual student. Asking a question to the class as a whole, and having one student answer,

won't tell you how the strategy is working with all students. The good news is, effective monitoring will actually save you time.

Providing Feedback

Quite simply, feedback is the sharing of information about the student's performance. Positive feedback serves to sustain behavior that is appropriate and effective. Negative or corrective feedback serves to change behavior that is inappropriate or ineffective. Thus, the student should receive a mixture of positive and corrective feedback. The feedback should be specific enough that the student understands which behaviors are appropriate and which ones need to be changed. General comments such as "you're doing a really super job!" may be pleasant to give, but do little in the way of teaching. Feedback is most meaningful when it is based on solid data obtained while observing or interacting with the student.

This teaching skill quickly becomes easier with deliberate practice. An experienced preceptor who has worked on developing this skill can incorporate feedback comfortably and quickly into regular interactions with a student.

Selection

An important consideration in selecting for prospects for student success is that selection measures do not serve to perpetuate social disadvantage. Where universities select for only those characteristics which are also correlated with relative social advantage (which is arguably the case when relying largely or solely on rankings derived from senior secondary school grades), they are in effect selecting for students that are already doing well, rather than those that are likely to do well. The difference may appear subtle, but has profound social implications over time. Among the challenges in this area, therefore, is the need to identify selection criteria and practices that are good predictors of student success, without inadvertently selecting also for relative social advantage. It is clear however that there are broader student characteristics associated with success in particular disciplines and subject areas.

Promotion

Social promotion is the practice of promoting a student (usually a general education student, rather than a special education student) to the next grade only at the end of the current school year, regardless of when or whether they learned the necessary material, in order to keep them with their peers by age, that being the intended social grouping. It is sometimes referred to as promotion based on seat time, or the amount of time the child spent sitting in school. This is based on the requirements on how to enrol for kindergarten normally at 4 or 5 years old (5 or 6 years old for 1st graders) at the

beginning of the school year so a student can graduate from the high school level at either 17 or 18 years old.

Advocates of social promotion argue that promotion is done in order not to harm the students' or their classmates' self-esteem, to encourage socialization by age (together with their age cohort), to facilitate student involvement in sports teams, or to promote a student who is weak in one subject on the basis of strength in the other areas.

The opposite of social promotion would be to promote students when they learned the necessary material. This might be called "merit promotion", similar to the concept of a "merit civil service". The scope of the promotion might then be either to the next grade or to the next course in the same field. In a curriculum based on grades, this is usually called "mid-term promotion". In a curriculum based on courses rather than grades, the promotion is open-ended and is better understood as satisfying a prerequisite for the next course.

Certification

Certification is a formal process of making certain that an individual is qualified in terms of particular knowledge or skills. Certification programs are often fostered or supervised by some certifying agency, such as a professional association. Some major computer software and hardware vendors provide a certification program for installers of their product, such as Microsoft's Certified Systems Engineer (MCSE) for its Windows operating systems, IBM's Certified Lotus Specialist (CLS), and Cisco's Certified Internetwork Professional (CCIP). The A+ certification program is a certification that attests to general computer installation and customization knowledge and capabilities.

Grading and Diagnostic

The Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group over the last 13 years developed a rigorous methodology for assessing the quality of the evidence and grading the strength of recommendations in health care the appeal of GRADE lies in its ability to provide structure and transparency in the usually complex process of making evidence-based recommendations. It requires a clear clinical question and outcomes important to the patient to be defined from the outset, followed by a structured systematic review of the available evidence. The quality of the evidence is then assessed by considering eight criteria, of which five criteria such as risk of bias, indirectness, inconsistency, imprecision, and publication bias are used to downgrade the quality of evidence. Three other criteria such as magnitude of the effect, dose-response relation in the effect, and opposing plausible residual bias or confounding can be used to upgrade the quality of the evidence. To come to a recommendation based on the available body of evidence, its quality, assessed according to these eight GRADE criteria, is then considered in the context of benefits

vs. harms of the test or intervention in question, patients' values and preferences, and resource implications.

Self-Check Exercise-2

1. What is prognosis in measurement and evaluation?

a) Predicting student performance on a future test

b) Evaluating student learning at the end of a course

c) Identifying areas for improvement in teaching

d) Certifying student competence

2. What is the primary purpose of diagnostic assessment?

a) To evaluate student learning

b) To identify areas for improvement

c) To provide feedback

d) To rank students

7.5 SUMMARY

Assessment refers to the wide variety of methods or tools that educators use to evaluate, measure, and document students' academic readiness, learning progress, skill acquisition, or educational needs. It involves gauging how well an individual has met specific learning targets. For instance, a teacher might assess a student's understanding of a topic. Measurement involves associating numbers with physical quantities and natural phenomena by comparing an unknown quantity with a known quantity of the same kind. Weights and measures serve as standard quantities for making these comparisons. In essence, measurement allows us to quantify and understand the world around us.

7.6 Glossary

Measurement The process of assigning numbers or labels to characteristics of objects, events, or people to describe or quantify them.

Assessment The process of gathering, interpreting, and using information to make judgments about student learning, achievement, or performance.

7.7 ANSWER TO SELF CHECK EXERCISE

Self-Check Exercise-1

1) c) Emphasis on feedback

2) a) The process of assigning numbers or labels to characteristics of objects, events, or people.

Self-Check Exercise-2

1) a) Predicting student performance on a future test.

2) b) To identify areas for improvement.

7.8 REFERENCES/ SELF CHECK EXERCISE

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- Singh H.S. (1974). Modern Educational Testing, New Delhi: Sterling Publication

7.9 TERMINAL QUESTIONS

Dear learners, please check you progress by attempting the following questions:

1) What is measurement and assessment?

2) Write short notes on prognostic, monitoring and providing feedback?

3) What is promotion, certification and grading?

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UNIT-8

TYPES OF ASSESSMENT

Structure

8.1 Introduction

8.2 Learning Objectives

8.3 Formative, Summative & Diagnostic assessment

Self-Check Exercise-1

8.4 Scope: teacher made and standardize

Self-Check Exercise-2

8.5 Nature: Qualitative and Quantitative

Self-Check Exercise-3

8.6 Mode of response: oral or written and selection or Supply

Self-Check Exercise-4

8.7 Nature of Attribute Measured: Achievement, Aptitude and Attitude

Self-Check Exercise-5

8.8 Interpretation: norm referenced and criterion referenced

Self-Check Exercise-6

8.9 Assessment context: Internal and external

Self-Check Exercise-7

8.10 Need of continuous and comprehensive evaluation

Self-Check Exercise-8

8.11 Summary

8.12 Glossary

8.1 INTRODUCTION

Dear Learner,

Educational assessment is the process of documenting, usually in measurable terms, knowledge, skill, attitudes, and beliefs. Assessment can focus on the individual leaner, the leaming community (class, workshop, or other organized group of leamers), the institution, or the educational system as a whole (also known as granularity).

The final purpose of assessment practices in education depends on the theoretical framework of the practitioners and researchers, their assumptions and beliefs about the nature of human mind, the origin of knowledge, and the process of learning.

8.2 LEARNING OBJECTIVES

After studying this unit, you should be able to:

- Explain the prognostic assessment
- Differentiate formative and summative assessment
- Discuss the diagnostic assessment
- Explain the quantitative and qualitative assessment
- Discuss the mode of response: oral or written
- Explain the referenced and criterion referenced assessment
- Explain the internal and external assessment
- Explain the continuous and comprehensive evaluation

8.3 FORMATIVE, SUMMATIVE & DIAGNOSTIC ASSESSMENT

Formative Assessment: Formative assessments take place during a learning activity to provide the instructor with information regarding how well the learning objectives of a given learning activity are being met. The value of formative assessment is pointed out by Black and William' (1998) paper "Inside the Black Box: Raising Standards Through Classroom Assessment" (Phi Delta Kappan, October 1998) They point to evidence that high quality formative assessment has a powerful impact on student learning. In addition, formative assessment is particularly effective for students who have not done well in school, narrowing the gap between low and high achievers while raising overall achievement. Most instructors intuitively use questioning as a

method of formative assessment but in large lecture classes not every student can be questioned because of time constraints. Formative assessment is also useful in virtually all learning activities such as preparing oral and written reports, fieldwork and as projects and case studies progress. Here is an example of using on-going formative assessment in a large lecture course.

Summative Assessment

A summative assessment is typically given to children after a specific point in instruction to measure their understanding of a subject. Some examples of summative assessments include high stakes tests, standardized state exams, district or interim tests, midterms and final exams. Summative assessments can also be used to check their mastery of a subject every few weeks or months. Many textbooks include questions for parents to use for a summative assessment based on the instruction provided. While summative assessments are important, many people feel that the information gleaned from them does not occur frequently enough for summative assessments to inform instruction at the classroom level. This is where formative assessment comes in.

While the various types of assessment can be confusing and their uses considered controversial, it is important to remember that they should be used as a framework to inform the instruction process. Ultimately, the knowledge gleaned from assessment should be used to reach individuals and support them in their learning process.

Diagnostic Assessments: Diagnostic assessments (also known as pre-assessments) provide instructors with information about student's prior knowledge and misconceptions before beginning a learning activity. They also provide a baseline for understanding how much learning has taken place after the learning activity is completed. Instructors usually build concepts sequentially throughout a course. For example, the Coriolis effect may be taught prior to a unit on ocean currents. A diagnostic pre-assessment given after the Coriolis effect activity but before the Ocean current activity will provide an opportunity to determine if students remember the concepts they need. If some students don't remember, then a refresher will make the Ocean current activity more meaningful to your students. Diagnostic assessment data may be gleaned from:

- Summative assessments of the previous learning activity.
- Short assessments that focus on key knowledge and concepts such as Concepts test and Minute Papers

Self-Check Exercise-1

1. What is the primary purpose of formative assessment?

a) To evaluate student learning at the end of a lesson

b) To predict future academic success

c) To monitor student progress and adjust instruction

d) To identify learning gaps

2. Which of the following is a characteristic of summative assessment?

a) Formative

b) Criterion-referenced

c) Norm-referenced

d) Summative

1. What is the primary purpose of diagnostic assessment?

a) To evaluate student learning at the end of a lesson

b) To predict future academic success

c) To identify strengths, weaknesses, and learning gaps

d) To develop individualized learning plans

8.4 SCOPE: TEACHER MADE AND STANDARDIZE

By Riley, Chris, Clement, Michael, and Tommy Teacher-made vs. Standardized Assessment Alternative Assessment May not reflect content standards Informal (non-standardized) Could be graded subjectively Teacher might be a bad test writer Cons of Teacher-Made Testing Standardized Assessment Overview Advantages Disadvantages compare student's performance determine eligibility for special education objective and data driven designed to be used with large populations of students used for accountability and reporting purposes precise directions for administration and scoring procedures reported in quantitative terms Features What They Look Like... Purpose Design-Authentic Tasks

-Focus is on Communication

- Learners set criteria

- Learners have opportunity to asses themselves and peers Grading

-Be creative... Use everyday topics, global concerns, and student interests.

-Replicate real world scenarios and context

-Multi-staged tasks involving a real problem.

- Focus on solution not repetition.

- Students produce a quality product or performance.

- Students are able to interact with the assessor. (Teacher, peers, Self)

- Self-evaluation and self correction is part of the process. Grading criteria and standards used are known.

- We see this in different forms

- Checklists

- Rubrics These assessments can take on many forms

- Computer programs

- Essay (muti-staged ie. constructed response)

- Demonstrations

-Journals, portfolios, short answers ect... This type of assessment truly allows the students to display their best work. To determine eligibility for special education Easier to report More cost efficient Less Teacher involvement Useful for statewide and national administrative and policy-making reporting systems the discrepancy between what is tested and what is covered in the curriculum Doesn't provide enough information about the students Doesn't take into account impact of curriculum, teacher effectiveness, and environmental factors Teachers feel forced to "teach the test" Minimal useful data for instructional planning Culturally biased May not match actual distribution of classroom achievement Usefulness for evaluating day-to-day progress is limited emphasizes segmented skills instead of high-order thinking skills, creativity, and problem solving Pros of Teacher-Made Testing Training Teacher-Made Tests Teacher made tests are written or oral assessments that are not commercially produced or standardized. A test a teacher designs specifically for his/her students. 'Testing' refers to any kind of school activity that results in some type of mark or comment being enters in a checklist, grade book or anecdotal record Tests can be important parts of the teaching and learning process if they are integrated into daily classroom teaching and are constructed to be a part of the learning process. Teachers need to be trained in how to do the following:

1. Plan and write longer tests

2. Write unambiguous paper-and-pencil test items, and

3. Measure skills beyond recall of facts Reflect Instruction and curriculum

Sensitive to students in the class

Effectively evaluate different skills

Easily edited Guidelines for Teacher-Made Tests

1. Create the test before beginning the unit

2. Make sure the test is correlated to course objectives or learning standards and benchmarks

3. Give clear directions for each section of the test

4. Arrange the questions from simple to complex

5. Give point values for each section (e.g. true/false-2 points each)

6. Vary the question type (true/false, fill-in-the-blank, multiple choice, essay, matching). Limit to ten questions of each type

7. Group question typed together

8. Type or print clearly

9. Make sure appropriate reading level is used

8. Include a variety of visual, oral, and kinaesthetic tasks

11. Make allowances for students with special needs (Check their respective IEPs for the necessary accommodations)

12. Provide a grading scale so students know what score constitutes a certain grade

13. Provide a rubric, especially for essays and projects

8. Give sufficient time for all students to finish

Self-Check Exercise-2

1. Which type of assessment is designed and administered by the classroom teacher?

a) Standardized

b) Teacher-made

c) Criterion-referenced

d) Norm-referenced

2. Which type of assessment is designed to measure student learning against a specific set of standards?

a) Teacher-made

b) Standardized

c) Criterion-referenced

d) Norm-referenced

8.5 NATURE OF ATTRIBUTE MEASURED: ACHIEVEMENT, APTITUDE AND ATTITUDE

An aptitude is the ability to learn or to develop proficiency in an area (if provided with appropriate education or training). It is like talent. Examples are various types of reasoning, artistic ability, motor coordination, musical talent. There are aptitude tests that measure mechanical and linguistic ability, as well as more specific skills, such as military flight and computer programming.

Achievement tests measure the extent to which a person has "achieved" something, acquired certain information, or mastered certain skills - usually as a result of planned instruction or training. It is designed to efficiently measure the amount of knowledge and/or skill a person has acquired, usually as a result of classroom instruction.

The definition of attitude according to the Merriam Webster dictionary is: "a mental position with regard to a fact or state; a feeling or emotion toward a fact or state."

Another way to think of attitude is a mental habit that filters how you perceive the world around you and also the actions and behaviour's you take in response.

For Example... Let's contemplate the attitude of optimism. If you decide to have an optimistic and positive attitude in life, you'll be inclined to practice positive self talk. Your dominant mental habits will include always seeing the glass half full, always giving people the benefit of the doubt, and always feeling a sense of hope and trust that things will turn out okay.

This attitude of optimism and the corresponding mindset of positivity, compassion, hope and trust would then drive you to take certain actions. You'd be more relaxed giving and sharing with others, you'd take more risks because you'd feel a healthy level of confidence that things would work out for the best, and you would give your all because you would see the opportunity in everything.

Can you imagine what kind of circumstances would occur for someone with an optimistic attitude?

As if by magic, they would attract positive, generous people, work opportunities that were engaging and relationships that were fulfilling.

Attitude

Attitudes are initially thoughts, whether conscious or not. If you think about an area in your life where you experience success, try and find where that success started. It no doubt first required a decision as to how you were going to act and behave in the world. For example, I changed careers when I was 27.

I remember on the first day feeling so overwhelmed, and so far behind my peers. At that moment I made a decision I would be the best in my job in a year or so. And that eventuated. Now looking back, I can see that I used positive self talk to create a winning attitude that served me... an example of the power of positive thinking in action. That attitude to win literally came from the thought that I wanted to be the best on the job and it influenced all of my actions and behaviours at work. When there was extra to do, I gladly did it. And I always made sure my jobs were completed with thoroughness. This was all to serve my "winner" positive attitude.

Self-Check Exercise-3

1. What type of attribute is typically measured using a rating scale?

a) Knowledge

b) Attitude

c) Skill

d) Personality

1. What type of attribute is typically measured using a standardized test?

a) Aptitude

b) Achievement

c) Personality

d) Interest

8.6 NATURE: QUALITATIVE AND QUANTITATIVE

Qualitative information is non numeric information based on the quality of an item or object. For example, if you were testing water then you might say that the taste is either nice or not so nice. This would be very much based on opinion. When testing the quality of something and forming an opinion on it this can be known as qualitative information. Qualitative information might be collected by a restaurant based on what their customer thought of the taste of the food. Customers may be asked to choose if the food was bad, average, good or excellent. Since different customers have different opinions then

the information collected is not fact based and is a qualitative opinion on the quality of something.

Quantitative information is information than can be directly measured and can be seen as factual information rather than opinion. For example, when testing water the fluoride content of the water might be measured in milligrams. The information collected is number based and provides hard facts on the quality of the water. It is harder to argue against quantitative information. An example of a restaurant collecting quantitative information would be to ask customers how much they would pay for a meal. This could be seen as a mix of quantitative and qualitative information but the end result is a numeric value based on the customers' opinion so it is quantitative information.

Self-Check Exercise-4

1. Quantitative research methods include:

a) Case studies

b) Experiments

c) Surveys

d) Content analysis

1. Qualitative data analysis involves:

a) Statistical analysis

b) Thematic analysis

c) Content analysis

d) Regression analysis

8.7 MODE OF RESPONSE: ORAL OR WRITTEN AND SELECTION OR SUPPLY

Oral questioning is the most commonly-used of all forms of assessment, in class. Indeed, it is so much a feature of practically all teaching, as opposed to "presenting" or lecturing, that it is hardly recognised

as a form of assessment by teachers-although students are well aware of it as such. In this case, however, the focus is on the use of such questioning as part of the de-briefing after practice has been observed.

Writing assessment refers to an area of study that contains theories and practices that guide the evaluation of a writer's performance or potential through a writing task. Writing assessment can be considered a combination of scholarship from Writing Theory and Measurement Theory within educational assessment. Writing assessment can also refer to the technologies and practices used to evaluate student writing and leaming.

Self-Check Exercise-5

1. Which mode of response requires students to provide a response in their own words?

a) Selection

b) Supply

c) Oral

d) Written

1. Which mode of response requires students to choose from a set of options?

a) Selection

b) Supply

c) Oral

d) Written

8.8 INTERPRETATION: NORM REFERENCED AND CRITERION REFERENCED

A norm-referenced test scores a test by comparing a person's performance to others who are similar. You can remember norm-referenced by thinking of the word 'normal. The object of a norm-referenced test is to compare a person's performance to what is normal for other people like him or her.

Think of it kind of like a race. If a runner comes in third in a race, that doesn't tell us anything objectively about what the runner did. We don't know if she finished in 30 seconds or 30 minutes; we only know that she finished after two other runners and ahead of everyone else.

So, if Ricki decides to make her test norm-referenced, she would compare students to what is normal for that age, grade, or class. Examples of norm-referenced tests include the SAT, IQ tests, and tests that are graded on a curve. Anytime a test offers a percentile rank, it is a norm-referenced test. If you score at the 80th percentile, that means that you scored better than 80% of people in your group.

Norm-referenced tests are a good way to compensate for any mistakes that might be made in designing the measurement tool. For example, what if Ricki's math test is too easy, and everybody aces it? If it is a norm-referenced test, that's OK because you're not looking at the actual scores of the students but how well they did in relation to students in the same age group, grade, or class.

A **criterion-referenced test** is scored on an absolute scale with no comparisons made. It is interested in one thing only: did you meet the standards?

Let's go back to our race scenario. Saying that a runner came in third place is norm-referenced because we are comparing her to the other runners in the race. But if we look at her time in the race, that's criterion-referenced. Saying she finished the race in 58:42 is an objective measure that is not a comparison to others.

They aren't completely objective and make it hard to know anything other than how someone did in comparison to others.

Self-Check Exercise-6

1. Norm-referenced interpretation compares student performance to:

a) A set standard

b) A specific criterion

c) The performance of peers

d) National averages

2. Criterion-referenced interpretation compares student performance to:

a) A set standard

b) A specific criterion

c) The performance of peers

d) National averages

8.9 ASSESSMENT CONTEXT: INTERNAL AND EXTERNAL.

Assessment is a vital part of successful teaching because instruction needs to be calibrated according to students' knowledge, skills, and interests. Tests, quizzes, and performance evaluations help teachers identify developmentally appropriate instruction. Effective instruction challenges children because it is on the edge of their independent

abilities, the "zone of proximal development" in Vygotsky's terms. Effective instruction may also be fun, inspirational, and motivating. Most importantly, effective instruction is shaped by assessment because teachers use their knowledge about students to select materials based on interest and difficulty, and to group children based on collaborative work habits. Some of these decisions may not be regarded as "assessment" in a traditional sense, but they illustrate how teachers use their informal knowledge about children to guide their classroom instruction.

