



**University Vice Presidency
of Academic Affairs
First Issue**

Effective Student Assessment

Principles and Terminology

Dhul-Hijjah 1439



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Introduction

Student assessment is an essential component of the learning process. Assessment cannot be separated from teaching and learning. Effective Assessment is essential and consider the core of the educational process. To ensure the effectiveness of the assessment process, rigorous and continuous steps, efforts and observations must be followed. These multiple steps and observations are necessary to avoid or compensate for any flaws that may occur in the entire assessment process These steps begin by identifying the purpose of the assessment, followed by the selection of the learning outcomes (LOs) to be assessed in specific exams, and then by designing the test blueprint, followed by selecting and writing test items aligned with the LOs. The final step is to evaluate the quality of the exam through item analysis to detect poorly performing or poorly developed test items and to ensure assessment quality through psychometric analysis These steps will be included in a number of awareness leaflets that we will begin with the most important principles and terms of the assessment process.

1 Evaluation:

Evaluation is considered as a systemic process that requires a collection of objective data and authentic information using different measurement tools in light of a group of expected standards or specific objectives in order to reach quantitative estimates and qualitative evidences reliable enough in the delivery of judgments and making of decisions related to students and the educational process in order to enhance performance and improve efficiency that would help in reaching those standards and achieving the specific objectives. Worthen (1987) defined evaluation as an official report about the quality, effectiveness, or value of an educational program, an educational project, an educational curriculum, or an educational goal.

2 Assessment:

Assessment is the process of gathering and discussing information from multiple and diverse sources in order to develop a deep understanding of what students know, understand, and can do with their knowledge as a result of their educational experiences; the process culminates when assessment results are used to improve subsequent learning.” (Huba, M. E. and Freed, J. E. (2000).

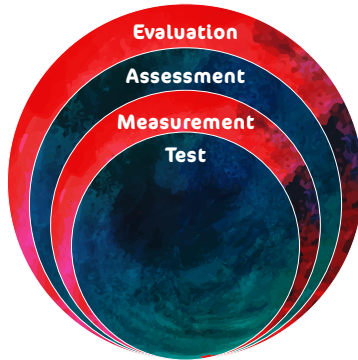


3 Measurement:

The process of obtaining numerical description of the degree to which an individual possess a particular characteristic

4 Test:

An instrument for observing and describing one or more characteristics of a student using either a numerical scale or a classification scheme.



5 Performance Based Assessment:

PBA is a form of assessment that requires students to perform a task rather than answer questions from a ready-made list.



6 Authentic Assessment:

Authentic assessment is the assessment that takes into consideration the recent assessment trends and reflects students' achievement and measures them in real situations. This type of assessment makes students engage in doing tasks of value and meaning for them to the extent that these tasks appear as learning activities rather than routine exams. Furthermore, in this type of assessment, students practice high thinking skills and align between a wide range of knowledge to develop judgments, make decisions, or solve the life problems they face. So, their reflective thinking capability that enables them to manage, criticize, and analyze information will develop aiming at directing education towards life-long learning.

7 Alternative Assessment:

Bakar et al (1990) defines alternative assessment as a multi-dimensional assessment for a wide range of capacities and skills that is not just limited to paper-based tests but also includes other miscellaneous ways such as observing learners' performance, commenting on their results, conducting personal interviews with them, and reviewing their previous achievements.

Wiggins (1992) states that alternative assessment requires learners to conduct activities or reach findings showing that they have mastered learning. This performance-based assessment allows learners to show what they can achieve in real situations.

Another definition of the alternative assessment is given by Birenbaum & Dochy (1996) as a set of methods and tools that include authentic or real tasks, simulation, portfolios, newspapers, group projects, exhibits, observations, interviews, oral presentations, self-evaluation, peer evaluation, etc.

▶ According to the previous definitions, the concept of alternative assessment is the most general and may encompass both performance assessment and authentic assessment concepts.





