Basic Levelof Assessment for Staff in Health Sector

Session 1:

Definition of Assessment:

The process of documenting, often times in measurable terms, knowledge, skills, attitudes and beliefs

In medical educational terms we can think of assessment as:

The process by which knowledge, skills and behaviors may be tested and judgments made about competence or performance.

Purpose of Student Assessment:

- ❑ **Evaluating the effectiveness of the course**
- ❑ **Getting feedback**
- ❑ **Motivating teachers and learners**
- ❑ **Measuring improvement over time**
- ❑ **Testing students' performance**
- ❑ **Showing the effectiveness of the curriculum/quality assurance**
- ❑ **Introducing curriculum change**
- ❑ **Ranking students**
- ❑ **Identifying effective teaching**

Assessment cycle

How do we know if the student has learned?

Answer the six key assessment questions for your own learning context:

- ✓ **What should be assessed?**
- ✓ **How should it be assessed?**
- ✓ **Why assess the learner?**
- ✓ **When should the learner be assessed?**
- ✓ **Who should assess the learner?**
- ✓ **Where the learner should be assessed?**

Design an appropriate assessment to check whether a student has achieved a given learning outcome.

Effective Assessment:

- ✓ **Alignment with learning outcomes (blueprint)**
- ✓ **Explicit and transparent assessment rubrics/policy**
- ✓ **Equitable for all students**
- ✓ **Multiple assessment methods**

✓ **Adequate sampling**

✓ **Validated methods of standard setting**

✓ **Timely feedback, balance between formative & summative**

✓ **Identification of underperforming students**

✓ **Regular review and quality assurance**

✓ **Consistency across teaching sites**

Assessment guidelines:

Before setting an exam:

1-Identify intended learning outcomes of the course.

2-Classify them according to the three domains

3-Define what is to be tested

4- Select most appropriate test method/format

5-Apply and score

6-Continually and systematically investigate alternative methods

for empowering students to learn.

Essential Criteria for a Good Tool of Assessment (Psychometrics):

Constructing a Good Test:

Utility Formula:

Utility = R x V x E x A x C

- **Reliability,**
- **Validity,**
- **Educational impact,**
- **Acceptability,**
- **Cost / Feasibility**

Types of Assessment:

- **Summative assessment**

  Fair and based on appropriate criteria

- **Formative assessment**

  Aim is to get the students to reveal their strengths and weaknesses.

Types of Assessment Tools that fulfills Competency Based Education:
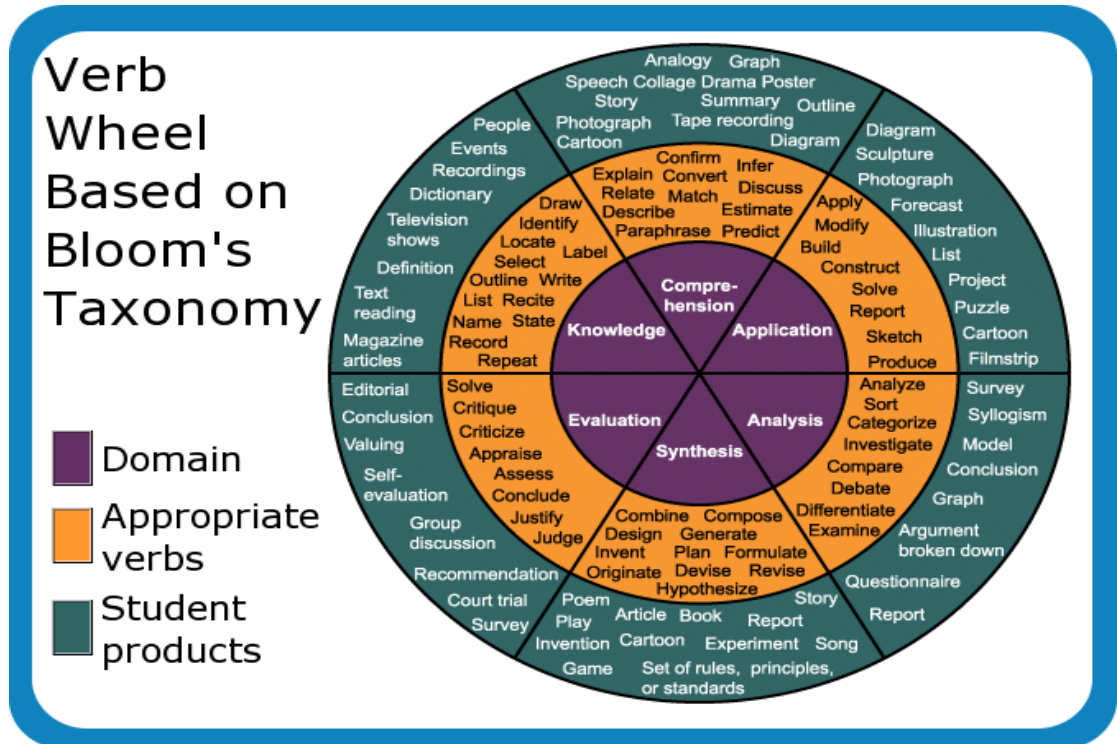
- ✓ **Multiple Choice (MCQ)**
- ✓ **SBA**
- ✓ **Short answer questions (SAQ)**
- ✓ **Extended matching questions (EMQ)**
- ✓ **Script Concordance Test (SCT)**
- ✓ **Objective Structured Clinical Exam (OSCE)**
- ✓ **Mini Clinical Evaluation Examination (Mini-CEX)**
- ✓ **Portfolio/Log book**
- ✓ **Direct Observation of procedural skills (DOPs)**