Some reading assessments are informal, frequent, and tied to curriculum and daily instructional routines in the classroom. For example, assessments of children's daily oral language, listening, and question- answering during group reading may be made through teachers' observation. Other assessments may be more structured, such as spelling tests, weekly quizzes, journal writing, reports, and projects, but they are all under the control of the teacher and embedded in the curriculum. We refer to these assessments as "internal" because they are designed, selected, and used by teachers according to the needs of their children. Internal assessments are used to make decisions about instruction and to report progress to parents. In contrast, "external" assessments are designed, selected, and controlled by another person or group- commercial publishers, district administrators, or state policymakers. Typical examples of external assessments include standardized and commercial reading tests. External assessments occur less frequently than internal assessments, but they usually have greater importance, more authority, and higher stakes attached to them. External assessments have been used as indicators of both the educational achievement of students and the quality of instruction in schools. Although external assessments are used most often in grade 4 and beyond, there has been an increasing tendency to use external reading assessments in K-3 classrooms. Thus, we will briefly discuss the impact of high-stakes tests before we examine the variety of internal assessments used by successful teachers

Self- Chek Exercise-7

1. Internal assessments are conducted by:

a) External examiners

b) Teachers or instructors

c) Peers

d) Administrators

2. External assessments are conducted by:

a) Teachers or instructors

b) External examiners

c) Peers

d) Administrators

8.10 NEED OF CONTINUOUS AND COMPREHENSIVE EVALUATION

The continuous and comprehensive evaluation was initiated based on the recommendations to reform evaluation practices in school education by National curriculum for elementary and secondary education a framework (1988). Therefore, it is desirable to examine the viewpoints presented in the framework with respect to evaluation. The framework emphasizes the following.

1. Defining minimum levels of learning at all stages of education while evaluating the attainment of children.

2. Attaining mastery level in al competencies.

3. Broadening the scope of learners' assessment by way of including the assessment of psychomotor skills and socio-emotional attributes.

4. Aiming at qualitative improvement in education through valuation.

5. Using grades instead of marks.

6. As feedback mechanism for the benefit of teachers, learners and parents providing timely corrective measures for Improving attainment level of students.

7. Using various tools, techniques and modes of evaluation such as paper, pencil test, oral testing. observation schedules, rating scales, interviews and anecdotal records, individual and group evaluation methods at different stages. Maintain comprehensive student portfolios based on observational and situational tests.

8. Reducing undue emphasis on paper pencil tests in evaluation process.

9. Using more and more informal means of testing to reduce the anxiety and fear of the examinees Continuous and comprehensive evaluation necessitates the use of multiple evaluation techniques and tools in addition to certain conventional ones. This is required because different specific areas of pupil growth need different types of evaluation through certain techniques. The teacher has to select the most appropriate technique for a situation and develop the necessary tools for the same, and decide upon the periodicity and timing of evaluation.

Self-Check Exercise-8

1. Continuous and Comprehensive Evaluation (CCE) is necessary for:

a) Improving student learning outcomes

b) Reducing teacher workload

c) Increasing student motivation

d) All of the above

2. CCE helps to:

a) Identify learning gaps

b) Inform instruction

c) Evaluate student progress

d) All of the above

8.11 SUMMARY

The major purpose of assessment in schools should be to provide interpretative information to teachers and school leaders about their impact on students, so that these educators have the best information possible about what steps to take with instruction and how they need to change and adapt. So often we use assessment in schools to inform students of their progress and attainment. Of course this is important, but it is more critical to use this information to inform teachers about their impact on students. Using assessments as feedback for teachers is powerful. And this power is truly maximized when the assessments are timely, informative, and related to what teachers are actually teaching.

8.12 GLOSSARY

Diagnostic Assessment Evaluates student knowledge and skills before instruction to identify strengths and weaknesses.

Formative Assessment Ongoing evaluation during instruction to monitor student progress and adjust teaching.

Summative Assessment Evaluates student learning at the end of a lesson, unit, or course to measure achievement.

8.13 ANSWER TO SELF-CHECK EXERCISE-1,2,3,4,5,6,7& 8.

Self-Check Exercise-1

1. c) To monitor student progress and adjust instruction

2. d) Summative

3. c) To identify strengths, weaknesses, and learning gaps

Self-Check Exercise-2

1. b) Teacher-made

2. c) Criterion-referenced

Self-Check Exercise-3

1 d) Attitude

2. c) Aptitude

Self-Check Exercise-4

1. b) Experiments

2. b) Thematic analysis

Self-Check Exercise-5

1. b) Supply

2. a) Selection

Self-Check Exercise-6

1.c) The performance of peers

2.b) A specific criterion

Self-Check Exercise-7

1. b) Teachers or instructors

2. b) External examiners

Self-Check Exercise-8

1. a) Improving student learning outcomes

2. d) All of the above

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8.14 TERMINAL QUESTIONS

1) Explain the prognostic assessment?
2) Differentiate formative and summative assessment?
3) Explain the quantitative and qualitative assessment?
4) Explain the referenced and criterion referenced assessment
5) Explain the continuous and comprehensive evaluation

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UNIT- 9

ASSESSMENT OF LEARNING

Structure

9.1 Introduction

9.2 Learning Objectives

9.3 Levels of cognitive learning

    Self-Check Exercise-1

9.4 Levels of Affective learning

    Self-Check Exercise-2

9.5 Tool and Techniques for Assessment of Skill

    Self-Check Exercise-3

9.6 Summary

9.7 Glossary

9.8 Answer to Self-Check Exercise

9.9 References/Suggested Readings

9.10 Terminal questions

9.1 INTRODUCTION

Dear Learner,

The major levels of cognitive learning can be classified as memorizing, understanding, and applying. Most content can be learned at any of these three levels of learning. For example, you can memorize a definition of performance-based assessment as indicated by being able to restate it, you can understand what performance-based assessment is by being able to relate it to relevant prior knowledge, and you can learn to use performance-based assessment in your training. Too o…

Memorization, though sometimes very important, is greatly overused in most training settings. Understanding is very important, but it is relatively complex, and has not

received much attention by instructional theorists until very recently. Application is important and has received much attention by instructional theorists. It therefore provides a good place for us to begin.

9.2 LEARNING OBJECTIVES

After studying this unit, you should be able to:

- Explain about convergent and divergent thinking.
- Discuss about critical thinking.
- Discuss about problem solving, decision making and producer of assessment.
- Explain the term attitude
- Discuss term values
- Explain the term interests
- Explain the procedure of assessment

9.3 LEVELS OF COGNITIVE LEARNING

Convergent And Divergent Thinking

Convergent thinking is the type of thinking that focuses on coming up with the single, well-established answer to a problem. It is oriented toward deriving the single best, or most often correct answer to a question. Convergent thinking emphasizes speed, accuracy, and logic and focuses on recognizing the familiar, reapplying techniques, and accumulating stored information. It is most effective in situations where an answer readily exists and simply needs to be either recalled or worked out through decision making strategies. A critical aspect of convergent thinking is that it leads to a single best answer, leaving no room for ambiguity. In this view, answers are either right or wrong. The solution that is derived at the end of the convergent thinking process is the best possible answer the majority of the time.

Divergent thinking is a thought process or method used to generate creative ideas by exploring many possible solutions. It is often used in conjunction with its cognitive opposite, convergent thinking, which follows a particular set of logical steps to arrive at one solution, which in some cases is a "correct solution. By contrast, divergent thinking typically occurs in a spontaneous, free-flowing, 'non-linear" manner, such that many ideas are generated in an emergent cognitive fashion. Many possible solutions are explored in a short amount of time, and unexpected connections are drawn. After the process of divergent thinking has been completed, ideas and information are organized and structured using convergent thinking.

Critical Thinking

Critical thinking means making reasoned judgments that are logical and well thought out. It is a way of thinking in which you don't simply accept all arguments and conclusions you are exposed to but rather have an attitude involving questioning such arguments and conclusions. It requires wanting to see what evidence is involved to support a particular argument or conclusion. People who use critical thinking are the ones who say things such as, 'How do you know that? Is this conclusion based on evidence or gut feelings?' and 'Are there alternative possibilities when given new pieces of information?"

Additionally, critical thinking can be divided into the following three core skills:

1. **Curiosity** is the desire to learn more information and seek evidence as well as being open to new ideas.

2. **Skepticism** involves having a healthy questioning attitude about new information that you are exposed to and not blindly believing everything everyone tells you.

3. **Humility** is the ability to admit that your opinions and ideas are wrong when faced with new convincing evidence that states otherwise.

Problem Solving

Problem solving method is one in which the problems are solved scientifically. It is a method which discipline the mind to approach all problems scientifically and in the same way. It is otherwise known as scientific approach. In this the existence of a problem is pre-supposed. A problem is an obstruction of some sort to the attainment of an objective, a sort of difficulty which does not enable the individual to reach the goal easily. The distinguishing thing about a problem is that is impresses the individual who meets it as a needing challenge. These problems grow in complexity as the individual grows older and older. The solution of these gives him better hold on the environment, increases his store of knowledge and develops his intellectual powers.

4. Collecting the data

5. Interpreting and analysing the data

6. Formatting of hypothesis

7. Drawing conclusion and framing principles.

Decision Making

Decision-making is a concept based on the fundamental principle that individuals who are affected by the decision, possess expertise regarding the decision, and are responsible for implementing the decision, should be involved in making the decision. This concept often is attached to the broader school-system reform efforts of decentralization and school-based management (SBM), where decision-making authority is shifted from the district to the local school level. Some educators use the terms shared decision-making and school-based management interchangeably, others see shared decision-making as a component of SBM or decentralization. In general, the goal of school-based decision-making is to "empower school staff by providing authority, flexibility, and resources to solve the educational problems particular to their schools" (David, p. 52).

To operationalize school-based decision-making, structures at the school level need to be implemented to facilitate the involvement of key stakeholders in the decision-making process. Schools embracing shared decision-making typically develop councils consisting of representative stakeholders in the school, such as teachers, parents, support personnel, and administrators. The school's governance structure is supported by guidelines that specify representation, terms of membership, council size, meeting format, and delineated lines of authority. Frequently, site councils further disperse involvement through the use of subcommittees. Subcommittees allow greater numbers of teachers to participate in the formal decision- making process and reduce the overall burden of extended involvement of others.

In addition to decision-making governance councils, schools that embrace shared decision making understand that reaching collective agreement and consensus around difficult decisions require extended discussions, off-site meetings, and collective planning. Thus, schools that engage in shared decision-making at an authentic level set aside time for teachers to meet and places for them to congregate and talk. In addition, school schedules are often redesigned to facilitate teacher interaction by structuring common planning periods.

Procedure of Assessment

In education, the term assessment refers to the wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students.

While assessments are often equated with traditional tests especially the standardized tests developed by testing companies and administered to large populations of students-educators use a diverse array of assessment tools and methods to measure everything from a four-year-old's readiness for kindergarten to a twelfth-grade student's comprehension of advanced physics.

Assessments also are used to identify individual student weaknesses and strengths so that educators can provide specialized academic support, educational programming, or social services. In addition, assessments are developed by a wide array of groups and individuals, including teachers, district administrators, universities, private companies, state departments of education, and groups that include a combination of these individuals and institutions.

The purpose of an assessment generally drives the way it is designed, and there are many ways in which assessments can be used. A standardized assessment can be a high-stakes assessment, for example, but so can other forms of assessment that are not standardized tests. A portfolio of student work can be a used as both a "formative" and "summative" form of assessment. Teacher-created assessments, which may also be created by teams of teachers, are commonly used in a single course or grade level in a school, and these assessments are almost never "high-stakes." Screening assessments may be produced by universities that have conducted research on a specific area of child development, such as the skills and attributes that a student should have when entering kindergarten to increase the likelihood that he or she will be successful, or the pattern of behaviours, strengths, and challenges that suggest a child has a particular learning disability. In short, assessments are usually created for highly specialized purposes.

In education, there is widespread agreement that assessment is an integral part of any effective educational system or program. Educators, parents, elected officials, policy makers, employers, and the public all want to know whether students are learning successfully and progressing academically in school. The debates-many of which are a complex, wide ranging, and frequently contentious typically center on how assessments are used, including how frequently they are being administered and whether assessments are beneficial or harmful to students and the teaching process.

Self-Check Exercise-1

1. Convergent thinking involves:

a) Generating many possible solutions

b) Evaluating and selecting the best solution

c) Focusing on a single correct answer

d) Encouraging creativity

2. What type of decision-making involves making a choice based on logic and facts?

a) Intuitive

b) Rational

c) Emotional

d) Impulsive

9.4 ASSESSMENTS FOR AFFECTIVE LEARNING

Attitude

Attitudes are initially thoughts, whether conscious or not. If you think about an area in your life where you experience success, try and find where that success started. It no doubt first required a decision as to how you were going to act and behave in the world. For example, I changed careers when I was 27, I remember on the first day feeling so overwhelmed, and so far behind my peers. At that moment I made a decision I would be the best in my job in a year or so. And that eventuated. Now looking back I can see that I used positive self-talk to create a winning attitude that served me... an example of the power of positive thinking in action. That attitude to win literally came from the thought that I wanted to be the best on the job and it influenced all of my actions and behaviors at work. When there was extra to do, I gladly did it. And I always made sure my jobs were completed with thoroughness. This was all to serve my "winner" positive attitude.

Values

Values can be defined as those things that are important to or valued by someone. That someone can be an individual or, collectively, an organization. One place where values are important is in relation to vision. One of the imperatives for organizational vision is that it must be based on and consistent with the organization's core values. In one example of a vision statement, we'll look at later, the organization's core values- in this case, integrity, professionalism, caring, teamwork, and stewardship-were deemed important enough to be included with the statement of the organization's vision. Dr. John Johns, in an article entitled "The Ethical Dimensions of National Security," mentions honesty and loyalty as values that are the ingredients of integrity. When values are shared by all members of an organization, they are extraordinarily important tools for making judgments, assessing probable outcomes of contemplated actions, and choosing among alternatives. Perhaps more important, they put all members "on the same sheet of music" with regard to what all members as a body consider important.

Values are the embodiment of what an organization stands for, and should be the basis for the behavior of its members. However, what if members of the organization do not share and have not internalized the organization's values? Obviously, a disconnect between individual and organizational values will be dysfunctional. Additionally, an organization may publish one set of values, perhaps in an effort to push forward a

positive image, while the values that really guide organizational behaviour are very different. When there is a disconnect between stated and operating values, it may be difficult to determine what is "acceptable." For example, two of the Army's organizational values include Candor and courage. One might infer that officers are encouraged to "have the courage of their convictions" and speak their disagreements openly. In some cases, this does work; in others it does not.

The same thing works at the level of the society. The principles by which the society functions do not necessarily conform to the principles stated. Those in power may covertly allow the use of force to suppress debate in order to remain in power. ("death squads" are an example.) In some organizations, dissent may be rewarded by termination-the organizational equivalent of "death squad" action. In others, a group member may be ostracized or expelled.

Interests

Interests are the things you list under "Interests" on your Profile Page as a way to find others on Dream width who are interested in the same things you are. Listing an interest not only makes it appear on your Profile Page, it also lets others find your journal when they do a search using one of your interests as their search term. That's why instead of just listing "music" as your interest, you might list "Italian Opera" or "New Wave Punk" or "Wagrner" or "Metallica". The more specific you are, the more likely it is that other people who share your interest will be able to find you.

Your interests have already influenced many of the choices made in your life: your choice of A-level and degree subjects; the ways in which you spend your spare time, the holidays, and perhaps the jobs, which you have taken during vacations. They may have been responsible for many of the friends you have made and helped you to develop your personal skills. These interests are likely to have a similar influence on your career.

A gifted athlete, for example, may be able to use their interest and ability to succeed in a sporting career. Many more people will be content to play their sport at a recreational level, but will still take this interest into account when selecting a career or an employer. Some may enter sports-related careers, in leisure management, sports administration or promotion, retailing sports goods or teaching physical education. Others will seek out careers in different fields that offer similar opportunities for physical activity, teamwork, competition or challenge. Or they may simply choose between employers on the basis of the company sports facilities.

- Make a note of the activities you most enjoy and why you find them interesting.
- Among these interests, is there one which gives you more satisfaction than others?

- What do you spend most time on now?
- Are there any interests that you would like to develop or to spend more time on?

PROCEDURES OF THEIR ASSESSMENT

Educational assessment is the process of documenting, usually in measurable terms, knowledge, skill, attitudes, and beliefs. Assessment can focus on the individual learner, the learning community (class, workshop, or other organized group of learners), the institution, or the educational system as a whole (also known as granularity). The final purpose of assessment practices in education depends on the theoretical framework of the practitioners and researchers, their assumptions and beliefs about the nature of human mind, the origin of knowledge, and the process of learning

When conducting assessments, professionals must be careful to consider the client's/patient's level of acculturation to the mainstream culture. It is important to determine how familiar and comfortable individuals are with social, interpersonal, academic, and testing practices in the United States. An appropriate evaluation may have to be completed over time under the Individuals with Disabilities Education Act 2004, schools can employ "early intervening" services to determine which children have intrinsic learning problems that cannot be explained on the basis of lack of experience with the tasks. Responsiveness to intervention (RTI) and dynamic assessment (DA) are both early intervening approaches that can be used to decrease unnecessary referral to special education for struggling children who can benefit from modified instructional techniques

Self-Check Exercise-2

1. Which term refers to a wide variety of traits and dispositions different from knowledge and skills?

A) Attitude

B) Values

C) Interest

D) Affective domain

2. What does "intrinsic interest" mean?

A) Interest linked to external motives

B) Interest arising from the activity itself

C) Interest in rote facts

D) Interest in higher cognitive abilities

9.5 TOOL AND TECHNIQUES FOR ASSESSMENT OF SKILL

Use of projects

Assignments

Worksheets

Practical work

Performance based activities

Use of projects

The use of project-based assessment techniques has continued to grow within education curriculums as resources and concepts beyond traditional testing applications have evolved. There can be extensive value to the student's overall learning process with the addition of project-based learning to supplement standard curriculum material. Often the project-based component of a lesson plans can help to make the concepts relatable for students.

Assignments that compile into a project-based assessment are also a technique option for educators looking to review the ability of students to be creative, diverse and authentic with their course work and the experience gained throughout the time frame of the class. Learning is guided by much more than study skills and the completion of worksheets and lesson plans. The ability of teachers to apply additional assessment techniques to determine the level of understanding of a topic can be highly beneficial to the overall development of a student.

Project-based assessments are an opportunity to utilize and measure the higher order thinking skills of students. A project-based assessment will apply multi-faceted skills to be encompassed into a cumulative project. This can be a singular project at the end of a grading period or it can be done at designated intervals throughout the marking period. The intent is to design the project-based assessment to encompass the lesson plans, teacher worksheets and any additional teacher resources which will ultimately provide a physical example of what was has been learned and what can be applied by the student.

Assignments

The basic objectives of assigning homework to students are the same as schooling in general: to increase the knowledge and improve the abilities and skills of the students. However, opponents of homework cite homework as rote, or grind work, designed to take up children's time, without offering tangible benefit. Homework may be designed to reinforce what students have already learned, prepare them for upcoming (or complex or difficult) lessons, extend what they know by having them apply it to new situations, or to integrate their abilities by applying many different skills to a single task. Homework also provides an opportunity for parents to participate in their children's education.

Homework, or a homework assignment, is a set of tasks assigned to students by their teachers to be completed outside the class. Common homework assignments may include a quantity or period of reading to be performed, writing or typing to be completed, problems to be solved, a school project to be built (such as a diorama or display), or other skills to be practiced.

Worksheets

Worksheet commonly refers to a sheet of paper with questions for students and places to record answers. The term may also refer to a single array of data in spreadsheet software or an informal piece of paper that an accountant uses to record information.

Worksheet generators are often used to develop the type of worksheets that contain a collection of similar problems. A worksheet generator is a software program that quickly generates a collection of problems, particularly in mathematics or numeracy. Such software is often used by teachers to make classroom materials and tests. Worksheet generators may be loaded on local computers or accessed via a website.

In the classroom setting worksheets usually refer to a loose sheet of paper with questions or exercises for students to complete and record answers. They are used, to some degree, in most subjects, and have widespread use in the math curriculum where there are two major types. The first type of math worksheet contains a collection of similar math problems or exercises. These are intended to help a student become proficient in a particular mathematical skill that was taught to them in class. They are commonly given to students as homework. The second type of math worksheet is intended to introduce new topics, and are often completed in the classroom. They are made up of a progressive set of questions that leads to an understanding of the topic to be learned

PRACTICAL WORK

By 'practical work' we mean tasks in which students observe or manipulate real objects or materials - for themselves (individually or in small groups) or by witnessing teacher demonstrations.

Practical work can:

➤ motivate pupils, by stimulating interest and enjoyment

➤ teach laboratory skills

➤ enhance the learning of scientific knowledge

➤ give insight into scientific method and develop expertise in using it

➤ Develop 'scientific attitudes', such as open-mindedness and objectivity

As with all classroom activities, the effective teacher plans practical work with specific learning objectives in mind. Different practical tasks have different learning objectives and may be more or less successful in achieving the intended learning outcomes.

For some practical tasks, the learning is about objects and observables. Students are expected to recall what they have observed. Other tasks involve making links between observables and scientific ideas. Students generally find the latter harder, as they involve thinking as well as seeing and doing.

For each approach there are example lesson plans, resources and guidance. A general introduction for each topic encourages teachers to transfer the approaches exemplified in the resources to new topics of their choice.

Performance based activities

Performance-based learning and assessment achieve a balanced approach by extending traditional fact-and-skill instruction. Performance-based learning and assessment are not a curriculum design. Whereas you decide what to teach, performance-based learning and assessment constitute a better way to deliver your curriculum. Teachers do not have to "give up" units of study or favorite activities in a performance-based classroom. Because authentic tasks are rooted in curriculum, teachers can develop tasks based on what already works for them. Through this process, assignments become more authentic and more meaningful to students.

Performance tasks build on earlier content knowledge, process skills, and work habits and are strategically placed in the lesson or unit to enhance learning as the student "pulls it all together." Such performance tasks are not "add-ons" at the end of instruction. They are both an integral part of the learning and an opportunity to assess the quality of student performance. When the goal of teaching and learning is knowing and using, the performance-based classroom emerges.