Comparison between the Alternative Assessment and the Traditional Assessment

No.	Alternative Assessment	Traditional Assessment
1	Takes the shape of real tasks students are asked to perform	Takes the form of an achievement test with essay questions - may not be connected to student's reality - which students are asked to answer by selecting a correct answer, completing a sentence, or writing short sentences.
2	Requires that students apply and merge their knowledge and skills to achieve the set task.	Requires that students recall the information that they have previously studied.
3	Students employ their higher order thinking skills HOTS (the skills of application, analysis, assessment, and) to achieve the required task.	Students employ their lower-order thinking skills LOTS (remembering and understanding) to achieve the task.
4	Task achievement takes relatively a long time that may span for several hours or several days.	the answer on achievement tests takes relatively short time (normally from 15 to 120 minutes).
5	A group of students may collaborate to accomplish the task.	Students' answer on the achievement test is individual.
6	Students' performance in tasks is estimated based on grades (scales).	Students' performance in tests is estimated in degrees (marks) according to their correct answers.
7	Students are evaluated in different ways: Performance tests, portfolios, student projects, etc.	Students' assessment is usually limited to the achievement tests.

(Zepton,1428 pp 519)

8 Summative Assessment (Assessment of Learning):

It is defined as the Assessment of learning - after it has taken place - through using information about students' performance and preparing reports on them. The summative assessment is a one-dimensional assessment, cumulative, and forms part of the curriculum but leads the teaching process (teaching for test). It is used to emphasize what students know, what they can do, and whether they have achieved the objectives of the curriculum. It also helps determine their standard compared to others (Harlen,2007).



9 Formative Assessment (Assessment for Learning)

It is defined as Assessment for learning and is multi-dimensional, structural, integrated into the curriculum, real, existing within a context, and flexible. It is designed to give faculty members information to modify teaching and learning activities. It is based on the grounds that there are predictable learning patterns the students use. It requires that faculty members collect information to determine not only what students know but also to know when and how students apply what they have learned, to enhance teaching, and to give feedback to students to improve their learning. It depends on the ongoing self-assessment that shows learners how to improve their performance in the future. This detailed feedback enables students to monitor themselves while developing, thereby builds up self-confidence on the possibility of continuous success.



▶ Formative assessment is like when a chef tastes their food, but when guests taste the food it is like summative assessment where there is no opportunity for modification or remediation.



10 Test Blueprint or Table of Specifications:

► A two way chart (Test Blueprint), It involves:

- 1- Preparing Learning Outcomes
- 2- Analyzing the course content
- 3- Deciding the number and type of questions that match each course outcome and specific content's unit.

11 Assessment Strategies:

They are a group of tools used to reach the purpose of the assessment process and achieve its educational objectives. They include - but not limited to - the following strategies: performance-based assessment strategy, pencil and paper or achievement tests strategy, observation strategy, communication strategy, and self-review strategy.

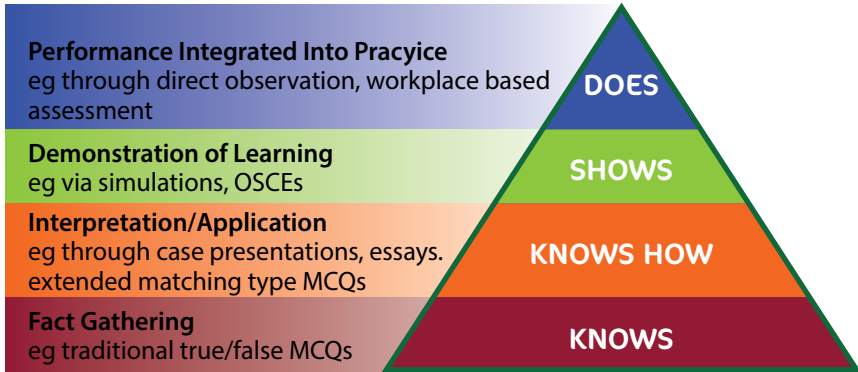


Summary of various assessment strategies and activities associated with each strategy