Performance tasks range from short activities taking only a few minutes to projects culminating in polished products for audiences in and outside of the classroom. In the beginning, most performance tasks should fall on the short end of the continuum. Teachers find that many activities they are already doing can be shaped into performance-learning tasks.

Two initial concerns of teachers moving toward performance-based classrooms include the amount of time needed for performance tasks and the subjectivity traditionally associated with teacher assessment and assigning "grades."

Self-Check Exercise-3

1. What is the primary purpose of an assignment?

a) To test student knowledge

b) To promote student learning

c) To evaluate student performance

d) To assign grades

2. Which of the following is a benefit of practical work?

a) Increased theoretical knowledge

b) Improved retention and understanding

c) Enhanced creativity

d) All of the above

9.6 SUMMARY

The cognitive assessment is useful in determining a patient's level of understanding and ability. This evaluation is especially important to nurses in an in-patient setting, as nurses spend a significant amount of time with the patients while they are hospitalized. Some levels of cognitive impairment will require constant monitoring. Other patients may need help communicating if their language domain is impaired. Each patient has a unique circumstance, and it is up to the healthcare team to identify the deficits and develop a healthcare plan addressing the same to provide optimum care. With the help of a cognitive assessment, nurses will not only know that a patient is cognitively impaired, but they will learn which domain may be comprised, thereby allowing the nursing staff to adjust patient approaches and/or care plans accordingly.

9.7 GLOSSARY

Assessment Evaluating student learning and understanding

Cognitive Learning Refers to mental processes of perception, attention, memory, language, problem-solving, and thinking

Attitude: An attitude refers to the way an individual thinks and feels about someone or something.

Interest: Interest is a subjective attitude that brings pleasure and satisfaction.

9.8 ANSWER SELF CHECK EXERCISE-1, 2 & 3

Self-Check Exercise-1

1.c) Focusing on a single correct answer

2.b) Rational

Self-Check Exercise-2

1.A) Attitude.

2.B) Interest arising from the activity itself

Self-Check Exercise-3

1.b) To promote student learning

2.d) All of the above

9.9 REFERENCES/SUGGESTED READING

- Bransford, J., Brown, A.L., & Cocking, R.R. (Eds.) (2000). How People Learn: Brain, Mind, Experience, and School. Washington, DC: National Academy Press.
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9.10 TERMINAL QUESTIONS

Dear learners, please check you progress by attempting the following questions:

1) Explain the levels of cognitive learning?

2) Explain convergent and divergent thinking?

3) Explain critical thinking?

4) Discuss the problem solving and decision making?

5) Explain the term attitude?

6) Discuss term values?

7) Explain the terms interests?

8) Explain the procedure of assessment?

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UNIT-10

ASSESSMENT OF PERFORMANCE

Structure

10.1 Introduction

10.2 Learning objectives

10.3 Tool and techniques for assessment of skill

    Self-check exercise-1

10.4 Summary

10.5 Glossary

10.6 Answers to self-check exercise

10.7 References/ Suggested Readings

10.8 Terminal Questions

10.1 INTRODUCTION

Dear learner,

Performance assessment, also known as alternative or authentic assessment, is a form of testing that requires students to perform a task rather than select an answer from a ready-made list. For example, a student may be asked to explain historical events, generate scientific hypotheses, solve math problems, converse in a foreign language, or conduct research on an assigned topic. Experienced raters-either teachers or other trained staff then judge the quality of the student's work based on an agreed-upon set of criteria. This new form of assessment is most widely used to directly assess writing ability based on text produced by students under test instructions.

More important, performance assessment can provide impetus for improving instruction, and increase students' understanding of what they need to know and be able to do. In preparing their students to work on a performance task, teachers describe what the task entails and the standards that will be used to evaluate

performance. This requires a careful description of the elements of good performance, and allows students to judge their own work as they proceed.

10.2 LEARNING OBJECTIVES

After studying this unit, you should be able to:

- Discuss the use of projects
- Explain the assignment ant work sheets
- Explain the practical work
- Discuss the performance-based activities

10.3 TOOL AND TECHNIQUES FOR ASSESSMENT OF SKILL

Use of projects

Assignments

Worksheets

Practical work

Performance based activities

Use of projects

The use of project-based assessment techniques has continued to grow within education curriculums as resources and concepts beyond traditional testing applications have evolved. There can be extensive value to the student's overall learning process with the addition of project-based learning to supplement standard curriculum material. Often the project-based component of a lesson plans can help to make the concepts relatable for students.

Assignments that compile into a project-based assessment are also a technique option for educators looking to review the ability of students to be creative, diverse and authentic with their course work and the experience gained throughout the time frame of the class. Learning is guided by much more than study skills and the completion of worksheets and lesson plans. The ability of teachers to apply additional assessment techniques to determine the level of understanding of a topic can be highly beneficial to the overall development of a student.

Project-based assessments are an opportunity to utilize and measure the higher order thinking skills of students. A project-based assessment will apply multi-faceted skills to be encompassed into a cumulative project. This can be a singular project at the end of a grading period or it can be done at designated intervals throughout the marking period. The intent is to design the project-based assessment to encompass the lesson plans, teacher worksheets and any additional teacher resources which will ultimately provide a physical example of what was has been learned and what can be applied by the student.

Assignments

The basic objectives of assigning homework to students are the same as schooling in general: to increase the knowledge and improve the abilities and skills of the students. However, opponents of homework cite homework as rote, or grind work, designed to take up children's time, without offering tangible benefit. Homework may be designed to reinforce what students have already learned, prepare them for upcoming (or complex or difficult) lessons, extend what they know by having them apply it to new situations, or to integrate their abilities by applying many different skills to a single task. Homework also provides an opportunity for parents to participate in their children's education.

Homework, or a homework assignment, is a set of tasks assigned to students by their teachers to be completed outside the class. Common homework assignments may include a quantity or period of reading to be performed, writing or typing to be completed, problems to be solved, a school project to be built (such as a diorama or display), or other skills to be practiced.

Worksheets

Worksheet commonly refers to a sheet of paper with questions for students and places to record answers. The term may also refer to a single array of data in spreadsheet software or an informal piece of paper that an accountant uses to record information.

Worksheet generators are often used to develop the type of worksheets that contain a collection of similar problems. A worksheet generator is a software program that quickly generates a collection of problems, particularly in mathematics or numeracy. Such software is often used by teachers to make classroom materials and tests. Worksheet generators may be loaded on local computers or accessed via a website.

In the classroom setting worksheets usually refer to a loose sheet of paper with questions or exercises for students to complete and record answers. They are used, to some degree, in most subjects, and have widespread use in the math curriculum where there are two major types. The first type of math worksheet contains a collection of similar math problems or exercises. These are intended to help a student become

proficient in a particular mathematical skill that was taught to them in class. They are commonly given to students as homework. The second type of math worksheet is intended to introduce new topics, and are often completed in the classroom. They are made up of a progressive set of questions that leads to an understanding of the topic to be learned

PRACTICAL WORK

By 'practical work' we mean tasks in which students observe or manipulate real objects or materials - for themselves (individually or in small groups) or by witnessing teacher demonstrations.

Practical work can:

➤motivate pupils, by stimulating interest and enjoyment

➤ teach laboratory skills

➤ enhance the learning of scientific knowledge

➤ give insight into scientific method and develop expertise in using it

➤ Develop 'scientific attitudes', such as open-mindedness and objectivity

(This list is based on Hodson, D. 1990, "A critical look at practical work in school science" School Science Review, Vol 70 (Number 256), pp 33-40.)

As with all classroom activities, the effective teacher plans practical work with specific learning objectives in mind. Different practical tasks have different learning objectives and may be more or less successful in achieving the intended learning outcomes.

For some practical tasks, the learning is about objects and observables. Students are expected to recall what they have observed. Other tasks involve making links between observables and scientific ideas. Students generally find the latter harder, as they involve thinking as well as seeing and doing.

For each approach there are example lesson plans, resources and guidance. A general introduction for each topic encourages teachers to transfer the approaches exemplified in the resources to new topics of their choice.

Start by watching this short film which raises questions such as: Are all practical lessons really effective for learning? Can we achieve more with practical work by thinking differently about how we approach it?

Performance based activities

Performance-based learning and assessment achieve a balanced approach by extending traditional fact-and-skill instruction (Figure 1). Performance-based learning and assessment are not a curriculum design. Whereas you decide what to teach, performance-based learning and assessment constitute a better way to deliver your curriculum. Teachers do not have to "give up" units of study or favorite activities in a performance-based classroom. Because authentic tasks are rooted in curriculum, teachers can develop tasks based on what already works for them. Through this process, assignments become more authentic and more meaningful to students.

Performance tasks build on earlier content knowledge, process skills, and work habits and are strategically placed in the lesson or unit to enhance learning as the student "pulls it all together." Such performance tasks are not "add-ons" at the end of instruction. They are both an integral part of the learning and an opportunity to assess the quality of student performance. When the goal of teaching and learning is knowing and using, the performance-based classroom emerges.

Performance tasks range from short activities taking only a few minutes to projects culminating in polished products for audiences in and outside of the classroom. In the beginning, most performance tasks should fall on the short end of the continuum. Teachers find that many activities they are already doing can be shaped into performance-learning tasks.

Two initial concerns of teachers moving toward performance-based classrooms include the amount of time needed for performance tasks and the subjectivity traditionally associated with teacher assessment and assigning "grades."

Self-Check Exercise-1

1. What is the primary purpose of an assignment?

a) To assess student learning

b) To provide feedback to students

c) To encourage student engagement

d) To cover course material

2. Which of the following is a characteristic of a well-designed assignment?

a) It is vague and open-ended

b) It is focused on a specific learning objective

c) It is due at the end of the semester

d) It is optional

3. What is the primary goal of project-based learning?

a) To complete a product

b) To learn specific content

c) To develop problem-solving skills

d) To work in groups

10.4 SUMMARY

Performance assessment is a valuable approach used to evaluate an individual's understanding, skills, and competencies by observing their practical application in real-world scenarios. Performance-based learning is an approach to education that focuses on students actively demonstrating their knowledge, skills, and competencies through real-world tasks and activities. The goal is to help students develop a deeper understanding of the subject matter, as well as essential skills like critical thinking, problem-solving, communication, and collaboration.

10.5 GLOSSARY

Project-Based Learning: An instructional approach that uses projects to teach skills and content.

Presentation: An assignment that requires students to share learning orally. It Can be individual or group-based.

10.6 ANSWERS TO SELF CHECK EXERCISE-1

Self-Check Exercise-1

1. a) To assess student learning

2. b) It is focused on a specific learning objective

3. c) To develop problem-solving skills

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12.8 TERMINAL QUESTIONS

Dear learners, please check you progress by attempting the following questions:

1) Discuss the use of projects?
2) Explain the assignment ant work sheets?
3) Explain the practical work?
4) Discuss the performance-based activities?

UNIT-11

INSTRUCTIONAL OBJECTIVES

Structure

11.1 INTRODUCTION

Dear Learner,

An objective is a (relatively) short term goal which successful learners will achieve within the scope of the course itself. Objectives are often worded in course documentation in a way that explains to learners what they should try to achieve as they learn. Some educational organizations design objectives which carefully match the SMART criteria borrowed from the business world. The use of objective as a noun and as an adjective is a source of potential confusion especially when the adjective objective is applied to assessment. The noun is used in the sense of goal while the adjective is used in the sense of independent of personal judgment. Thus objective assessment and assessment of objectives have entirely different meanings Although the achievement of objectives is usually assessed this need not necessarily rely on objective assessment. Objectives can also be assessed via subjective assessment. In the present lesson, we will learn about the meaning and nature of objectives and difference between

instructional, learning and assessment objectives. We will also understand about the ways of writing objectives in behavioural terms.

11.2 LEARNING OBJECTIVES

After studying this unit, you should be able to:

- - Define the term objective.
- - Differentiate instructional, learning and assessment objectives.
- - State objectives in behavioural terms.
- - Explain the Mager's approach of writing objectives in behavioural terms.

11.3 INSTRUCTIONAL, LEARNING AND ASSESSMENT OBJECTIVES

An objective is an intent communicated by a statement. These are short term in nature and can be achieved in shorter span of time. The objectives can be classified as instructional objectives, learning objectives and assessment objectives. The difference between the three types is given below:

Instructional objectives

Instructional objectives are used to inform students and others what the student is to achieve. They provide one method of expressing expected student competencies. Instructional objectives are concerned with students, not teachers, and will guide them in their studies. Clearly defined instructional objectives also aid the teachers in designing appropriate educational experiences.

Instructional objectives are basically statements which clearly describe an anticipated learning outcome. When objectives were first coming into their own in teaching-learning process, they almost always began with the phrase: "Upon completion of this lesson, the student will/should be able to...." This phrase focused on the outcome of learning rather than on the learning process. In fact, one of the criteria for a well-written objective is that it describes the outcome of learning, that is, what the learners can do after learning has occurred that they might not have been able to do before the teaching and learning process began.

Characteristics of a Well-Written Objective

A well-written objective should meet the following criteria: (1) describe a learning outcome, (2) be student oriented, (3) be observable (or describe an observable product).

A well-written objective should describe a learning outcome (e.g., to correctly spell the spelling words on page seventeen). It should not describe a learning activity (e.g., to practice the words on page seventeen by writing each one ten times). Learning

activities are important in planning and guiding instruction but they are not to be confused with instructional objectives.

A student-oriented objective focuses on the learner, not on the teacher. It describes what the learner will be expected to be able to do. It should not describe a teacher activity (e.g., to go over the words on page seventeen with the students, explaining their meaning and telling them how the words are pronounced). It may be helpful to both the teacher and the student to know what the teacher is going to do but teacher activities are also not to be confused with instructional objectives.

If an instructional objective is not observable (or does not describe an observable product), it leads to unclear expectations and it will be difficult to determine whether or not it had been reached. The key to writing observable objectives is to use verbs that are observable and lead to a well-defined product of the action implied by that verb. Verbs such as "to know," "to understand," "to enjoy," "to appreciate," "to realize," and "to value" are vague and not observable. Verbs such as "to identify," "to list," "to select," "to compute," "to predict," and "to analyse" are explicit and describe observable actions or actions that lead to observable products.

There are many skills that cannot be directly observed. The thinking processes of a student as she tries to solve a math problem cannot be easily observed. However, one can look at the answers she comes up with and determine if they are correct. It is also possible to look at the steps a student takes to arrive at an answer if they are written down (thus displaying his thinking process). There are many end products that also can be observed (e.g., an oil painting, a prose paragraph, a 3-dimensional map, or an outline.)

Characteristics of a Useful Objective

To be useful for instruction, an objective must not only be well written but it also must meet the following criteria: (1) be sequentially appropriate; (2) be attainable within a reasonable amount of time, (3) be developmentally appropriate.

For an objective to be sequentially appropriate, it must occur in an appropriate place in the instructional sequence. All prerequisite objectives must already have been attained. Nothing thwarts the learning process more than having learners trying to accomplish an objective before they have learned the necessary prerequisites. This is why continuous assessment of student progress is so important.

A useful objective is attainable within a reasonable time. If an instructional objective takes students an inordinately long time to accomplish, it is either sequentially inappropriate or it is too broad, relying on the accomplishment of several outcomes or

skills rather than a single outcome or skill. An objective should set expectations for a single learning outcome and not a cluster of them.

Instructional objectives are often classified according to the kind or level of learning that is required in order to reach them. There are numerous taxonomies of instructional objectives; the most common taxonomy was developed by Benjamin Bloom and his colleagues. The first level of the taxonomy divides objectives into three categories: cognitive, affective, and psychomotor. Simply put, cognitive objectives focus on the mind; affective objectives focus on emotions or affect; and psychomotor objectives focus on the body.

Learning Objectives

While educators use learning objectives in different ways to achieve a variety of instructional goals, the concept is closely related to learning progressions, or the purposeful sequencing of academic expectations across multiple developmental stages, ages, or grade levels. Learning objectives are a way for teachers to structure, sequence, and plan out leaming goals for a specific instructional period, typically for the purpose of moving students toward the achievement of larger, longer-term educational goals such as meeting course learning expectations, performing well on a standardized test, or graduating from high school prepared for college. For these reasons, learning objectives are a central strategy in proficiency-based learning, which refers to systems of instruction, assessment, grading, and academic reporting that are based on students demonstrating understanding of the knowledge and skills they are expected to learn before they progress to the next lesson, get promoted to the next grade level, or receive a diploma (learning objectives that move students progressively toward the achievement of academic standards may be called performance indicators or performance benchmarks, among other terms).

Leaming objectives are also increasingly being used in the job-performance evaluations of teachers, and the term student learning objectives is commonly associated with this practice in many states. For a more detailed discussion, including relevant reforms and debuts on the topic, see value-added measures and student-growth measures.

Learning objectives are also a way to establish and articulate academic expectations for students so they know precisely what is expected of them. When learning objectives are clearly communicated to students, the reasoning goes, students will be more likely to achieve the presented goals. Conversely, when learning objectives are absent or unclear, students may not know what's expected of them, which may then lead to confusion, frustration, or other factors that could impede the learning process.

Assessment Objectives

Assessment objectives are part of the assessment arrangements for these qualifications. Assessments should reveal how well students have learned what we want them to learn while instruction ensures that they learn it. For this to occur, assessments, learning objectives, and instructional strategies need to be closely aligned so that they reinforce one another

Stating Objectives in Behavioural Terms

An objective

- Is an intent communicated by a statement describing a proposed change in a learner
- Is a statement of what the learner is to be like when he/she has successfully completed a learning experience

An instructional objective describes an intended outcome. It is important to differentiate between objectives in behavioural and non-behavioural terms. The objectives stated in behavioural terms have high power of communication. High power of communication means the intended message contained in the objective reaches to the listener (students) clearly without any bias, interruption or barrier. In other words, the learner understands the same message as sent by the teacher.

An instructional objective describes an intended outcome. It is important to differentiate between objectives in behavioural and non-behavioural terms. The objectives stated in behavioural terms have high power of communication. High power of communication means the intended message contained in the objective reaches to the listener (students) clearly without any bias, interruption or barrier. In other words, the learner understands the same message as sent by the teacher.

An advantage of clearly defined objectives in behavioural terms is that the student is provided the means to evaluate his/her own progress at any place along the route of instruction; thus, the student knows which activities on his/her part are relevant to his/her success. A meaningfully stated objective is one that succeeds in communicating to the reader the writer's instructional intent and one that excludes the greatest number of possible alternatives to your goal. While writing objectives in behavioural terms, certain action verbs which are subject to fewer interpretations (relevant words) are given below:

"Irrelevant words"   **"Relevant words"**

(open to many interpretations)   **(open to fewer interpretations)**

To KNOW	To WRITE
To UNDERSTAND	TO RECITE
To ENJOY	To IDENTIFY
To APPRECIATE	TO DIFFERENTIATE
To GRASP THE SIGNIFICANCE OF	TO SOLVE
To COMPREHEND	To CONSTRUCT
To BELIEVE	TO LIST
TO COMPARE	TO CONTRAST

For stating objectives in behavioural terms, different approaches are in practice which include Robert Mager's Approach, Robert Miller's Approach and RCEM (Regional College of Education, Mysore) Approach. Out of these approaches, Mager's approach is very simple and for beginning teachers.

Self-Check Exercise-1

1. What is an instructional objective?

a) A statement of what students will learn

b) A statement of how students will be assessed

c) A statement of what students will be able to do

d) A statement of the materials needed for instruction

2. What is a learning objective?

a) A statement of what students will learn

b) A statement of how students will be assessed

c) A statement of what students will be able to do

d) A statement of the materials needed for instruction

11.4 MAGER'S APPROACH OF WRITING OBJECTIVES IN BEHAVIOURAL TERMS

According to Mager and his followers, a behavioural objective (learning outcome) should be written in clear, unambiguous terms that any teacher or student can understand without the need for explanation, and should include the following three basic elements:

i) It should state what the student should be able to do at the end of the learning experience (i.e., should specify the required (terminal (or end) behaviour).

(ii) It should state the conditions or constraints under which this behaviour is to be exhibited.

(ii) It should give a clear indication of the minimum standard of performance that is considered acceptable.

To summarize, the steps to write objectives that will describe the desired behaviour of the learner are as follows:

1. Identify the terminal behaviour or performance by name; i.e., specify the kind of behaviour that will be accepted as evidence that the learner has achieved the objective.

2. Define the desired behaviour further by describing the important conditions under which the behaviour will be expected to occur.

3. Specify the criteria of acceptable performance by describing how well the learner must perform to be considered acceptable.

Two examples of learning outcomes that have been written in this fashion are given below, and, in each case, all three of the elements that are required by Magerian 'purists' have been identified.

(a) The student should be able to weigh an object (element 1) of less than 100 grams using a single-pan balance (element 2) and obtain the correct answer to four decimal places at least 9 times out of 10 (element 3)'.

(b) The recruit must be able to fire five shots from a standard-issue rifle (element 1) in twenty seconds at a standard circular target 50 metres away (element 2) scoring at least 4 bulls eyes (element 3)'.

Self-Check Exercise-2

1. Which of the following is an example of a behavioral objective?

a) Students will understand the concept of fractions.

b) Students will be able to solve problems involving fractions.

c) Students will appreciate the importance of fractions.

d) Students will be familiar with fractions.

2. Which of the following verbs is most appropriate for stating a behavioral objective?

a) Know

b) Understand

c) Appreciate

d) Perform

11.5 SUMMARY

In this lesson, we learned that the objectives are identified after analysing the content to be taught because teaching is a meaningful and purposeful activity. The teaching objectives are determined in the planning step. We learned about the difference between instructional, learning and assessment objectives and also understood the difference between behavioural and non-behavioural terms. The Mager's approach of writing instructional objectives in behavioural terms was also explained in detail along with the examples.

11.6 GLOSSARY

Behavioural Objective: A clear and specific statement of what students will be able to do or demonstrate as a result of instruction.

Non-Behavioural Objective: A statement of what students will know, understand, or appreciate as a result of instruction

11.7 ANSWER TO SELF CHECK EXERCISE-1&2

Self-Check Exercise-1

1. c) A statement of what students will be able to do

2. a) A statement of what students will learn

Self-Check Exercise-2

1. b) Students will be able to solve problems involving fractions.

2. d) Perform

11.8 REFERENCES/ SUGGESTED READING

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11.9 TERMINAL QUESTIONS

Dear learners, please check you progress by attempting the following questions:

- Define instructional objectives?
- Differentiate between objectives stated in behavioural and non- behavioural terms.
- Differentiate between instructional and assessment objectives.
- Write three objectives on any topic of your interest by following Mager's approach

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UNIT-12

TEST CONSTRUCTION

Structure

12.1 INTRODUCTION

Dear Learner,

Test construction is based upon practical and scientific rules that are applied before, during and after each item until it finally becomes a part of the test. Construction of tests is an important part of assessing students understanding of course content and their level of competency in applying what they are learning. In this lesson, we will learn about the procedure and principles of achievement test construction. We will also learn about item analysis and desirable attributes of a good achievement test.

12.2 LEARNING OBJECTIVES

After studying this unit, you should be able to:

- Explain the meaning of an achievement test.
- Discuss the steps of constructing an achievement test.
- Prepare a blue print of an achievement test.
- Compare the guidelines for constructing different types of test items.
- Perform item analysis in respect of achievement test.
- List down the qualities of an achievement test.

12.3 ACHIEVEMENT TEST (TEST)

A test is an instrument or a tool. It follows a systematic procedure for measuring a sample of behaviour by posing a set of questions in a uniform manner. It is an attempt to measure what a person knows or can do at a particular point in time. Furthermore, a test answers the question 'how well' does the individual perform either in comparison with others or in comparison with a domain of performance tasks? Achievement Test A test designed to apprise what the individual has learned as a result of planned previous experience or training is an Achievement Test. Since it relates to what has been learnt already its frame of reference is on the present or past. Basic Assumptions Preparation of an achievement test assumes that the content and/or the skill domain covered by the test can be specified in behavioural terms and that the knowledge and skill to be measured must be specified in a manner that is readily communicable to other persons. It is important that the test measures the important goals rather than peripheral or incidental goals. It also assumes that the test takers have had the opportunity to learn the material covered by the test. Achievement tests are designed specially to measure the degree of accomplishment in some particular educational or training experience. They are designed to measure the knowledge and skills developed in a relatively circumscribed area (domain). This area may be as narrow as one day's class assignment or as broad as several years' study. Achievement tests attempt to measure what a person knows or can do at a particular point in time. Furthermore, our reference is usually to the past; that is we are interested in what has been learned as a result of a particular course or experience or a series of experiences.

Self-Check Exercise-1

1. What is the primary purpose of an achievement test?

a) To predict future performance

b) To measure current knowledge or skills

c) To identify learning disabilities

d) To evaluate teacher effectiveness

2. Achievement tests are often used to:

a) Evaluate student learning outcomes

b) Identify areas for curriculum improvement

c) Determine teacher effectiveness

d) All of the above

12.4 STEPS FOR CONSTRUCTION OF AN ACHIEVEMENT TEST

Any test designed to assess the achievement in any subject with regard to a set of predetermined objectives Major steps involved in the construction of achievement test

1. Planning for the test

2. Preparation of a design for the test

3. Preparation of the test blue print

4. Writing the test items

5. Performing Item Analysis

Planning for the Test:

Determine the Objective of the Test

Determine the maximum time and maximum marks.

Test Length: The number of items that should constitute the final form of a test is determined by

the purpose of the test or its proposed uses, and by the statistical characteristics of the items.

Some of the important considerations in setting test length are:

➤ The optimal number of items for a homogenous test is lower than for a highly heterogeneous test.

➤ Items that are meant to assess higher thought processes like logical reasoning, creativity, abstract thinking etc., require more time than those dependent on our ability to recall important information.

➤ Another important consideration in determining the length of test and the time required for it is related to the validity and reliability of the test. The teacher has to determine the number of items that will yield maximum validity and reliability of the particular test.

Preparation of a Design for The Test

Important factors to be considered in design for the test are as follows.

Weightage to objectives

Weightage to content

Weightage to Type of questions

Weightage to difficulty level.

Weightage to objectives

Sl. No	Objectives	Marks	Percentage
1	Knowledge	6	24
2	Understanding	8	32
3	Application	11	44
	Total	25	100

Weightage to content

Sl. No	Content	Marks	Percentage
1	Sub topic- 1	10	40
2	Sub topic-2	15	60
	Total	25	100

Weightage to Type of questions

Sl. No	Types of Questions	No. of Questions	Marks	Percentage

1	Objectives type	13	13	52
2	Short answer type	2	2	8
3	Essay type	1	10	40
	Total	15	25	100

Weightage to difficulty level

Sl. No	No. of Question	Marks	Percentage
1	Easy	5	52
2	Average	15	60
3	Difficult	5	20
	Total	**25**	**100**

Preparation Of the Test Blue Print

Blue print is a three-dimensional chart giving the placement of the objectives, content and form of questions. The blue print is meant to ensure content validity of the test. It is the most important characteristic of an achievement test devised to determine the GPA at the end of a unit/term or course of instruction. The test may be based on several lessons or chapters in a text book, reflecting a balance between content areas

 and learning objectives. The test blue-print must specify both the content and process objectives in proportion to their relative importance and emphasis in the curriculum.

Objectives Form of Question Content	Knowledge			Understanding			Application			Grand Total
	O	SA	E	O	SA	E	O	SE	E	
Sub Topic-1	1(3)			1(6)			1(1)			10

Sub Topic-2	1(3)			2(1)				10(1)	15
Total Marks	6	0	0	5	3	0	2	10	25
Grand Total	6			8			11		

Table of Specifications: A table of specifications is a two-way table that represents along one axis the content area/topics that the teacher has taught during the specified period and the cognitive level at which it is to be measured, along the other axis. In other words, the table of specifications highlights how much emphasis is to be given to each objective or topic.

Writing the Test Items:

The next step after planning the test is preparing it in accordance with the plan. This step mainly deals with development of items and organizing them in the form of a test. The initially developed test draft or pool of items is termed as preliminary draft or rough draft of the test. Different types of questions can be devised for an achievement test, for instance, multiple choice, fill-in-the-blank, true-false, matching, short answer and essay. Although each type of question is constructed differently, the following principles apply to constructing questions and tests in general:

1. Instructions for each type of question must be simple and brief**.**

2. Questions must be written in simple language. If the language is difficult or ambiguous, even a student with strong language skills and good vocabulary may answer incorrectly if his/her interpretation of the question is different from the author's intended meaning.

3. Test items must assess specific ability or comprehension of content developed during the course of study.

4. Write the questions as you teach or even before you teach, so that your teaching may be aimed at significant learning outcomes.

5. Devise questions that call for comprehension and application of knowledge skills.

6. Some of the questions must aim at appraisal of examinees' ability to analyze, synthesize, and evaluate novel instances of the concepts. If the instances are the same as used in instruction, students are only being asked to recall (knowledge level).

7. Questions should be written in different formats, e.g., multiple-choice, completion, true-false, short answer etc. to maintain interest and motivation of the students.

8. Prepare alternate forms of the test to deter cheating and to provide for make-up testing (if needed).

9. The items should be phrased so that the content rather than the format of the statements will determine the answer. Sometimes the item contains "specific determiners" which provide an: irrelevant cue to the correct answer. For example, statements that contain terms like always, never, entirely, absolutely, and exclusively are much more likely to be false than to be true. On the other hand, such terms as may, sometimes, as a rule, and in general are much more likely to be true. Besides, care should be taken to avoid double negatives, complicated sentence structures, and unusual words.

12. The difficulty level of the items should be appropriate for the ability level of the group. Optimal difficulty for true-false items is about 75 percent, for five-option multiple choice questions about 60 percent, and for completion items approximately 50 percent. However, difficulty in itself is not an end, the item content should be determined by the importance of the subject matter. It is desirable to place a few easy items in the beginning to motivate students, particularly those who are of below average ability.

11. The items should be devised in such a manner that different taxonomy levels are evaluated. Besides, achievement tests should be power test, not speed test.

12. Items pertaining to a specific topic or of a particular type should be placed together in the test. Such a grouping facilitates scoring and evaluation. It will also be helpful for the examinees to think and answer the items, similar in content and format, in a better manner without fluctuation of attention and changing the mind set.

13. Directions to the examinees should be as simple, clear, and precise as possible, so that even those students who are of below average ability can clearly understand what they are expected to do.

10. Scoring procedures must be clearly defined before the test is administered.

15. The test constructor must clearly state optimal testing conditions for test administration.

16. Item analysis should be carried out to make necessary changes, if any ambiguity is found in the items.

Before we discuss preparing the test, it seems quite reasonable that we talk about different types of test items, their characteristics, use and limitations. Items commonly used for Tests of Achievement Two major types of items have been identified: 1. Constructed Response/Supply items 2. Structured Response/Select items

A. Constructed Response/Supply items: In the supply type items the question is so framed that the examinee has to supply or construct the answer on his own in his own words. They generally include the following type: Essay type, Short Answer type, Completion type items. B. Structured Response/Select items: In the select type items, as the name suggests the examinee is required to select the correct answer from amongst the given or structured options. They are often called objective items. They include: Alternate Response type, Multiple-choice type, Matching type.

Constructing Objective Type Test Items:

Construction of test items is a crucial step for the validity of a classroom test is determined by the extent to which performance to be measured is called forth by the test items. It is not enough to have knowledge of subject matter, defined learning outcomes, or a psychological understanding of the students' mental processes, although all of these are prerequisites. The ability to construct high-quality test items requires knowledge of the principles and techniques of test construction and skill in their application. Objective test forms typically measure relatively simple learning outcome.

    i.   **Alternative Response Type Items:**

Alternative response item is the one that offers two options to choose from. They often consist of a declarative statement that the examinee is asked to mark true or false, right or wrong, correct or incorrect, yes or no, agree or disagree, or the like. Incomplete sentences providing two options to choose from to fill in the blank also fall in this category. The most common form it takes is True - False questions. Most common use of the true-false item is in measuring the examinee's ability to identify the correctness of statements of fact, definitions of terms, statements of principles, and the like, also to distinguish fact from opinion. Another aspect of understanding that can be measured by the true-false item is the ability to recognize cause-and-effect relationships. This type of item usually contains two true propositions in one statement, and the examinee is to judge whether the relationship between them is true or false. The true- false item also can be used to measure some simple aspects of logic. A common criticism of the true-false item is that an examinee may be able to recognize a false statement as incorrect but still not know what is correct.

Suggestions for Constructing True-False Items:

- Avoid trivial statements.
- Avoid broad general statements.
- Avoid the use of negative statements, especially double negatives.
- When a negative word must be used, it should be underlined or put in italics so that students do not overlook it.
- Avoid complex sentences. Avoid including two ideas in one statement, unless cause-effect relationships are being measured.
- Avoid using opinion that is not attributed to some sources, unless the ability to identify opinion is being specifically measured. Avoid using true statements and false statements that are unequal in length.
- Avoid using disproportionate numbers of true statements and false statements.

ii. Short Answer/Completion Items:

The short answer item and the completion item both are supply-type test items. Yet, they are included here for their simplicity. They can be answered by a word, phrase, number, or symbol. The short- answer item uses a direct question whereas the completion item consists of an incomplete statement. Short-answer item is especially useful for measuring problem-solving ability in science and mathematics. Complex interpretations can be made when the short-answer item is used to measure the ability to interpret diagrams, charts, graphs, and pictorial data. When short-answer items are used the question must be stated clearly and concisely. It should be free from irrelevant clues, and require an answer that is both brief and definite.

Suggestions for Constructing Short Answer Items:

- Word the item so that the required answer is both brief and specific. A direct question is generally
- more desirable than an incomplete statement.
- Do not take statements directly from textbooks to use as a basis for short-answer items.
- If the answer is to be expressed in numerical units, indicate the type of answer wanted.
- Blanks for answers should be equal in length and in a column to the right of the question.
- Do not include too many blanks.

Multiple Choice Questions:

The multiple-choice item (MCQ) consists of two distinct parts: The first part that contains task of problem is called stem of the item. The stem of the item may be presented either

as a question or as an incomplete statement. The form makes no difference as long as it presents a clear and a specific problem to the examinee. Second part presents a series of options or alternatives. Each option represents possible answer to the question. In a standard form one option is the correct or the best answer called the keyed response and the others are misleads or foils called distracters. The number of options used differs from one test to the other. An item must have at least three answer choices to be classified as a multiple choice item. The typical pattern is to have four or five choices to reduce the probability of guessing the answer. A good item should have all the presented options look like probable answers at least to those examinees who do not know the answer. The multiple choice items, despite having advantages over other items, have some serious limitations as well. It takes time to construct MCQ. They are susceptible to guessing and do not provide any diagnostic information.

Guidelines for Constructing Multiple-Choice Items:

- Be sure that the stem clearly formulates a problem. The stem should be worded so that the examinee clearly understands the question being asked before he reads the answer choices.
- Stem should be written either in direct question form or in an incomplete statement form.
- The stem of the item should present only one problem. Two concepts must not be combined together to form a single stem.
- Include as much of the item in the stem and keep options as short as possible. This leads to economy of space, economy of reading time and clear statement of the problem. Unnecessary words or phrases should not be included in the stem. Such words add to the length and complexity of the stem but do not enhance meaningfulness of the stem. The stem should be written in simple, concise and clear form.
- Avoid the use of negative words in the stem of the item. There are times when it is important for the examinee to detect errors or to know exceptions. For these purposes, sometimes the use of 'not 'or 'except' is justified in the stem. When a negative word is used in a stem it should be highlighted.
- Use novel material in formulating problems to measure understanding or ability to apply principles. Do not focus too closely on rote memory of the text that neglects measurement of the ability to use information.
- Use plausible distracters as alternatives. If an examinee who does not know the correct answer is not distracted by a given alternative, that alternative is not plausible and it will add nothing to the functioning of the item.
- Be sure that no unintentional clues. The correct answer should appear at each position in almost equal numbers. While constructing multiple-choice item, some examiners have a tendency to place correct alternative at the first position. Some place it in the middle and others at the end. Such tendencies should be consciously controlled.

- Avoid using 'none of the above', 'all of the above", both a and b etc, as options for an MCQ. Alternatives should be grammatically consistent with the stem. Grammatical inconsistency provides irrelevant clues.

iv. Matching Type Questions:

Matching type questions consists of two parallel columns with each word, number, or symbol in one column being matched to a word, sentences, or phrase in the other column. Items in the column for which a match is sought are called premises, and the items in the column from which the selection is made are called responses.

Suggestions for Constructing Matching Type Questions:

- Use only homogeneous material in a single matching exercise.
- Include an unequal number of responses and premises and instruct the student that responses may be used once, more than once, or not at all.
- Keep the list of items to be matched brief, and place the shorter responses on the right.
- Arrange the list of responses in logical order. Place words in alphabetical order and numbers in sequence.
- Indicate in the directions the basis for matching the responses and premises. Ambiguity and confusion will be avoided. And testing time will be saved.
- Place all of the items for one matching exercise on they same page.

V. Essay Type Questions:

There are two major purposes for using essay questions that address different learning outcomes. One purpose is to assess students' understanding of subject-matter content. The other purpose is to assess students' writing abilities. These two purposes are so different in nature that it is best to treat them separately. An essay question is "...a test item which requires a response composed by the examinee, usually in the form of one or more sentences, of a nature that no single response or pattern of responses can be listed as correct, and the accuracy and quality of which can be judged subjectively only by one skilled or informed in the subject."

An essay question should meet the following criteria:

1. Requires examinees to compose rather than select their response. Multiple-choice questions, matching exercises, and true-false items are all examples of selected response test items because they require students to select an answer from a list of possibilities provided by the test maker, whereas essay questions require students to construct their own answer.

2. Elicits student responses that must consist of one or more sentences.

3. No single response or single response pattern is correct.

4. The accuracy and quality of students' responses to essays must be judged subjectively by a competent specialist in the subject.

Guidelines for Constructing Essay Questions:

- Clearly define the intended learning outcome to be assessed by the item.
- Avoid using essay questions for intended learning outcomes that are better assessed with other kinds of assessment.
- Define the task and shape the problem situation.
- Helpful Instructions: Specify the relative point value and the approximate time limit in clear directions.
- Helpful Guidance: State the criteria for grading
- Use several relatively short essay questions rather than one long one.
- Avoid the use of optional questions. Students should not be permitted to choose one essay question to answer from two oral questions. Students should not be optional questions should be and for the following reasons. Students may waste time deciding on an option. Some questions are likely to be harder which could make the comparative assessment of abilities unfair.

Writing Instructions or Guidelines for Test Administration and Scoring:

The directions should be simple but complete. They should indicate the purpose of the test, the time limits and the score value of each question. Write a set of directions for each item type that is used on the test specifying what the respondent is expected to do and how one is required to record the responses.

All pupils must be given a fair chance to demonstrate their achievement. Physical and psychological environment be conducive to their best efforts. Control all factors that might interfere with valid measurement: Adequate workspace, quiet, proper light and ventilation are important. Pupils must be put at ease, tension and anxiety should be reduced to the minimum.

Separate answer sheets, which are easier to score, can be used at high school level and beyond.

 If the pupils' answers are recorded on the test paper, the teacher may make a scoring key by marking the correct answers on a blank copy of the test. When separate answer sheets are used, a scoring stencil is a blank answer sheet with holes punched where correct answer should appear. Before scoring procedure is used, each test paper

should also be scanned to make sure that only one answer was marked for each item. Any item containing more than one answer should be eliminated from scoring. In scoring objective tests, each correct answer is usually counted as one point. When pupils are told to answer every item on the test, a pupil's score is simply the number of items answered correctly. Short answer questions may sometime require awarding partial credit and may pose some problem in scoring. However, a detailed key may be prepared in advance to avoid confusion. For each question and for the test as a whole, the examiner may make a tally for each kind error that the examinees make. A summary of these errors could then be used to plan instructional activities.

Performing Item Analysis

Often students judge, after taking the exam, whether the test was fair and good. Teacher is also usually interested about how the test worked for the students. One way to ascertain this is to undertake item analysis. It provides objective, external and empirical evidence for the quality of the items we have pre-tested. The objective of item analysis is to identify problematic or poor items which might be either confusing the respondents or do not have a clearly correct response or a distracter might well be competing with the keyed answer.

Good test making requires careful attention to the principles of item evaluation. The basic methods involve are assessment of item difficulty and item discrimination. These measures comprise item analysis. Item analysis is about how difficult an item is and how well it can discriminate between the good and the poor students.

(i) Item Difficulty Index/Facility Index

Item difficulty is determined from the proportion (p) of students who answered each item correctly Item difficulty can range from zero (none could solve it) to hundred (all persons solved it correctly). The goal is usually to have items of all difficulty levels in the test so that test could identify poor, average as well as good students. However, most of the items are designed to be average in difficulty levels for they are more useful. Item analysis exercise provides us the difficulty level of each item.

- Optimally difficult items are those that 50%-75% of students answer correctly.
- Items are considered low to moderately difficult if (p) is between 70% and 85%
- Items that only 30% or below solve correctly are considered difficult ones.

Item Difficulty Percentage can also be denoted as Item Difficulty Index by expressing it in decimals e.g 40 for items which could be solved by 40% of the test-takers. Thus index can range from 0 to 1. Items should fall in a variety of difficulty levels in order to differentiate between good and average as well as average and poor students. Easy items are usually placed in the initial part of the test to motivate students in taking the

test and alleviating test-anxiety. The optimal item difficulty depends on the question type and number of possible distracters as well.

(ii) Item Discrimination

Another way to evaluate items is to ask "Who gets this item correct"- the good, average and the weak students? Assessment of item discrimination answers this query.

Item discrimination refers to the percentage difference in correct responses between the poor and the high scoring students.

The discrimination index is a basic measure of the validity of an item. It is a measure of an item's ability to discriminate between those who scored high on the total test and those who scored low. Though there are several steps in its calculation, once computed, this index can be interpreted as an indication of the extent to which overall knowledge of the content area or mastery of the skills is related to the response on an item. Perhaps the most crucial validity standard for a test item is that whether a student got an item correct or not is due to their level of knowledge or ability and not due to something else such as chance or test bias.

In a small class of 30 students, one can administer the test items, score them and then rank. Next, we separate the upper 15 students and the low 15 into two groups: The UPPER and the LOW groups. Finally, we find how well each item was solved correctly (p) by each group. In other words, percentage of students passing (p) each item in each of the two groups is worked out. Discrimination (D) power of the item is then known by finding difference between the percentage of upper group and the low group. The higher the difference, the greater the discrimination power of an item.

D= (p of upper group -p of lower group)

In a large class of 100 or more students, we take the top 25% and the lower 25% students to form upper and lower groups, to cut short the labor or amount of work. The discrimination ratio for an item falls between-1.0 and+1.0. The closer the ratio is to +1.0, the more effectively that item distinguishes students who know the material (the top group) from those who don't (the bottom group). An item with a discrimination of 60% or greater is considered a very good item, whereas a discrimination of less than 20% indicates a low discrimination and the item needs to be revised. An item with a negative index of discrimination indicates that the poor students answer correctly more often than do the good students. Strange! Such items should be dropped from the test.

For example, ten students in a class have taken ten items quiz. The students' responses are shown below high to low. The top students can be called the high score

and bottom half as the low scoring group. The number" indicates a correct answer, a "O" indicates an incorrect answer.