Strategy	Definition	Associated Events
Performance-based Assessment Strategy	It is when learners reflect what they have learned by employing their skills in real life situations or simulative situations or make practical presentations that show the extent of skills they have gained in light of the educational outcomes to be achieved.	<ul style="list-style-type: none"> • Presentation • Performance • Speech • Exhibition • Role play • discussion/debate
Strategy Pencil and Paper	Pencil and paper strategy exemplified in the different types of tests is considered one the important strategies that measure the learners' capabilities and skills in specific fields and an important part of the assessment program in higher education.	The achievement tests of both types: objective and subjective and what falls under their heading
Observation Strategy	Is a process where the faculty member heads with all their senses towards students to monitor them in an active position to get some information helpful in judging them and evaluating their values, attitudes, ethics, and way of thinking.	Clinical and practical tests in health colleges such as the following: OSCE, OSPE, DOPS, MiniCEX,360 Exam and Case Discussion
Communication Strategy	Gathering information through communication situations on the progress achieved by the learners, knowing the nature of their thinking, and their style of problem solving	<ul style="list-style-type: none"> • Interview • Questions and Answers • Conference
Reflection Assessment Strategy	Is a metacognitive process of serious thinking in its whole meaning through enhancing inferences as learning is a process of deriving meanings from past and present events as proof of attitude.	<ul style="list-style-type: none"> • Self-reflection • Learner's Dairy • Learner's Portfolio



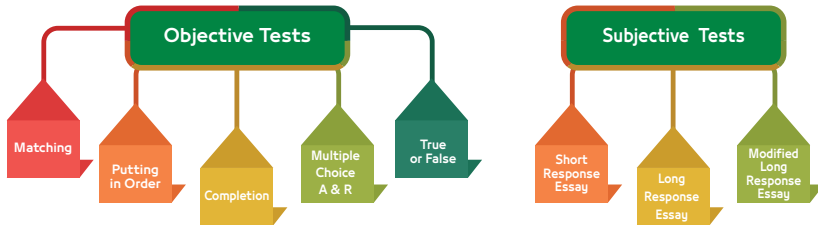
Miller's Pyramid of Competency Evaluation Through Performance



Adapted from burns and Mehay (2009) Miller; Prism of Clinical Competency
* Multiple Choice Questions (MCQ)

The different types of achievement tests

Achievement Tests



12 Assessment Methods:

They are the different tools used to implement the multiple assessment strategies such as monitoring lists, rating scale, verbal appreciation scale, learning log, and anecdotal record (faculty member record).



13 Criteria for high quality Assessment tools:

▶ Assessment tools must achieve the following conditions:

A. Validity

To measure what it was intended to measure for determining progress in achieving Learning Outcomes.

B. Reliability

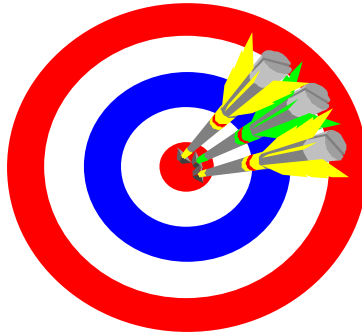
When the assessment tool gives consistent and steady results.

C. Objectivity

When results are independent of self-judgment or bias.

D. Feasibility

Such as performance cost and the experience or training it requires to apply as well as the ease of preparation, ... etc.



14 Item analysis:

Provides breakdown of how different types of students performed on various aspects of each item, particularly useful for multiple-choice items

▶ An item analysis focuses on:

1. How hard is this item? = Item Difficulty
2. How well this item discriminate between high achiever and low achiever students? = Item Discrimination
3. Are students finding the item distractors attractive?



4. Is the item confusing?
5. Does the item have more than one right answer?

For 3,4 and 5 = Distractors Information

15 Difficulty index:

Difficulty index is useful in clarifying how easy or difficult a specific question in an exam is. It is the percentage of the students who answered the question correctly. Its range from 0 to 1.



16 Discrimination Index:

Discrimination index is the ability of an item to discriminate between the upper and lower groups i.e. the ability of the item to identify the individual differences between the students who know the correct answer and those who do not know it. That is for each item in the test. The power of discrimination index of each item is calculated based on the difference between the percentage of number of learners in the upper and lower groups who have succeeded in the item. Its range from -1 to 1.



17 Item Analysis, Good Practices values:

Item Difficulty

- ▶ Ideally, should be between 0.3 and 0.80
- ▶ Items that are too easy or too hard will often not discriminate well Distractor Difficulties
- ▶ Should be at least .02



Item Discrimination

- ▶ At least 0.20 for classroom exams
- ▶ Higher is better
- ▶ 0.35 or higher for standardized measures.

Distractor Discriminations

- ▶ All should be negative
- ▶ The more negative, the better

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Assessment is the Core of Learning Process



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