Student	Total score %	Item No									
		1	2	3	4	5	6	7	8	9	10
1	100	1	1	1	1	1	1	1	1	1	1
2	90	1	1	1	1	1	1	1	1	0	1
3	80	1	1	0	1	1	1	1	1	0	0
4	70	0	1	1	1	1	1	0	1	0	1
5	70	1	1	1	0	1	1	1	0	0	1
6	60	1	1	1	0	1	1	0	1	0	0
7	60	0	1	1	0	1	1	0	1	0	1
8	50	0	1	1	1	0	0	1	0	1	0
9	40	1	1	1	0	0	0	0	0	1	1
10	30	0	1	0	0	0	1	0	0	1	0

Difficulty Index and Discrimination Index are calculated below:

Item No	Correct High Group	Correct Low Group	Difficulty %	Discrimination %
1	4	2	60	40
2	5	5	100	0
3	4	4	80	0
4	4	1	50	60
5	5	2	80	60
6	5	3	80	40

7	4	1	50	60
8	4	2	60	40
9	1	3	30	40
10	4	2	60	40

- Question no 2 was the easiest; no 9 was most difficult.
- Question 9 also had negative discrimination and should be removed from the test.
- 100% discrimination would occur if all those in the upper group answered correctly and all those in the lower group answered incorrectly.
- Zero discrimination occurs when equal numbers in both groups answer correctly. Negative discrimination, a highly undesirable condition, occurs when more students in the lower group than the upper group answer correctly.
- Items with 25% and above discrimination are considered good.

(iii) **Analysis of Response Options (Distracter Analysis):** In addition to examining the performance of an entire test item, teachers are often interested in examining the performance of individual distracters (incorrect answer options) on multiple-choice items. By calculating the proportion of students who chose

each answer option, teachers can identify which distracters are "working" and appear attractive to students who do not know the correct answer, and which distracters are simply taking up space and not being chosen by many students. To eliminate blind guessing which results in a correct answer purely by chance (which hurts the validity of a test item), teachers want as many plausible distracters as is feasible. Analyses of response options allow teachers to fine tune and improve items they may wish to use again with future classes

Interpreting Distracter Values:

Distracters should be ideally equally attractive, but not more than the answer. Minimum, it must be opted by at least 5% of the examinees. Weak or non-functional distracters may be substituted with new ones and make sure that they align with the stem as well as the objective of the item, well connected with the rest, and are grammatically correct.

Effectiveness of Distracters

Difficulty and discrimination index are estimates about an item which overall comprises a stem and a set of distracters or options. The item analysis statistics reflects on the

goodness of both distracters and the stem. Let us look at the guidelines which can help us improve them.

1. Most MCQs have 2-4 distracters; 3 is better, 4 is best at the college level Where it is difficult to think of more than one distracter, frame it as true/false item

2. Distracters that have less than 5 percent response rate are weak and may be changed/improved Distracters which attracted no response are not working at all.

3. No distracter should be chosen more than the keyed response in the upper group.

4. Similarly, no one distracter should pull more than about half the students.

5. If students have responded about equally to all the options, they might be marking randomly or wildly guessing. Critically check contents of such items. They might have been written badly and the students seem to have no idea what you are asking. It could be very difficult items and students might be completely baffled.

6. If the low group gets the keyed answer as often as the upper group, all the distracters might be looked into again. Or drop the item if you have a large pool of items.

Developing Norms for Interpretation of Test Scores:

Norm is average score of sample population. These are the level obtained by a particular group of persons on a test. There are many types of norms like age norms, grade norms, percentile norms and standard scores.

Self-Check Exercise-2

1. What is the first step in constructing an achievement test?

a) Defining the test format

b) Identifying the test objectives

c) Developing the test items

d) Piloting the test

1. Which of the following is a key consideration when defining the test format?

a) Test length and duration

b) Question types and difficulty

c) Scoring and interpretation

d) All of the above

12.5 DESIRABLE QUALITIES/ATTRIBUTES OF A TEST:

All tests are desired to be valid and reliable, but no tests are more so than MCQs because of several advantages over other examination techniques. Here we mention of four qualities of a test.

1. Reliability

Reliability can be defined as a procedure that tells us whether a test is likely to yield the same results if administered multiple times to the same group of test takers. In other words, a test is said to be reliable if it measures consistently. If there is consistency or homogeneity among questions, it enhances reliability of the test. A test may be having several parts: mathematics, verbal comprehension etc, therefore separate reliability of each part will be worked out. Since MCQs have clear-cut, unambiguously correct or incorrect objectively score-able answers, there is more marker reliability in such assessment. However, no test of measure is perfect. A certain degree of error does creep in called random or chance error. In measuring length with a ruler, for example, there may be random error associated with your eye's ability to read the marking or extrapolate between the markings. In addition, the scale that you use to measure length not be very precise and accurate. These factors fluctuate and vary from time to time influencing students performance on the test adversely. When such chance or random error is kept to the minimum, test scores truly reflect on students' ability. Reliability, as a statistical estimate, ranges between 0-1.

2. Validity

Validity indicates, whether a test measures what it is purported to measure. Usually test based on MCQs cover the entire course and is therefore potentially a more valid assessment than the descriptive tests. The scores of a not-so-valid a test are less credible in warranting student's mastery of the course material. It is therefore not safe to draw any inference or decision from it. Assessing content validity is very salient and essential to an educational test. Course exams or scholastic tests are required to cover and represent the entire course domain/knowledge to be called valid tests. Subject specialists or experts judge how valid a test is by contents. Content reliability essentially involves systematic examination of eng contents to determine whether it covers a representative sample of the knowledge domain/course along with the learning/course objectives in the right proportion (as specified in the table of specification).

3. Practicality

MCQs are practically useful and efficient especially in a large scale testing situation unlike descriptive tests which are more resource intensive and demand time and money. The tests should be easy in administration and scoring and interpretation. These qualities fall under practicality.

4. Objectivity

It refers to fairness and uniformity in the test scoring procedure. Examiner/rater bias is therefore non-existent in MCQ based tests. That is why they are called objective tests. Further, the analysis of the test data is undertaken statistically which further assesses various dimensions of the tests to make them more precise and accurate instruments.

Self Check Exercise-3

1. What is the term for the consistency of test scores?

a) Reliability

b) Validity

c) Objectivity

d) Practicality

1. What is the term for the ability of a test to measure what it claims to measure?

a) Reliability

b) Validity

c) Objectivity

d) Practicality

12.6 SUMMARY

In this lesson, we discussed about test construction, preparation of its blue print and item analysis in detail. We also discussed how to prepare different types of test items. The desirable qualities or attributes of a test were also explained in the last section of this lesson. It is expected that you must be in a position to prepare an achievement test after going through this lesson.

12.7 GLOSSARY

Achievement Test: A type of assessment that measures a student's knowledge, skills, and understanding of a specific subject or course.

 Test Objectives: Clear statements of what the test is intended to measure.

12.8 ANSWER TO SELF CHECK EXERCISE-1,2 & 3

Self-Check Exercise-1

1**.** b) To measure current knowledge or skills

2. d) All of the above

Self-Check Exercise-2

1.b) Identifying the test objectives

2.d) All of the above

Self-Check Exercise-3

1.a) Reliability

2.b) Validity

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12.10 TERMINAL QUESTIONS

Dear learners, please check you progress by attempting the following questions:

1. Discuss various steps of preparing an achievement test in brief.

2. What do you mean by test blue print? How it is prepared?

3. What decisions are taken at the planning stage of constructing an achievement test?

4. What things should be kept in mind while constructing multiple choice type questions?

5. Do you suggest that the short answer type questions be included in the test? If Yes, give reasons.

6. What do you mean by item analysis? How item difficulty is computed?

7. What do you mean by distracter analysis?

8. Discuss desirable attributes of an achievement test.

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UNIT-13

TEST PERFORMANCE AND REMEDIAL INSTRUCTION

Structure

13.1 INTRODUCTION

Dear Learner,

Performance assessment, also known as alternative or authentic assessment, is a form of testing that requires students to perform a task rather than select an answer from a ready-made list. After the completion of testing process, the next task with the teacher is to score the tests and award grades or scores to the learners. As far as individual score is concerned, it can give information about single student. However, for getting information about the whole group of learners or a class, the test scores of the students need to be processed. The processing of test scores or test performance of a group of

students is carried out by employing certain mathematical or statistical procedures. The information obtained from such processing can be effectively utilized for designing remedial instruction for learners, reporting the performance to the parents, school authorities and other stakeholders concerned with it. The present lesson will throw light on techniques of processing test performance and how learners' performance can be analyzed and interpreted for further reporting to different stakeholders. We will also learn about the means of providing remedial instruction to learners on the basis of their test performance.

13.2 LEARNING OBJECTIVES

After studying this unit, you should be able to:

- Define and calculate various measures of central tendency.
- Calculate the percentage for a given set of test data.
- Draw graphical representations for a given set of data.
- Explain the ways of reporting students' performance like; progress reports, cumulative record and portfolio.
- Explain the concept of remedial instruction along with ways of providing it to learners.
- Discuss the importance of performance-based feedback for parents and teachers.

13.3 MEASURES OF CENTRAL TENDENCY

Raw achievement or performance scores of students are of no use unless those scores are not statistically analyzed and interpreted with certain specific parameters or reference points. Hence, analysis and interpretation of test scores is very important. Interpretation of test scores means to find out the inherent meaning of a test score with reference to a particular norm or parameter. Interpretation depends upon the purpose of assessment. The analysis and interpretation of test scores is carried out by employing certain statistical procedures. For reporting the performance of a group of students, the analysis is done by using descriptive statistical procedures. These descriptive statistics include measures of central tendency,

A measure of central tendency is a single value that attempts to describe a set of data by identifying the central position within that set of data. As such, measures of central tendency are sometimes called measures of central location. They are also classed as summary statistics. The mean (often called the average) is most likely the measure of central tendency that you are most familiar with, but there are others, such as the median and the mode.

The mean, median and mode are all valid measures of central tendency, but under different conditions, some measures of central tendency become more appropriate to use than others. In the following sections, we will look at the mean, mode and median, and learn how to calculate them and under what conditions they are most appropriate to be used.

Arithmetic Mean or Average:

The mean (or average) is the most popular and well known measure of central tendency. It can be used with both discrete and continuous data, although its use is most often with continuous data. The mean is equal to the sum of all the values in the data set divided by the number of values in the data set. So, if we have 'n' values in a data set and they have values x, x,...., x, the sample mean, usually denoted by (pronounced x bar), is:

This formula is usually written in a slightly different manner using the Greek capital letter, 2, pronounced "sigma", which means "sum of...":

The mean is essentially a model of your data set. It is the value that is most common. You will notice, however, that the mean is not often one of the actual values that you have observed in your data set. However, one of its important properties is that it minimizes error in the prediction of any one value in your data set. That is, it is the value that produces the lowest amount of error from all other values in the data set. An important property of the mean is that it includes every value in your data set as part of the calculation. In addition, the mean is the only measure of central tendency where the sum of the deviations of each value from the mean is always zero. Mean is the most stable measure of central tendency.

Median

Median is used to describe an entire set of observations with a single value representing the center of the data. Half of the observations are above the median, half are below it. It is determined by ranking the

[data and finding observation number [N+1]/2.If there are even number of observations, the median is xtrapolated as the value midway between there are even number/2 and [N/2]+1.

7 9 10 12 13 14 17 18 19 for this ordered data, the median is 13. That is, 50% of the values are less than or equal to 13, and 419% of the values are greater than or equal to 13.

Mode

The mode is the value that occurs most frequently in a set of observations. Minitab also display how many data points equal the mode. Mode may be used with mean and median to give an overall characterization of your data distribution. While the mean and median require a calculation, the mode is found simply by y counting the number of times each value occurs in a data set. 1 The other formulae for mode

Mode 3 = Median-2 Mean

Another time when we usually prefer the median over the mean (or mode) is when our data is skewed (i.e., the frequency distribution for our data is skewed). If we consider the normal distribution - as this is the most frequently assessed in statistics - when the data is perfectly normal, the mean, median and mode are identical. Moreover, they all represent the most typical value in the data set. However, as the data becomes skewed the mean loses its ability to provide the best central location for the data because the skewed data is dragging it away from the typical value. However, the median best retains this position and is not as strongly influenced by the skewed values. This is explained in more detail in the skewed distribution section later in this guide.

The procedures for computing measures of central tendency for tabulated data are different. At present, a number of computer software are available which can give you accurate information about mean, median and mode once the data are fed in the computer system.

Self-Check Exercise-1

1. Which of the following is a measure of central tendency?

a) Mean

b) Median

c) Mode

d) All of the above

2. Which measure of central tendency is most affected by outliers?

a) Mean

b) Median

c) Mode

d) Range

13.4 PERCENTAGES

The term "per cent" is derived from the Latin word per centum, meaning "by the hundred". The sign for "per cent" evolved by gradual contraction of the Italian term per cento, meaning "for a hundred". The "per" was often abbreviated as "p." and eventually disappeared entirely. The "cento" was contracted to two circles separated by a horizontal line, from which the modern "%" symbol is derived

We can think of a hundred as a whole or all of something. A hundred percent of a pizza is the whole pizza. Half a pizza would be 50 percent, or half of a hundred percent. The percentage tells you how much of the whole you have. If we divide our pizza into 100 little slices, then each slice would represent 1 percent of the pizza. This is another way to visualize percentages. You can take a whole of something and divide it into 100 little pieces and then figure out how many little pieces are in the portion you are interested in. If I wanted a quarter of the pizza, I would see that it would require 25 little slices out of 100, or 25 percent of the pizza.

In case of learners' assessment related data, percentages are computed for getting information regarding how many students scored above 90% or below 25%. Or, how many students got 'A' grade? In such cases, merely the information regarding number of students getting above a particular point is of no use. Here, the percentages are computed which clearly specify the performance of a group of learners as a whole. The results declared by different boards of school education and universities frequently use percentages for reporting the results to general public. The percentage gives an overall idea about the performance of a large number of students taken as a whole. The percentage is most commonly computed by applying following formulae:

Percentage of Students getting 'A' Grade = No. of Students getting 'A' grade X100 Total No. of Students

Self-Check Exercise-2

1. What is the percentage increase from 20 to 25?

a) 5%

b) 10%

c) 20%

d) 25%

2. What is the percentage decrease from 50 to 40?

a) 10%

b) 15%

c) 20%

d) 25%

13.5 GRAPHICAL REPRESENTATION

A graphical representation is a visual display of data and statistical results. It is often more effective than presenting data in tabular form. There are many different types of graphical representation and which one is to be used, depends on the nature of the data and the type of statistical results. The major graphical representations are pie chart, bar chart, histogram and frequency polygon. An appropriate graphical representation of category frequencies and percentages is a pie chart, where each slice represent a different category and slice angles are proportional to the frequencies or percentage of those particular categories Another graphical method used for category frequencies is a bar chart, where each bar represents a different category and the heights of the bars are proportional to the frequencies of the categories. Suitable graphical representation of frequency distribution of discrete quantitative data is also a bar chart, while for frequency distribution of continuous quantitative data, appropriate graphical representations are histogram and frequency polygon.

Bar Chart

A bar chart or bar graph is a chart that presents grouped data with rectangular bars with lengths proportional to the values that they represent. The bars can be plotted vertically or horizontally. A vertical bar chart is sometimes called a column bar chart. A bar graph is a chart that uses either horizontal or vertical bars to show comparisons among categories. One axis of the chart shows the specific categories being compared, and the other axis represents a discrete value. Some bar graphs present bars clustered in groups of more than one (grouped bar graphs), and others show the bars divided into subparts to show cumulative effect (stacked bar graphs). Bar charts have a discrete range. Bar charts are usually scaled so that all the data can fit on the chart. Bars on the chart may be arranged in any order. Bar charts arranged from highest to lowest incidence are called Pareto charts. Normally, bars showing frequency will be arranged in chronological (time) sequence. Bar graphs/charts provide a visual presentation of categorical data Categorical data is a grouping of data into discrete groups, such as months of the year, age group, shoe sizes, and animals. These categories are usually qualitative. In a column bar chart, the categories appear along the horizontal axis; the height of the bar corresponds to the value of each category.

Pie Chart

A pie graph (or pie chart) is a specialized graph used in statistics. The independent variable is plotted around a circle in either a clockwise direction or a counterclockwise direction. The dependent variable (usually a percentage) is rendered as an arc whose measure is proportional to the magnitude of the quantity. Each arc is depicted by constructing radial lines from its ends to the center of the circle, creating a wedge-shaped "slice. "The independent variable can attain a finite number of discrete values (for example, five). The dependent variable can attain any value from zero to 100 percent. The illustration is a pie graph depicting the results of a final exam given to a hypothetical class of students. Each grade is denoted by a "slice." The total of the percentages is equal to 100 (this is important; if it were not, the accuracy of the graph would be suspect). The total of the arc measures is equal to 360 degrees.
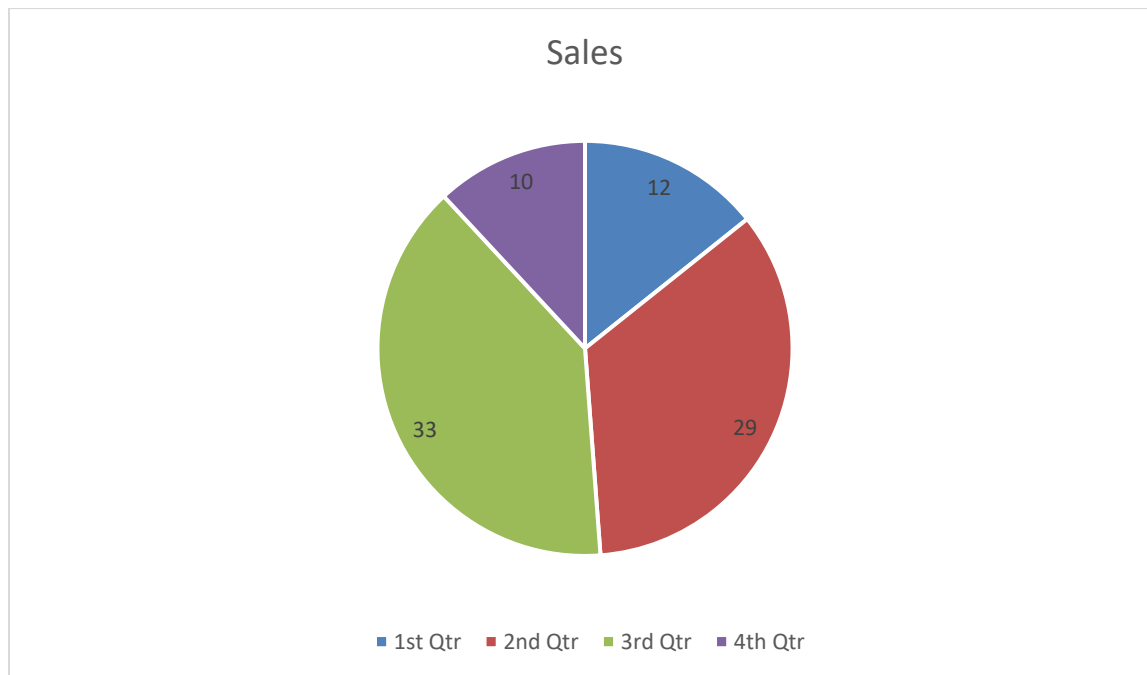
Histogram

A histogram is a display of statistical information that uses rectangles to show the frequency of data item in successive numerical intervals of equal size. In the most common form of histogram, the independent variable is plotted along the horizontal axis and the dependent variable is plotted along the vertical axis. The data appears as colored or shaded rectangles of variable area. The illustration, below, is a histogram showing the results of a final exam given to a hypothetical class of students. Each score range is denoted by a bar of a certain colour. If this histogram were compared with

those of classes from other years that received the same test from the same teacher, conclusions might be drawn about intelligence changes among students over the years. Conclusions might also be drawn concerning the improvement or decline of the teacher's teaching ability with the passage of time. If this histogram were compared with those of other classes in the same semester who had received the same final exam but who had taken the course from different teacher, one might draw conclusions about the relative competence of the teachers.

Score on final exam (maximum possible = 100)
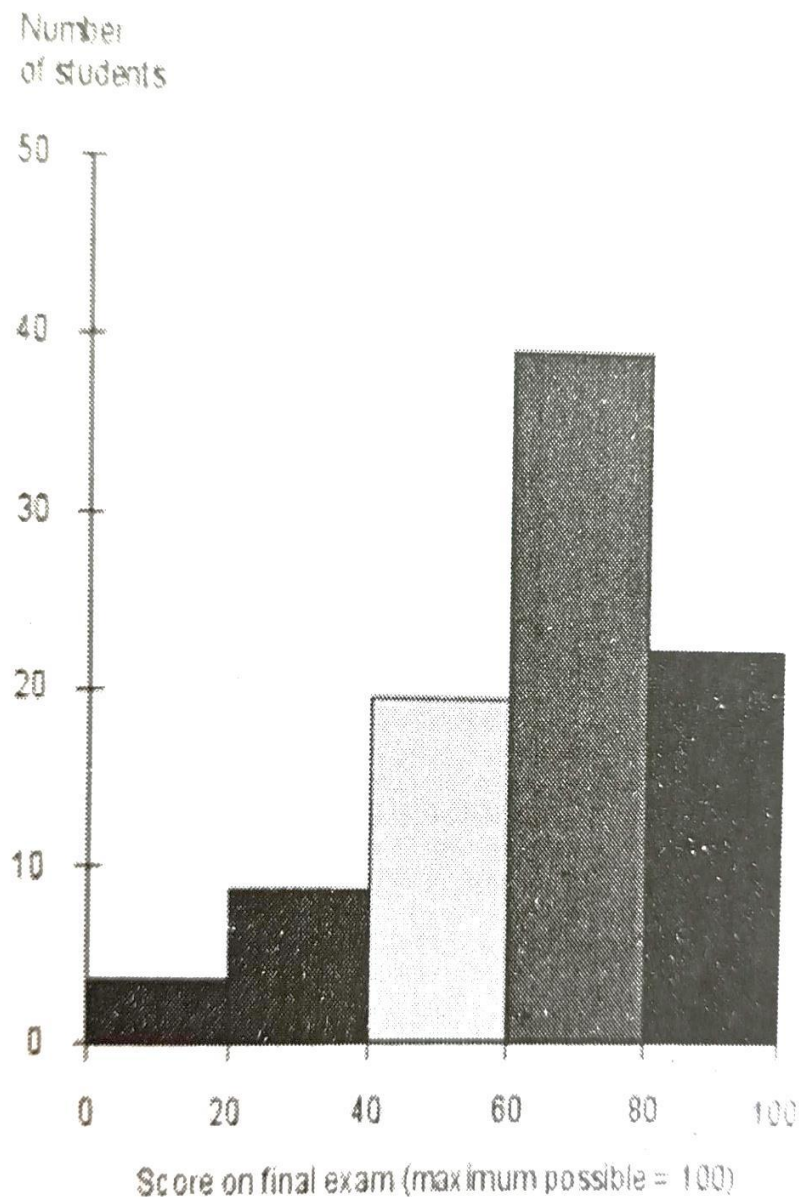
Frequency polygon

Frequency polygons are a graphical device for understanding the shapes of distributions. They serve the same purpose as histograms, but are especially helpful for comparing sets of data. Frequency polygons are also a good choice for displaying cumulative frequency distributions.

Self-Check Exercise-2

1. Which of the following is a type of graphical representation?

a) Histogram

b) Bar chart

c) Pie chart

d) All of the above

2. What is the purpose of a legend in a graph?

a) To provide a title for the graph

b) To explain the symbols used in the graph

c) To provide data for the graph

d) To determine the scale of the graph

13.6 WAYS OF REPORTING STUDENTS' PERFORMANCE

After processing, analysing and interpreting students' performance, the next task of the teacher i to report the individual student's performance vis-a-vis the performance of the whole group of student The reporting of students' performance in a particular subject area is highly beneficial for teachers, students parents, school authorities for planning educational programmes, remedial instruction, selection of future subjects or vocations etc. There are different ways of reporting students' performance which are discussed ahead:

Progress Report

A critical element of any student's learning experience is the need for informed and meaningful feedback to those invested in the student's progress. Reporting on student

progress must have a well. defined purpose for it to be meaningful. It must clearly identify the information needing to be communicated the audience it is intended for and how that information will be used to improve future or related learning

A school has identified three primary purposes for reporting student progress:

1. To communicate student growth to parents and the broader community.

2. To provide feedback to students for self-evaluation.

3. To document student progress and the effectiveness of instructional programs.

Because reporting student progress serves a variety of purposes, no one method of reporting is capable of serving all purposes well. Amulti-faceted comprehensive reporting system is essential. Multiple means of reporting progress is divided into two subsets, individual and whole school reports. Within these subsets, the means for reporting may include but are not limited to: Individual Subset-report cards, progress reports, standardized testing, evalúated projects and assignments portfolios and exhibitions of student work, homework etc.

Whole School Subset-Standardized testing, open houses, classroom works, portfolios and exhibitions of student work etc.

A progress report of student should include his achievement in both scholastic and co-scholastic areas. The progress reports should highlight the strengths as well as weaknesses of the student in each particular scholastic, co-scholastic or extra curricular activities. The progress reports must be prepared and updated at regular intervals and each aspect of student' personality characteristics must be highlighted in the progress report.

Cumulative Records

A cumulative record card is that which contains the results of different assessment and judgments held from time to time during the course of study of a student. Generally, it covers three consecutive years It contains information regarding all aspects of life of the child - physical, mental, social, moral and psychological. It seeks to give as comprehensive picture as possible of the personality of a child. Basically, a cumulative record card is a document in which cumulatively useful and reliable information

about a particular pupil or student at one place is recorded. Hence, presenting a complete and growing picture of the individual concerned for the purpose of helping him during his long stay at school. And at the time of leaving, it helps in the solution of his manifold problems of educational, vocational and personal- social nature and thus assisting him in his best development.

Need for Cumulative Record:

The need for such a record was felt in view of an inadequate information that was contained in the various forms as available. The Secondary Education Commission has made the following observations regarding the need for School records "neither the external examination singly or together can give a corrected and complete picture of a pupil's all round progress at any particular age of his education, yet it is imparted for us to assess this in order to determine his future course of study or his future vocation." Fok this purpose, a proper system of school records should be maintained for every pupil indicating the work Jone by him in the school from day to day, month old bath mined form and year to year. Such a school record will present a clear and continuous statement of the intent of the child in different intellectual pursuits throughout the successive stages of his ed of thin it also contains a progressive evolution of development in other directions of no less importance such as the growth of his interest, aptitudes and personal traits, his social adjustments, the practical and social activities in which he takes part.

Characteristics of Cumulative Record:

(i) The Cumulative Record is a permanent record about the pupil or student.

(ii) It is maintained up-to-date. Whenever any new information is obtained about the pupil it is entered in the card.

(iii) It presents a complete picture about the educational progress of the pupil, his past achievements and present standing.

(iv) It is comprehensive in the sense that it contains all information about the pupil's attendance, test scores, health etc.

(v) It contains only those information's which are authentic, reliable, pertinent, objective and useful.

(vi) It is continuous in the sense that it contains information about the pupil from the time he enters for pre-school education or kindergarten system till he leaves the school.

(vii) Whenever any information is desired by any-body concerned with the welfare of the child he should be given the information but not the card itself.

(viii) Confidential information about the pupil is not entered in the CRC but kept in a separate file.

Portfolio

A portfolio is a compilation of student work assembled for the purpose of (1) evaluating coursework quality and academic achievement, (2) creating a lasting archive of academic work products, and (3) determining whether students have met learning standards or academic requirements for courses, grade- level promotion, and graduation. Advocates of student portfolios argue that compiling, reviewing, and evaluating student work over time can provide a richer and more accurate picture of what students have learned and are able to do than more traditional measures, such as standardized tests or final examinations that reflect only what a student knows at a specific point of time.

Portfolios can be a physical collection of student work that includes materials such as written assignments, journal entries, completed tests, artwork, lab reports, physical projects (such as models),

and other material evidence of student learning progress and academic accomplishment, including awards, honors, certifications, and recommendations. Portfolios may also be digital collections or presentations that include the same documents and achievements as physical portfolios, but that may also include additional content such as student-created videos, multimedia presentations, spreadsheets, websites, photo graphs, or other digital artifacts of learning. Online portfolios are often called digital portfolios or e-portfolios. In some cases, blogs or online journals may be maintained by students and include ongoing reflections related to leaming activities and progress. Portfolios may also be presented publicly or privately to parents, teachers,and community members as part of a demonstration of learning project.

Portfolios may be used in day-to-day instruction to help students reflect on their own work products and academic progress. By closely monitoring learning progress over time using portfolios, both teachers and students can highlight academic strengths, identify leaming weaknesses, and recognize accomplishments and growth. Portfolios are also used to keep parents and other adults more informed about what students are doing and learning in the classroom. Advocates may also argue that portfolios help to keep parents engaged in their child's education and more informed about changes in learning progress, curriculum, or testing, for example. In some schools, portfolios are a way for students to critique and assess their own work, usually as an extension of the process of deciding what will be included in their portfolios. Rubrics or other instruments may also be used to structure and facilitate the self-reflection process.

Portfolios are used at the elementary, middle, and secondary school levels. At the secondary level, students may create a portfolio of work for a specific class, or they may

maintain a comprehensive portfolio of work from all the courses they completed over their four years of high school. In some cases, portfolios become part of a student's formal transcript and may be used in job and college-admissions applications.

Remedial instruction: concept and means of providing feedback for learners

The analysis of test performance of learners helps us in revealing the deficiencies in learning. In order to remove these learning deficiencies, 'Remediation' or 'Remedial Teaching' is provided. During the process of remediation, a teacher is expected to devise some strategy to remove problems in learning and the causes due to which the learner has faced the difficulties. The strategy used by the teacher to remove the learning gaps of the learners is known as remedial teaching. The ultimate aim of remediation or remedial teaching is to help pupils who have fallen behind to learn to the best of their ability and to bring them back into the mainstream of teaching-learning process as far as possible.

The word "remedial" means "to rectify, improve or remedy something." Remedial education is education which is designed to bring students who are lagging behind up to the level of achievement realized by their peers. Remedial teaching means that help is offered to pupils who need pedagogical or didactic assistance. These are often children who function at a lower-than-average level because of a certain learning or behavioural problem/disorder. However, remedial teaching can also be offered to pupils who achieve at a higher-than-average level. Remedial teaching involves taking a pupil where one is and starting from that point leading one to greater achievement. It is just effective teaching in which the learner and his/her needs occupy the focal point. Remedial teaching is an integral part of all good teaching. It takes the pupil at his own level and by intrinsic methods of motivation leads him to increased standards of competence. It is based upon careful diagnosis of defects and in general, to the needs and interest of pupils. There is a clear distinction between remedial teaching and coaching. Coaching is a repetition of lessons already offered before (re-teaching). Remedial teaching involves individual counselling (also in small groups), working systematically, purposefully and intensively with a pupil or pupils, acquiring skills in order to deal with learning problems/disorders, making a plan that can be used in the group when the remedial teacher is absent and providing information to the child and the persons involved. The steps which are employed while planning and executing a remedial teaching programme include; (i) teach, (ii) review, (iii) test for weaknesses whenever they appear, and (iv) follow with remedial drill units on the specific weaknesses revealed by the tests.

The following principles should guide the teacher in planning and carrying out the remediation programme

(i)   Correction of any physical factors which affect learning.
(ii)   Seeking cooperation of the parents.
(iii)   Analyzing specific strengths and needs of child and showing how the instructional materials are designed to correct his/her deficiencies.
(iv)   Making the child aware of his/her problem and providing a method of solving them. Beginning instruction at or slightly the learner's present level of achievement. Short term goab should be established which the learner considers reasonable and possible to attain. By means of
(v)   progress charts, praise and social recognition, the child's feeling of successful accomplishment should be reinforced. Willingness of the teacher to modify the remedial programme if the approach and materials selected seem to be ineffective.
(vi)   Corrective procedures must be modified for children of relatively inferior or superior mental ability.
(vii)   The results of corrective instruction should be evaluated. Comparable forms of a standardized test should be administered before and after a period of concentrated instruction. The effectiveness of the programme must be evaluated for each child that in terms of class averages.
(viii) A cumulative record should be made of the results of diagnosis, of methods and materials used, and of the results of corrective instruction. Such a record is helpful in the determination of next steps, and of invaluable help to the next teacher when the child is promoted

As a teacher, one must keep in mind that most of the learning difficulties pupils encounter may not be within the pupil, but are relative to the context where the learning is taking place, such as the family background of the pupil, the physical and learning environment of the school, and the pupils' peer groups. Once this is understood by a teacher, he/she will begin to view the pupils from a different perspective and try to accept their learning difficulties as a transient and soluble problem. The teachers will begin to see the pupils as children who can be taught and helped to overcome their learning difficulties. It is essential for a teacher to understand thoroughly the strengths and weaknesses of their pupils so that appropriate teaching approaches can be adopted to meet their individual needs. Although these pupils are low academic achievers, they are not necessarily limited in abilities or that their attainment will remain permanently low. With proper remediation, the use of stimulating teaching strategies, and closer supervision and more individual attention, these pupils' interest in learning will be aroused and they would make better progress.

Role of Teacher in Remedial Teaching

A remediation teacher's main duty is to work very closely with the principal, students, teachers and the rest of the staff. The teacher provides remediation for students who are struggling in certain specific academic areas. Remediation teacher works cooperatively and create activities based on the curriculum that will help the remedial students. A remediation teacher manages students' records in a timely and appropriate way. A remediation teacher works with the students who have the hardest time learning and retaining the information, like normal students. Before preparing for their lessons, remedial teachers should identify pupils' diverse learning needs as soon as possible so that they may design appropriate teaching plans to facilitate pupils' effective learning. A teacher has to perform following functions while planning and organizing a remediation programme for students with particular learning gaps:

1. Throughout the teaching process, teachers should provide systematic training to develop pupils' generic skills, including interpersonal relationship, communication, problem-solving, self-management, self- learning, independent thinking, creativity and the use of information technology.

2. Devise various learning activities and design meaningful learning situations.

3. Give concrete examples before proceeding to abstract concepts by way of simple and easy steps at a pace in line with the learning abilities of students

4. Provide pupils short and clear instructions to avoid confusion

5. Summarize the main points and encourage pupils' active participation in class activities

6. Show concern for the performances of individual pupils. While assigning home work, remedial teacher should keep in mind that the homework should have clear objectives that can accommodate the level and needs of pupils. The form and contents of homework should be of a great variety so as to develop pupils' creativity, self-learning and collaborative skills. The homework should match the content taught in class. Ineffective and mechanical drills should be avoided.

7. Prepare a rich, pleasant and comfortable learning environment for pupils

8. Display the teaching materials of the week or the learning outcomes or products of pupils at prominent places to stimulate their motivation in leaming.

Strategies for Providing Remedial Teaching/Corrective Measures:

Following strategies can be employed by the teachers to provide remedial instruction to the students confronting learning difficulties:

(1) Individualized education programme (IEP): Individualized educational programme aims to reinforce the foundation of leaming, help pupils overcome their learning difficulties and develop their potentials. Individualized educational programme should include short-term and long-term teaching objectives, learning steps, activities and reviews to ensure that the programme is implemented effectively. Teaching can be done in small groups or for individual. Remedial teachers should hold meetings regularly to evaluate the effectiveness of work and gather opinions for refinement.

(ii) Peer Group Learning: Teachers may train up pupils who perform better in a certain subject to become "little teachers' and who will be responsible for helping schoolmates with learning difficulties in group teaching and self-study sessions as well as outside class. Peer group learning helps pupils reinforce their knowledge, and develop their communication and cooperation skills as well as good interpersonal relationship.

(iii) Provision of rewards to the students to enhance pupils' motivation: The reward scheme has positive effect in enhancing pupils' motivation. It aims at guiding pupils to set their own objectives and plans, and positively reinforcing their good performance. The teacher should set clear and achievable objectives. The reward should be changed and possess variability in onder to maintain their acceptance and strength in sustaining the interest and motivation among students

(iv) Making close liaison and coordination with the parents,

(v) Maintaining close contact with other teachers to discuss experiences.

Reporting students' performance: feedback for parents and teachers

Feedback is an essential part of education and training programmes. It helps learners to maximize their potential at different stages of learning, raise their awareness of strengths and areas for improvement, and identify actions to be taken to improve performance. The students get a chance to identify their learning gaps and get motivated to remove those learning gaps.

Feedback can be seen as informal (for example in day-to-day encounters between teachers and students, between peers or between colleagues) or formal (for example as part of written or clinical assessment). However, 'there is no sharp dividing line between assessment and teaching in the area of giving feedback on learning'. Feedback is part of the overall dialogue or interaction between teacher and learner, not a one-way communication. If we don't give feedback what is the learner gaining, or indeed, assuming? They may think that everything is OK and that there are no areas for improvement. Learners value feedback, especially when it is given by someone credible who they respect as a role model or for their knowledge, attitudes or clinical competence.

The parents are the major stakeholders in the educational process of children. Any healthy educational system must have provision for providing feedback to the parents on the educational progress of their child. The results of the assessment of students must be informed well in time to the parents so that they may also take necessary decisions regarding their education at home appropriately. If the parents remain misinformed or uninformed about the child's educational progress, it will be deterrent for the future of child Hence, it is of great importance to maintain a close and regular relationship between teachers, parents and schools. The performance of students also provides a feedback to the teachers about their strengths and weaknesses in teaching-learning process. The teachers may take appropriate decisions regarding the teaching-learning process on the basis of performance of students. They may select appropriate teaching- learning strategies as well as instructional materials for providing better learning experiences to the students, removing their learning difficulties and enhancing their performance. The students' performance level helps the teachers in assessing their own teaching, identifying own weaknesses and planning for self-improvement. On the basis of individual differences prevailing in the class, the teacher can devise various strategies and tactics to deal with individual differences effectively.

The educational administrators and school authorities also get an opportunity to revisit their educational programmes and plans on the basis of students' performance. The necessary changes and modifications in the ongoing educational plans, schemes, interventions can be undertaken on the basis of students' performance levels.

To sum up, it may be said that students' performance acts as feedback device for students, parents, teachers and educational administrators through various means.

Self-Check Exercise-3

1. What is the primary purpose of a progress report?

a) To evaluate student learning at the end of a course

b) To inform parents of student progress during a course

c) To provide feedback to students on their performance

d) To determine student grades

2. What is a portfolio in an educational setting?

a) A collection of student work

b) A single assignment or project

c) A test or quiz

d) A grade or score

13.7 SUMMARY

In this lesson, we discussed about the ways of processing test performance of students and analyzing and interpreting the same. We learned about the concepts of measures of central tendency and percentage and its calculation. The ways of representing test data through graphical representation were also learnt by us. The means of reporting students' performance viz. progress reports, cumulative records and portfolios were also discussed. The strategies of providing remedial instruction to the students on the basis of their test performance were also explained. In the end, we discussed about the importance of feedback about students' performance for parents, teachers and administrators.

13.8 GLOSSARY

Progress Report: A document or communication that provides information about a student's progress towards meeting learning goals or objectives.

Percentage: A fraction or ratio expressed as a part of 100.

13.9 ANSWERS TO SELF CHECK EXERCISE-1,2 & 3

Self Check Exercise-1

   1.d) All of the above

   2.a) Mean

Self Check Exercise-2

   1. c) 20%
   2. c) 20%

Self Check Exercise-3

1.b) To inform parents of student progress during a course

2. a) A collection of student work

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13.11 TERMINAL QUESTIONS

Dear learners, please check you progress by attempting the following questions:

1. What are different measures of central tendency? How will you calculate mean? Give example?

2. Prepare a graphical presentation for a hypothetical data based on students achievement in any subject.

3. Explain the concept of remedial teaching. How remedial teaching can help the students?

4. Differentiate between progress report and cumulative record card.

5. Discuss the steps followed in remediation process.

6. List down any two strategies for providing remedial help to school children.

7. How feedback on students' performance can help teachers and parents?

8. What is a portfolio? Name the components that should be included in student's portfolio.

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UNIT-14

ISSUES, CONCERNS AND

TRENDS IN LEARNING ASSESSMENT

Structure

14.1 Introduction

14.2 Learning Objectives

14.3 Existing Practices

   Self-Check Exercise-1

14.4 Issues in learning

   Self-Check Exercise-2

14.5 Policy perspectives on examinations and assessment: Recommendations of NPE, 1986 and NCF, 2005.

   Self-Check Exercise-3

14.6 Trends in assessment and evaluation

   Self-Check Exercise-4

14.7 Summary

14.8 Glossary

14.9 Answers to Self-Check Exercise

14.9 Terminal Questions

14.11 References/Suggested Readings

14.1 INTRODUCTION

Dear Learner,

The existing examination system is characterized by memorization in the baneful effects of the phenomenon. It has been felt for quite some time that the present system of conducting examination only once or twice a year and on fixed dates does not fully meet the criteria of openness and flexibility in learner's evaluation. The present lesson will throw light on existing practices in the field of learner assessment and the issues and concerns associated with it. The defects in examination system will be discussed and issues relating to marking versus grading and objectivity versus subjectivity will be examined. In addition, we will also understand about the advantages and demerits of coaching and tuitions.

14.2 LEARNING OBJECTIVES

After studying this unit, you should be able to:

- Understand the concept of unit tests, half yearly tests and annual examinations.
- Describe semester system along with its features, merits and demerits.
- Explain the features of continuous internal evaluation.
- Discuss the concept and significance of entrance tests.
- Discuss the meaning of question banks along with its need and uses.
- Examine the issue of marking versus grading in students" assessment. Analyze the issue of objectivity versus subjectivity in students' assessment.
- Explain the advantages and demerits of coaching and tuitions.
- List down the recommendations given by NPE, 1986 for examination reforms.
- List down the recommendations given in NCF, 2005 for examination reforms.
- List down recent trends in educational evaluation.
- Explain the characteristics of peer assessment and self-assessment.
- Discuss online examinations and their significance.
- Explain the use of computers in evaluation process.
- Discuss the merits and demerits of on-demand examinations.
- Describe grading system and its advantages.
- Explain choice-based credit system (CBCS).

14.3 EXISTING PRACTICE

Unit Tests

A unit test is part of formative assessment in which the learners are assessed at the completion of the particular unit in a subject area. The immediate purpose of such test is to identify the leaming difficulties of the students and provide in the immediate necessary remedial instruction. Such tests are conducted to improve learning among the students. The content covered in such unit tests is very less. Such tests not only provide feedback to the students on his performance but also provide feedback to the

teacher regarding his teaching effectiveness. On the basis of such feedback, the teacher can improve upon his teaching.

Half Yearly Tests

Half yearly tests or half yearly examination are also known as mid-term examination. A mid-term exam is an examination given near the middle of an academic grading term, or near the middle of any given quarter or semester. It may be in any form like, oral, written, practical or combination of any of these types. Mostly such tests are written in nature. These tests are based on the content that had been covered during the period of six months. Its purpose is to identify the current achievement level of the learners and to ascertain whether the students have grasped the content matter taught to him during six months. It provides feedback to the learner regarding his difficulties, his achievement level and the specific areas where he/ she needs more efforts to attain good marks or grades.

Annual Examinations

The examination taken at the end of an academic session or year is referred to as annual examination. It is based on whole of the content for a particular subject area. The main purpose of such tests is to grade the students as pass or fail and to promote him/her to the next class. These examinations are most widely employed till recent past. Annual examination is a summative assessment through which the overall knowledge and skills of students in a particular subject are assessed. Generally, these examinations are written in nature but may include practical and viva-voce.

System

When a particular course of study is divided into different equal parts not on the basis of the session but on the basis of months and examination is conducted after the completion of every part, it is called semester system. For example, if course of study is of two years, four semesters will be there and a three year degree course will be divided into six semesters. Under this system, a student failing in one subject in one semester is not declared to be failed, rather he is admitted to the next semester and is given an opportunity to re-study the subject and re-appear in the examination in that particular subject in that semester. In semester system, examinations become a part and parcel of the daily routine and the system no more produces any sort of stress and strain among the students. The main objective of the semester system is to broaden the outlook of the students and instil in them a sense of confidence and responsibility. Semester system came into existence as an improvement over the present annual examination system facing a number of problems. The semester system is a very proactive system as it engages both the faculty and the students throughout the year in academic activity. While, in the annual system once the student enters the college, he feels free and thinks

about studying only during the examination time. Semester system not only involves students more throughout the year but also reduces examination burden.

Comparison between semester and annual systems is very often done. Both the systems have its merits and demerits. Annual system is the traditional system. Annual system covers more syllabi at a stretch and compels the student to remember all this till the end of the year. Sometimes, two or more topics will be ecluded in the same paper (very often, a paper will have to be set by two examiners under such situations), when specializations are there. Otherwise, certain topics will be omitted and the syllabus diluted. Since at the end of the year, only the public examinations are conducted, educational institutions get enough time to prepare question papers and value answer papers. Number of examiners and examinations also can be reduced, which become more economical for educational institutions. Results can be announced in time and the schedule can be kept.

Merits of Semester System:

1. It keeps the students in touch with the books the whole year. It can prove beneficial for the students.

2. The compulsion of tests during the session has made the students presence in the institutions all throughout the year. In present world, there are too many distractions available for the youth to go astray. Engagement in tests and examinations in the institutions can keep them busy in more fruitful works which will be personally beneficial for them too.

3. The students will be constantly evaluated and the depth and breadth of their knowledge will improve.

 4. It allows greater interaction with teachers and the children will be more focused on preparing throughout the year.

5. For some students, it will be better as there will be fewer courses as compared to annual system.

6. The semester system allows the students no luxury of studying at the last moment and still getting good marks in the final exams.

7. Continuous internal assessment and periodical tests is one of the greatest merits of this system.

8. Students are free to discuss their performance. This adds transparency and reliability to evaluation system.

9. Helps in reducing stress and strain and makes the learning a purposeful, pleasant and joyful activity.

Demerits of Semester System:

1. Hectic examination activities simply contribute to pass the examination and nothing else. In this system, students are constantly under the hammer of examinations.

2. This system suits only to higher education.

3. It is a difficult task to frame proper syllabus of each semester.

4. The system makes the student lazy and careless as he has enough chances to reappear in the examination.

5. At least one month time goes waste in starting next semester.

6. The workload on teachers and students is more in case of semester system.

7. Unless systematically organized, valuation, result publication, etc., may be delayed, causing difficulties to the students.

8. It is feared that teachers will speed through important sections of the syllabus with the result that those who are not able to cope with the pace or are unable to understand will be pushed into oblivion and this might encourage students to join private institutions where the quality of teachers is not necessarily good.

9. Semester system keeps the students busy and more focused towards what is being taught in the class, but at the same time who really want to the venture into something else don't get time for that. They cannot focus on anything else apart from the curriculum.

Continuous Internal Evaluation

Examinations have been in existence from times immemorial. Examinations distort knowledge in that they make the student believe that only what is examined is verbal felicity One of system of examination does not test anything except memory and a certain kind of verbal felicity One of the chief defects of examination is that they neglect the evaluation of the pupil's growth in co-scholastic areas. It may be remembered that education aims at developing pupil's abilities and accomplishments in the cognitive, afford be and psychomotor domains. Continuous comprehensive internal evaluation programme with is expected to take note of this fact. "Continuous internal evaluation is an ongoing process of gathering such information about pupils by their teachers throughout the course of instruction, as could provide feedback for improving the efficiency of learning, and for making long-term decisions about the pupils."

Objectives of Continuous Internal Evaluation:

1. To make an overall assessment of child's personality.

2. To motivate students and teachers to make the teaching-learning process effective.

3. To provide feedback to teachers, students and parents as well.

4. To lay less emphasis on memorization and rote learning.

5. To lay emphasis on the assessment of co-scholastic areas of child's personality.

6. To make the evaluation system more meaningful, reliable, valid and objective.

7. To provide a vast spectrum of horizon to the student to explore his talents.

Importance and Characteristics of Continuous Internal Evaluation:

1. It involves both ongoing observation and periodic testing of students by teachers who teach them.

2. It serves both formative and summative purposes. Formative in the sense that it is used to improve instruction and summative because it is used to supplement final examination results.

3. It enhances rapport between students and teachers.

4. It incorporates both cognitive and non-cognitive aspects of child's personality.

5. It eliminates excessive demerits of chance and subjectivity.

6. The system compels the students to remain alert and regular throughout the course of their studies.

Limitations of Continuous Internal Evaluation:

1. The system requires a reasonable teacher-taught ratio in the class.

2. In this system, the teachers have ample opportunities for favouritism.

3. The system requires a healthy atmosphere in the institution. The system

4. It is more laborious and time-consuming.

5. In this system, the students who arrange recommendations, impress their teachers or show closeness to their teachers get more marks than they deserve.

6. Due to undue pressures, teachers may feel insecure as well as mutinous.

Continuous internal evaluation pre-supposes responsible teachers. It takes for granted that they will realize the sanctity of the trust reposed in them. They must discharge their responsibilities with impartiality and equity. They should rise above their prejudices and petty values. Its success depends upon their sincerity, honesty and integrity. They should work honestly and should not cook evaluation figures.

Entrance Tests

An entrance examination is an examination that many educational institutions use to select students for admission. These exams may be administered at any level of education, from primary to higher education, although they are more common at higher level. Such tests form a part of placement evaluation through which students are placed either as admitted or not admitted to a particular professional course. These tests are mostly objective in nature and helps in screening out of the best candidates for a particular profession. Such tests measure the aptitude of the candidate towards a particular profession along with his knowledge in the subject area. Such tests must possess high predictive validity in order to sustain their sanctity and authenticity.

In India, entrance examinations are chiefly confined to medicine, engineering, teacher training and management. These range from the IIT-JEE to PMT where only one in a hundred can hope to get admission. The stiff competition has led to a situation where many students neglect their school studies and focus solely on entrance coaching' which is time-consuming and expensive. This has led many states to scrap the entrances and base admissions on the school leaving marks which, unfortunately are none too reliable. Experts point out that in a country where many different boards are present, common entrances are essential, but application skills rather than cramming should be stressed on. Frequent changes in the pattern of examination are essential since sticking to a 'standard text' or 'standard pattern' alone will favour the coaching industry and the rote-learners. The entrance examination have also impacted teaching-learning process. The teaching-learning process has got moulded and shaped according to the nature of entrance tests and teachers emphasize on those aspects of content matter which are significant from the point of view of entrance tests. Sometimes, due to this, the main concepts are not being clarified to the students and this leads to less conceptual learning among students. The teaching strategies of teachers have also been influenced due to entrance tests and questions asked in them.

Question Banks

Question banks are databases of questions that can be shared between courses and programmes of study. A question bank is the list of questions for concerned subject according to a particular syllabus. In other words, a question bank is a planned library of test items pooled through cooperative efforts for the use of students, teachers and evaluators. Question banks have been called by other names also, such as; 'Item-banks', 'Item pools', 'Item collections', 'Item reservoirs' and 'Test item libraries'. A comprehensive definition of question bank may be given as follows-"A Question bank is a large collection of test items developed by a group of trained and experienced professionals and printed on index cards or stored in the memory of a computer along with certain supporting data and capable of being reproduced whenever needed." Question banks are searchable so that questions meeting specific criteria can be drawn from them to create assessments. The question banks allow users with the appropriate access to create questions. A question bank serves many purposes. Questions from the question bank can be used by teachers at the pre-testing stage, for setting question papers, for measuring pupils' achievement etc. Questions for the question banks should be prepared by practising teachers in workshops conducted by experts. Enrichment of questions by updating, discarding, replacing, modifying and adding new questions should be a continuous process. In question banks, all types of questions such as; objective type, short answer type as well as long answer type that could be on a particular topic are included. These question banks are of immense importance from teaching point of view and preparation point of view for general examinations, competitive examinations and entrance tests. Question banking takes into account all the techniques of testing and evaluation. Large scale public examinations involving wider content coverage have enhanced the significance of question banks. Following are the reasons owing to which the need of question banks is felt much in current scenario:

1. Day by day student population is increasing and consequently, it gives rise to student enrolment for examination.

2. Tremendous increase in knowledge and cut-throat competition in all walks of life.

3. Need of devising more reliable, valid, comprehensive, fair and objective testing techniques.

4. To arrange more efficient, economical and comprehensive testing programmes.

5. To exploit the scientific and technology devices for data processing so as to increase the efficiency of testing programmes.

Uses of Question Banks:

1. There are least chances of leakage of question paper as even experts do not know whether their questions have been included in the test or not.

2. The teachers get aware what types of question are to be asked in the examination. So, they teach accordingly.

3. Question papers can be set immediately or in emergency.

4. The students also get aware what type of questions will be asked in the examination. So, they study accordingly.

5. Question bank helps a lot in facilitating learning from various angles.

6. Question bank helps as a guide for paper setters. So, they are at great ease in setting question paper. 7. Question banks are used by various recruitment agencies and boards successfully to select best candidate from the lot.

8. Objectivity in evaluation is quite obvious as lot of teachers and expert personnel take part in item construction.

9. Question banks are also used for admission purposes.

10. Question banks improve overall validity of examination.

11. Due to standardized scoring procedure, reliability and objectivity of test results is maintained.

12. Sample tests drawn from the bank may be safely assumed to be parallel or equivalent in all respects and the problem of non-comparability of marks over time or years is solved.

13. Question banks may be used by teachers as feedback for improvement of instruction.

Self-Check Exercise-1

1. What is a question bank?

a) A collection of questions for a single assessment

b) A database of questions for multiple assessments

c) A set of questions for a specific subject or topic

d) A single question for a specific assessment

2. What is the purpose of a question bank?

a) To reduce the time spent on creating assessments

b) To increase the difficulty of assessments

c) To improve the validity and reliability of assessments

d) To provide a single source for all assessment questions

14.4 ISSUES IN LEARNING ASSESSMENT

Examinations have disturbed the examinees from the day of their origin. 'A necessary evil' is how an examination is termed. In the absence of anything worthwhile for evaluation purpose, it has endured. However, the examinations and evaluation system has many ills and defects due to which, it is criticized by the individuals from all walks of life. The major defects in existing examination system are listed below:

Defects in Examination System

1. The prevailing evaluation system is defective because the student considers passing the examination as his sole objective. Neither the student nor the teacher pays any attention towards acquisition of knowledge and improving understanding.

2. The student depends upon help-books or keys. He has to display his skill only in learning by rote and providing subjective, essay type answers.

3. The teacher's worth is measured in terms of the number of his students who pass from his class.

4. The parents, too, are interested solely in their children passing the examination and obtaining a job.

5. The prevailing system does not measure the child's abilities effectively. Examinations have become a 'chance' and hence they are not a complete standard of measurement. Students learn the subject by rote and succeed, but this is no measure of their intellectual powers.

6. Education, today, has come to be dominated by examinations, and thus, the means has become an end in itself. The system of examination has become a barrier which prevents a clear perception of the purpose of education.

7. At present, passing the examination is an art. Those skilled in it get success with very little study, while those who study is detail but lack the necessary skill of preparing for an examination are condemned to despair.

8. In a written examination of three hours, it is not possible to test the student's knowledge of the whole syllabus. Even theoretically, this kind of testing is unsatisfactory and unjustified.

Non-Detention Policy

The 'no detention policy', under the Right to Education (RTE) Act, is one clause that a majority of the teachers resent. It states that until class VIII, no child can be held back or expelled from school. The No Detention Policy' is a Govt. of India's initiative according to which no student can be detained in one standard for more than one academic year. There is no differentiation between intelligent, average and poor students. This policy has been under serious criticism from various academic corners on different grounds. Teachers pined that this policy has led to dilution of quality at elementary education level. The students have stopped working hard for their studies. There existed no difference between intelligent and less intelligent students. This policy had adverse impact on the confidence level of the bright students as they received no reward for their educational attainment.

MARKING VS GRADING

In our country, generally the examination results are declared in first, second and third division or fail on the basis of total marks obtained by an individual. It means that current practice in most of our public examinations is to measure the candidate's performance by assigning marks to him in a particular subject. There are two terms 'marks' and 'grades'. 'Marks' is a term used to indicate the raw scores of an examinee in a test. But, a raw score has no practical significance until and unless it is supported by some additional data to interpret the same. On the other hand, a grade is an index of value judgment that signifies an individual's position in reference to certain norms or criterion. Grading system is a qualitative assessment of achievement of a student and not a quantitative one as in case of marking system. In grading system, grades, instead of marks are assigned to the examinee on the basis of quality of his answer. On the basis of the quality of the answer, the examiner gives various grades to different examinees by keeping the parameters from 'excellent to very poor'. In all methods of grading, an attempt is made to identify relatively uniform score intervals in a hierarchical order ranging from very poor to outstanding level of performance. To each such range of the scores, a symbol or a letter is associated to represent the corresponding level of performance. The size of each interval depends on the 'standard error of marking' or the reliability of the test. Different experts and institutions have suggested different schemes of categorization of performance levels. In some cases, five categories are used while in some other cases, seven or nine categories are used. Generally, two approaches are followed in grading the performance of students - direct grading and statistical grading. In direct grading method, grades are allotted to questions directly on the basis of their

quality. The evaluators categorize the answers of students in five or seven categories, as the case may be, classes can be provided specifically for certain entrance exams. This gives your child a head start in the admissions process, placing them above candidates that have not had coaching classes. Therefore, they are more likely to gain a place.

On the other hand, coaching classes do have a number of demerits: They are, in most cases, unsubsidized and very expensive. They can pile pressure onto your child, who is likely to already feel nervous about upcoming exams. Your child may worry that even after the coaching classes they won't pass, which will leave them feeling stupid and unmotivated to learn.

according to the quality of the answer. If the evaluator thinks that answer written by the examinee is of very high quality, grade 'O' may be assigned to it. Similarly, if he thinks the answers written are of very poor quality, grade 'F' may be assigned to it on a seven-point scale. Sometimes, the performance of students is also reported in terms of Grade Point Average (GPA) which is obtained by assigning the letter grades to each question separately and awarding numerical weights. These weights are added algebraically and average is computed. Such system of grading is adopted by IGNOU for evaluation of students' performance in many of its programmes of study. In the statistical grading method, the teachers mark the answer books as usual in Coaching classes could artificially boost your child's performance. This may not be in their best interest as they could be placed in a school not suited to their abilities. As a result of sever pressure to crack entrance tests or pass out with good marks/grades, the suicide cases among adolescents are increasing at a rapid rate.

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OBJECTIVITY VS SUBJECTIVITY

Objectivity refers to the ability to perceive or describe something without being influenced by personal emotions or prejudices. On the other hand, subjectivity refers to the interpretation based on personal opinions or feelings rather than on external facts or evidence. The examination system prevailing at higher level in India is criticized for being subjective in nature or for lacking in objectivity.

Objective information or analysis is fact-based, measurable and observable. Objective is a statement that is completely unbiased. It is not touched by the speaker's previous experiences or tastes. It is verifiable by looking up facts or performing mathematical calculations. Subjective information or writing is based on personal opinions, interpretations, points of view, emotions and judgment. It is often considered ill-suited for scenarios like news reporting or decision making in business or politics. Subjective is a statement that has been colored by the character of the speaker or writer. It often has a basis in reality, but reflects the perspective through with the speaker views reality. It cannot be verified using concrete facts and figures.

The subjectivity in assessment arise when the personal opinions, views, biases, prejudices of the examiner interferes with the answers/responses of the examinee to a particular question/questions. When the answer/response to a question is not influenced by examiner's personal opinions, the question may said to have objectivity.

ADVANTAGES AND DEMERITS OF COACHING AND TUITIONS

The more emphasis on cracking of entrance tests, getting admission in a particular course and lack of time with the parents has increased the importance of coaching and tuitions in the present scenario. Academic coaching classes are becoming more and more popular as the schooling system becomes increasingly competitive. Parents desperate to get their children into good quality schools will go to great lengths to help them pass entrance exams and excel in interviews. Private tuitions can be advantageous. Sometimes students are unable to concentrate during lessons for various reasons, such as distractions, not feeling well or explanation gaps. Therefore, students miss key points taught during lessons. Under such circumstances, private tutors can re-explain the topics learnt, reiterate key points, abstract concept and help to solve problems that students face. However, it is unclear how effective coaching classes really are. Here are some advantages regarding coaching classes:

- Coaching classes use different methods to those utilized in the classroom. This means alternative approaches to learning that could be more suitable to your child are made available. Various teaching methods can be beneficial to different children; if your child is being exposed to two kinds, there is a very good chance one will be effective for them.
- Children receive more individual tuition at coaching classes, meaning teaching is catered to their abilities more directly. If your child does not receive one-on-one

tuition in coaching classes, they will at the very least be in very small classes. They will have a learning plan tailored to their needs, allowing them to succeed at an increased pace.

- Coaching classes can be provided specifically for certain entrance exams. This gives your child a head start in the admissions process, placing them above candidates that have not had coaching classes. Therefore they are more likely to gain a place.

On the other hand, coaching classes do have a number of demerits: They are, in most cases, unsubsidized and very expensive.

- They can pile pressure onto your child, who is likely to already feel nervous about upcoming exams. Your child may worry that even after the coaching classes they won't pass, which will leave them feeling stupid and unmotivated to learn.
- Coaching classes could artificially boost your child's performance. This may not be in their best interest as they could be placed in a school not suited to their abilities.

As a result of sever pressure to crack entrance tests or pass out with good marks/grades, the suicide cases among adolescents are increasing at a rapid rate.

Self-Check Exercise-2

1. Which of the following is an issue in learning assessment?

a) Overemphasis on rote memorization

b) Lack of clear learning objectives

c) Inadequate assessment tools

d) All of the above

2. What is a problem with traditional assessment methods?

a) They encourage deep learning

b) They focus on higher-order thinking skills

c) They can lead to teaching to the test

d) They are not time-consuming

14.5 POLICY PERSPECTIVES ON EXAMINATIONS AND ASSESSMENT: RECOMMENDATIONS OF NPE, 1986 AND NCF, 2005.

Recommendations of NPE 1986 on Examination and Evaluation

5.3 In 1968, when the National Policy of Education was formulated for improving the educational scenario in our country, there it was envisaged that it would be followed by a 'five yearly review to progress and working out of new policies and programmes. Regarding this statement, at the time of formulation of every new Five-Year plan, a review has been made to assess the drawbacks or shortcomings as well as achievements of education and finally to decide on some plans or programmes for the coming Five Years. It is through making the policies and programmes that every country seeks to develop its system of education to express and promote its unique socio-cultural identity and also to meet the challenges of the times. The National Policy of Education of 1986 is the result of the reviews which was discussed and adopted during the budget session of 1985 when Rajiv Gandhi was the prime minister of India. Again, a committee was set up under the chairmanship of Acharya Ramamurthi in May 1990 to review National Policy of Education (NPE), 1986 and to make recommendations for its modifications. This Committee submitted its report in January 1992, which is known as National Programme of Action of 1992. This policy aimed to promote national progress, a sense of common citizenship and culture, and to strengthen national integration. It laid stress on the need for a radical reconstruction of the education system, to improve its quality at quality at all stages, and therefore gave much greater attention to science and technology, the cultivation of moral values and a closer relation between education and the life of the people.

With regard to evaluation process and examination reforms, the policy visualized integration of the assessment of performance with the process of learning and teaching, and utilizing the process of evaluation to bring about qualitative change in education. In order to ensure the student's performance, the assessment methods must be valid and reliable. The following short-term measures had been proposed by the NPE and POA:

I. Public examinations will continue to be held only at the levels of classes X and XII.

II. Decentralization of the operation involved in the conduct of examinations to make the system work more effectively.

III. School boards in certain States have set up a number of sub-centres to decentralize the conduct of examinations. Adoption of similar measures by other States will be pursued.

IV. At the university level, continuous institutional evaluation will be introduced at the post graduate level, to begin with, in unitary universities, deemed universities and autonomous colleges.

V. Students' performance will be indicated through letter grades, and assessment of overall performance will be on the basis of cumulative grade point average.

VI. Modifications in the qualifying recruitments for admission in the universities and colleges will be examined to accelerate the process of change in the level of examinations.

Recommendations of NCF 2005 on Examination and Evaluation

National Curriculum Framework (NCF), 2005 owes its present shape and form to the flurry of ideas generated through a series of intensive deliberations by eminent scholars from different disciplines, principals, teachers and parents, representatives of NGOs, NCERT faculty, and several other stakeholders at various levels. It received significant contributions from state Secretaries of Education and Directors of SCERTs, and participants of the regional seminars organised at the RIEs. Experiences shared by principals of private schools and Kendriya Vidyalayas and by teachers of rural schools across the country helped in sharpening our ideas. Voices of thousands of people students, parents, and public at large through regular mail and electronic media helped in mapping multiple view polds. The document has benefited immensely from a generous flow of constructive suggestions and perceptive comments from members of NCERT's own establishment and its higher-level committees, Le. Executive Committee, General Council and Central Advisory Board of Education, State governments were specifically requested to organize workshops to discuss the draft NCF during July-August 2005, and we are grateful for their ports received from several states and the Azim Premji Foundation which organized a seminar in collaboration with the governments of Madhya Pradesh, Rajasthan, etc.

In order to improve the validity of current examinations, the entire process of paper setting needs to be overhauled. The focus should shift to framing good questions rather than mere paper setting. Such questions need not be generated by experts only. Through wide canvassing, good questions can be pooled all year round, from teachers, college professors in that discipline, educators home, other states, and even students. These questions, after careful vetting by experts, could be categorized according to level of difficulty, topic/area, concept/competency being evaluated and time estimated to solve. These could be maintained along with a record of their usage and testing record to be drawn upon at the time of generating question papers. Compelling teachers to examine without paper offering adequate remuneration makes it difficult to motivate them to ensure better quality and consistency in evaluation. Considering that most boards are in good financial health, funding issues should not come in the way of improving the quality of evaluation. With computerization, it is much easier to protect the

identity of both examinee and examiner. It is also easier to randomize examination scripts given to any particular examiner, thus checking malpractices and reducing inter-examiner variability. Malpractices such as cheating with help from outside the examination hall can be reduced if candidates are not permitted to leave the exam centre in the first half time, and also are not permitted to carry question papers out with them while the examination is still going on. The question paper can be made available after the examination is over. Computerization makes it possible to present a wider range of performance parameters on the marks sheet absolute marks/grades, percentile rank among all candidates taking the examination for that subject, and percentile rank among peers (e.g. schools in the same rural or urban block), It would also be possible to analyze the quality and consistency of various examiners.

Self-Check Exercise-3

1. What was the main focus of the National Policy on Education (NPE), 1986 regarding examinations?

a) Emphasis on rote memorization

b) Introduction of board exams at the secondary level

c) Shift from examination to continuous evaluation

d) Increased emphasis on theoretical knowledge

2. What is the stance of NCF, 2005 on the use of examinations as a means of assessment?

a) Examinations should be the sole means of assessment

b) Examinations should be used in conjunction with continuous evaluation

c) Examinations should be abolished

d) Examinations should be used only for certification

14.6 LATEST TRENDS IN EVALUATION

The existing evaluation system suffers from many ills. As a matter of fact, the examinations have met with heavy criticism from all quarters. Students complain against the examination system because of its mental strain, the teachers because of its harmful influence on school work, the parents denounce it because of its injurious effect on the physical and mental health of their children; the psychologists speak ill of it

because of its unreliability and invalidity and the educational theorists attack it because of lack of definiteness in its aim and purpose. It is generally complained that the objective of the evaluation is never kept in view. Within a short period, achievements in various subjects are assessed. Consequently, the utility of examination as well as evaluation has minimized. Hence, there is a dire need to observe the following points in an effective evaluation system:

Keeping recommendations of various committees in consideration, many new initiatives and trends are recently being witnessed in our evaluation system. A number of developments in evaluation system have been introduced by various boards, universities and other certifying agencies in India. The recent trends in evaluation system are discussed in detail in next sections of this unit. Some major recent trends in evaluation system include; semester system, on-demand examination, online examinations, grading system, continuous internal evaluation, self-assessment, peer evaluation, portfolio evaluation etc. However, there are certain modern evaluation techniques which are still in infancy stage in our country due to different, social, demographic, administrative and financial reasons.

Online Examinations

The online examination system not only reflects the justification and objectivity of examination, but also releases the workload of teachers which is accepted by more and more schools, certification organizations and training organizations. The online examination system overcomes the shortcoming of traditional examination systems and has better extensibility and flexibility. Online examinations, sometimes referred as e-examinations, are the examinations conducted through the internet or in an intranet if within the organization) for a remote candidate(s). Most of the examinations issue results as the candidate finish the examination, when there is an answer processing module also included with the system. Candidate is given a limited time to answer the questions and after the time expiry, the answer paper is disabled automatically and answers is sent to the examiner. The examiner will evaluate answers, either through automated process or manually and the results will be sent to the candidate through email or made available in the website. Internet will be used as a media for disseminating and conducting tests, thus maintaining a uniform pattern for all the examinees. The task of maintaining the record of scores and the tests for which a particular candidate has appeared will be done by the portal. The progress reports can be printed at any point of time by just providing the necessary details of a candidate. The solution can also be used by faculty members to create question papers. They can provide a question bank consisting of questions of varied difficulty levels. Numerous sets of distinct question papers can then be printed, consisting of all type of questions in equal proportion. The online examination system is a web based application. The system can be modified and customized to suit the need of any educational institutions,

primary and secondary schools, colleges, professional and vocational institutes, universities or coaching academies. This system aims at reducing costs associated with conducting examinations over a period of time and achieving total automation of examination system and its related tasks like registration, publication of results, which leads to a very high degree of system efficiency.

One of the major question is "what is the need of online examinations?". The traditional approach to measuring a person's level of knowledge in a topic has been the examination. These days there is often more emphasis on "internal" assessments which may consist of assignments and projects given out by the teacher and then marked or assessed by the same teacher. Online examinations have the advantages of confidence that a large number of students are all being assessed equally. There is reduced opportunity for cheating and less marking work. There are advantages and disadvantages in online examinations. The main advantage is that it can be conducted for remote candidates and evaluation of answers can be fully automated for multiple choice type questions and other essay type questions can be evaluated manually or through automated system, depending on the nature of the questions and the requirements. Also online examinations can be conducted at any time and does not incur higher cost as traditional exam scenario as there is no paper work involved (for example, printing exam, papers, prepare paper admissions etc.). When comparing with traditional examination scenario, the cost for an online examination will be almost zero after the online examination system is established and if maintenance cost is not considered. The disadvantage of the online examination is the inability of invigilating

Peer Assessment

Peer assessment is a process through which students and instructors share in the evaluation of student work. It can have many different forms. Researchers find that peer assessment deepens students' understanding of their own learning and empowers students to become more actively engaged and self- directed in their learning processes. The teacher must consider the degree to which he wants students to be involved in the process of evaluation. The advantage of having students actively involved in developing scoring guidelines is increased accuracy when students implement the guidelines during peer assessment. The disadvantage is that students are not yet experts in the content area. In peer assessment, in the lowest level of student involvement;

- An instructor prepares model answers and guidelines for feedback, which students use to assess the work of peers.
- Peer assessment grades are recommendations only, and the instructor makes final grading decisions.

- Students are required to participate and any student unhappy with a peer assessment grade could seek an independent assessment by the instructor.
- In case of highest level of student involvement in peer assessment

Self-Assessment

Self-assessment is arguably the most powerful means for a tertiary education organisation or higher educational institution to understand and improve its educational performance. Self-assessment is a systematic process of data-driven self-reflection. It is directed towards coherent and clearly articulated goals to inform decision-making and operational practices.

Self-assessment across an organisation has four main components:

- Systematic data gathering
- Robust data analysis that leads to valid conclusions
- Reflective processes that involve all people in the organisation
- Decision-making for ongoing improvement connected to the outcomes of a self-reflective process.

Higher education institutions generate and gather a large amount of data. Analysing and making sense of this data enables better decision-making. Good self-assessment is only possible when a range of people in the organisation are involved, e.g. teachers, non-teaching staff, students and other stakeholders such as employers.

Self-assessment enables a higher education institution to find out:

- what outcomes, learners are achieving and how well?
- the value of the outcomes to stakeholders including learners.
- the effectiveness of processes in contributing to these outcomes.

By identifying strengths and weaknesses, a higher education institution can develop and implement an improvement strategy resulting in actual, worthwhile improvements.

Computer Based Examinations

Computerization in education can be applied to three more areas of education outside the instructional realm. These include; general business accounting, student accounting and general administration. In every school, every year a lot of information and data are to be gathered for onward transmission to the directorate of education and the management. Record of attendance, account of income and expenditure, annual results etc. can be easily prepared, stored and retrieved without error with the help of computers. As far as use of computers in educational evaluation and corresponding guidance to students is concerned, very little information about students is available in the schools for the reason that they don't have sufficient manpower to collect and store

that. Information about the family background, personal qualities, achievement and aspirations regarding every student should essentially be made available and used for preparing portfolios of the students so that the areas of their strengths and weaknesses could be identified and appropriate educational guidance could be made available to them to improve their educational standards. Computers can go a long way in helping to do this job. By pooling the student-related data and making it available instantly to each teacher and the counsellor, the computer can make full scale individualized instructional planning a reality. Computers can be used as counsellors too. They may be programmed to initiate the behaviour of a human counsellor. A computer may be taught to interact with individual students so as to render diagnosis. The student may type his questions and statements on a type writer like keyboard which may be read by the computer and the computer may respond by printing out questions, responses and comments. The computer stores all available information about a student and his problems. It can scan his past history in a flash. All this information may be used to assist the school in making educational decisions affecting the students. Each student in the class may be provided with a display unit and a response device. The student reads an item and then enters a answer to multiple choice type question on his response device. Answers are recorded and calculated in the computer and feedback is supplied by small lights on the response device. The teacher has special monitoring equipment to keep track of what is going on in the classroom. When a student is having trouble, an alarm light on the teacher's monitor console is activated. The teacher may defer action if he is busy or he may press a button on his console corresponding to that student's position and take a number of actions. A brief discussion with the student may help clear up his problem.

In spite of these advantages, it all appears to be a dream for several reasons especially in our country. The most serious constraint is the paucity of funds available for this purpose. Already our schools in India are starving for finances and other essential facilities. It may not be possible to allocate money for the purchase of very costly apparatus like the computer for such a large number of schools and classes. Then there is the problem of training the teachers who can prepare programmes and operate computers which is not easy. In order for the computer to instruct the student, it is necessary that the computer should first, be instructed precisely and lucidly regarding the logic and the goals of the entire procedure. This has to be done by none else but the teachers. For that, training of a very high order is needed which may be another problem in this regard. For reasons of various misunderstandings and apprehensions, teachers by and large may not accept such learner-friendly system of instruction and evaluation.

On-Demand Examinations

The scheme of on-demand examinations is a comprehensive ICT enabled system of examination on-demand which provides the learners an opportunity to appear in the examination as per their preparation and convenience. In fact, it is a blended scheme of ICT and traditional paper-pen examination system wherein students can walk-in any time at the selected examination centres and take examination. The current socio-economic scenario, demand of flexibility in education system and changing profile of learners has necessitated starting such innovative scheme which has made the existing examination system more flexible and learner-friendly. As most of the distance learners in higher education are working people; they normally do not get leave from their organizations for several days at a stretch for term end examinations, and hence they fail to complete their courses in stipulated time limit. The examinations being institute-centric are conducted in a fixed time frame and therefore many of the students appear without proper preparations which lead to unsatisfactory results in many subjects. Moreover, a large proportion of the valuable time of faculty gets consumed in preparing assignments and question papers which otherwise they could have effectively devoted to concentrate on academic matters. These genuine problems have resulted in ICT enabled system of on-demand examination. Its objective is to enable the learners to appear in the examination as per their preparation and convenience on the date and time of their choice.

The features of on-demand examination system are as follows:

- Learner-friendly innovative scheme of examination. More flexible and independent of the traditional fixed time frame.
- No need to wait for the six monthly term end examination.
- Choice of deciding the dates of exam. lies with students as per their preparation.
- Different sets of question papers generated on the day of examination.
- Encrypted storage of the question papers.
- Decryption of question papers by a specific software only by authorized person.
- Least possibility of malpractices or unfair means.
- May reduce load on the term end exam in future.
- No need to prepare the question papers by teachers again and again.
- Reduction in the work load of setting question papers, assignments etc.
- Improvements in the credibility of the examination system.
- Reduction in the frequent dependence on the external experts for paper setting and moderation etc.

Advantages of On-Demand Examinations:

On-demand examination makes use of ICT to solve problems which arise due to human limitations. The major advantages of on-demand examinations are as follows:

- It makes possible instant generation of parallel question papers, and facilitates authorised data entry at different points, leaving no chance for human error.
- It has very silently reformed the system of evaluation without making abrupt changes.
- It is not only simple and user friendly but it is also cost effective and saves time and effort in setting question papers, in data base management and in data transfer.
- It generates individualised and unique question papers of comparable difficulty level, on the day of examination by picking up the questions randomly from the question bank as per the blueprint & design.
- Under on-demand examination system, the degree and level of performance is decided by the student who can reappear in the examination as many times as he/she wants, till satisfied. It removes frustration, loss of self esteem, peer group ridicule, and depression that are generally characterized by the term end examination

Grading System

In our country, generally the examination results are declared in first, second and third division or fail on the basis of total marks obtained by an individual. It means that current practice in most of our public examinations is to measure the candidate's performance by assigning marks to him in a particular subject. There are two terms 'marks' and 'grades'. 'Marks' is a term used to indicate the raw scores of an examinee in a test. But, a raw score has no practical significance until and unless it is supported by some additional data to interpret the same. On the other hand, a grade is an index of value judgment that signifies an individual's position in reference to certain norms or criterion. Grading system is a qualitative assessment of achievement of a student and not a quantitative one as in case of marking system. In grading system, grades, instead of marks are assigned to the examinee on the basis of quality of his answer. On the basis of the quality of the answer, the examiner gives various grades to different examinees by keeping the parameters from 'excellent to very poor'. In all methods of grading, an attempt is made to identify relatively uniform score intervals in a hierarchical order ranging from very poor to outstanding level of performance. To each such range of the scores, a symbol or a letter is associated to represent the corresponding level of performance. The size of each interval depends on the 'standard error of marking' or the reliability of the test. Different experts and institutions have suggested different schemes of categorization of performance levels. In some cases, five categories are used while in some other cases, seven or nine categories are used. Generally, two approaches are followed in grading the performance of students-direct grading and statistical grading. In direct grading method, grades are allotted to questions directly on the basis of their quality. The evaluators categorize the answers of students in five or seven categories, as the case may be, according to the quality of the answer. If the evaluator thinks that

answer written by the examinee is of very high quality, grade 'O' may be assigned to it. Similarly, if he thinks the answers written are of very poor quality, grade 'F' may be assigned to it on a seven point scale. Sometimes, the performance of students is also reported in terms of Grade Point Average (GPA) which is obtained by assigning the letter grades to each question separately and awarding numerical weights. These weights are added algebraically and average is computed. Such system of grading is adopted by IGNOU for evaluation of students' performance in many of its programmes of study. In the statistical grading method, the teachers mark the answer books as usual in terms of numerical scores and then grades are assigned by using certain statistical techniques. Here, scores are converted into grades either by fixing range of scores or by preparing merit list of examinees.

Advantages of Grading System:

1. Achievement of the examinees in different subjects can be known separately.

2. Errors of measurement are reduced to minimum base i. c. achievements of different students may by easily compared.

4. Grading system helps to know the school its status in the light of grades awarded to its majority of students.

5. In this system, both inter-subject comparison of the same examinee and inter-examinees comparison in a particular subject are possible.

6. In this system, difference in difficulty level of the various subjects is eradicated.

7. Grading system takes the emphasis away from marks.

8. This system is much more meaningful and feasible in comparison to marking system.

9. As this system classifies students into less categories, tendency of cut-throat competition for high marks is checked.

10. This system is a boon to weak students than bright students.

11. If the system is accorded a universal status on a seven point scale, then students can move from one institution to another much more easily.

Limitations of Grading System:

1. There is lack of consensus among the educators in regard to points of the scale.

2. The grade system is very sensitive. While awarding marks, examiner may switch over from 60 to 65 easily, but the same is not in case of grades,

3. The system is subjective in nature like marking system.

4. It is easy to convert marks into grades but vice-versa is not possible.

5. This system does not suit much in case of internal assessment. Students will make unnecessary pressure on their teachers for getting good grades,

6. The system cannot be used as the basis of admissions or recruitment in India where job opportunities are less and candidates are more.

Choice-Based Credit System (CBCS)

Choice-Based Credit System (CBCS) essentially implies a redefining of the curriculum into smaller measurable entities or 'modules' with the hours required for studying/learning (not teaching) these modules being at the primary focus and the development of a mechanism whereby these modules can be combined in different ways so as to qualify for a certificate, diploma or degree, In a sense, therefore, the completion of a single 'module' of learning can pave the way for learning other modules either in the same institution or elsewhere and a combination of modules in keeping with the needs and interests of the learners. Among the features of CBCS highlighted by the UGC are; enhanced learning opportunities, ability to match learners' scholastic needs and aspirations, inter-institution transferability of learners (following the completion of a semester), part-completion of an academic programme in the institution of enrolment and part-completion in a specialized (and recognized) institution, improvement in educational quality and excellence, flexibility for working learners to complete the programme over an extended period I of time, standardization and comparability of educational programmes across the country, etc. Choice-based implies that the learner has the choice to select the subjects that he/she would like to leam within the prescribed time period and the programme parameters. For example a learner who wants to major in Accountancy wishes to study History may be permitted to do so under the Choice Based System. The student also has choice in selecting courses out of those offered by various departments. The Choice Based Credit System (CBCS) enables a student to obtain a degree by accumulating required number of credits prescribed for that degree. The number of credits earned by the student reflects the knowledge or skill acquired by him/her. Each course is assigned with a fixed number of credits based on the contents to be learned. Credit point refers to the 'Workload' of a learner. It is an index of the number of learning hours deemed for learning of a certain segment. These learning hours are broadly classified into hours spent on attending actual lectures/ tutorials/laboratory work/seminar etc. and notional hours spent on reading, reflecting, discussing, attending counseling sessions, watching specially prepared videos, writing assignments, preparing for examinations etc. One credit point corresponds to 30 to 40 learning hours. The grade points earned for each course reflects the student's

proficiency in that course. The learner is said to have earned the credits on successful completion of the course including the evaluation. Credit completion or credit acquisition takes place after the learner has successfully cleared all the evaluation criteria with respect to a single course. Thus, a learner who successfully completes a four credit point course will be considered to have collected or acquired 4 credits. The CBCS enables the students to earn credits across departments and provides flexibility in duration to complete a programme of study. The CBCS facilitates transfer of credits earned in different departments/centers of other recognized/accredited universities or institutions of higher education in India and abroad.

Advantages of the Choice-Based Credit System

- Represents a much-required shift in focus from teacher-centric to learner-centric education since the workload estimated is based on the investment of time in learning, not in teaching.
- All activities are taken into account - not only the time learners spend in lectures or seminars but the time they need for individual learning and the preparation of examinations etc.
- also Segments learning experience into calibrated units which can be accumulated in order to gain an academic award.
- Helps self-paced learning. Learners may undertake as many credits as they can cope with without having to repeat all the courses in a given semester, if they fail in one or more courses. Alternatively, they can choose other courses and continue their studies.
- Affords more flexibility to the learners by allowing them to choose interdisciplinary courses, change majors, programmes, etc.
- Respects 'Learner Autonomy". It allows learners to choose according to their own learning needs, interests and aptitudes.
- Makes education more broad based. One can take credits by combining unique combinations.
- Helps in learner mobility. It offers the opportunity to study at different times and in different places.
- Credits earned at one institution can be transferred to another.
- Beneficial for achieving more transparency and compatibility between different educational structures.
- A credit system can facilitate recognition procedures as well as access to higher education for non- traditional learners.

Self-Check Exercise-4

1. What is the primary benefit of online examinations?

a) Increased security

b) Reduced costs

c) Improved accuracy

d) Enhanced candidate experience

2. Which of the following is a type of online examination?

a) Proctored exam

b) Non-proctored exam

c) Automated exam

d) All of the above

14.7 SUMMARY

In this lesson, we learned about existing practices employed in learning assessment. We understood about the concept and purpose of unit tests, half yearly tests, annual examinations and entrance tests. The semester system along with its merits and demerits was discussed in detail. We also learned about the question banks, its need and uses. We examined the issues of marking versus grading, objectivity versus subjectivity along with the defects in present examination system. In the end of this lesson, we studied about the advantages and demerits of coaching and tuitions. The recommendations given by NPE, 1986 and NCF 2005 for bringing reforms in examination and evaluation system were discussed in detail. Afterwards, latest trends in evaluation viz, online examinations, self- assessment, peer assessment, computer based examinations, on demand examinations, grading system and choice based credit system (CBCS) which are being practiced around the globe were discussed in detail along with their merits and demerits.

14.8 GLOSSARY

Question Bank: A collection of questions and answers used to assess student learning.

Unit Test: A test administered after a single topic or unit of instruction.

14.9 ANSWERS TO SELF CHECK EXERCISE-1,2,3 & 4

Self-Check Exercise-1

1.b) A database of questions for multiple assessments

2.c) To improve the validity and reliability of assessments

Self-Check Exercise-2

1.d) All of the above

2.c) They can lead to teaching to the test

Self-Check Exercise-3

1.c) Shift from examination to continuous evaluation

2.b) Examinations should be used in conjunction with continuous evaluation

Self-Check Exercise-4

1.b) Reduced costs

2.d) All of the above

14.10 References/Suggested Reading

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14.11 TERMINAL QUESTION

Dear learners, please check you progress by attempting the following questions:

1) Explain the advantages and demerits of private coaching and tuition classes.
2) Prepare a critical report on existing issues in learning assessment.

3) Explain the need and uses of question bank.
4) What is the difference between unit test, annual exams and half yearly tests?
5) Explain merits and demerits of semester system.
6) Critically examine non-detention policy.
7) How continuous internal evaluation can help in reducing dependence on private tuitions?

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