Common Defects of Exams:

- **Triviality**
- **Outright error**
- **Ambiguity**
- **Conservatism**
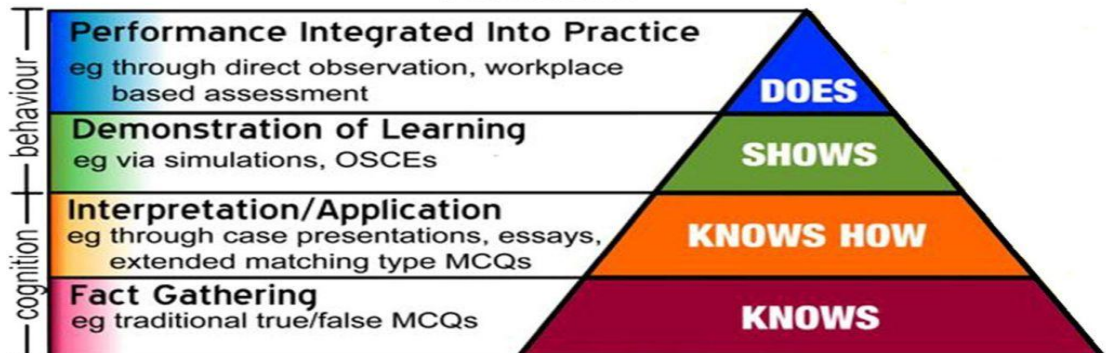- **Complexity**
- **Unintended cues**

Bloom's Taxonomy
(helping to formulate lower and higher order questions):

The assessment pyramid: Miller's Pyramid

Session 2:

Types of Questions:

1- Essay question: A test item which requires a response composed by the examinee, in the form of 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 who is skilled or informed in the subject

Its advantage:

- **Ease of construction**
- **Presentation of loose ideas in an organized and logical manner**
- **Enabling the candidate to explore one subject in great depth**
- **Good for assessment of higher order cognitive functions including analysis, synthesis and evaluation**
- **Promotion of critical thinking and the ability to present arguments coherently**

Its disadvantage:

- **Relative lack of objectivity and reliability**
- **Limited content coverage (due to long testing time per topic) (A test of 80 multiple-choice questions will most likely cover a wide range of content than a test of 3-4 essay questions)**
- **Marking is time consuming**
- **Task may be misinterpreted**

Rules for writing good essay items

"Make sure that"

* Clear and unambiguous wording are used

* Itemization of the question is done (In each topic, specify the parts needed to be written by the student. For example, etiology, pathology, clinical manifestations or management.....etc)

* Defined mark for each item is put to make expectations clear

* Action verbs are present at the beginning of the question. The following are useful action verbs. They are copied from Bloom's taxonomy of action verbs. In this taxonomy, Bloom classified the action verbs according to the level of cognitive function

Definition of Action Verb

A verb which should be included in all test questions informing the student of how to answer the question – each learning objective has appropriate action verbs

2- Short/restricted answered questionsSAQ/RAQ

SAQs are generally constructed around a theme or scenario followed by several focused questions

Each question bears separate mark that is clearly indicated in the question paper.

Its advantage:

✓ SAQ can be used to cover broader content areas (Wide sampling)

✓ High objectivity and reliability

✓ The scoring is easy as the answers are specific and short

- ✓ **The total duration of answering SAQ is short**
- ✓ **No need for expert marker**
- ✓ **Easy to construct**
- ✓ **Low probability of guessing**

Its disadvantage:

- ✓ **Can lead to cueing**

3- Problem solving questions

A template for a patient vignette; not all of the following components are necessary, but when present should be in the order indicated:

- • **Age, gender (e.g., 45-year-old man)**
- • **Site of care (e.g., the emergency department)**
- • **Presenting complaint (e.g., headache)**
- • **Duration of complaint (e.g., 2 days)**
- • **Patient history, including past medical history, family history,**
- • **psychosocial history, and review of systems if important and**
- • **plausible for the scenario**
- • **Physical findings**
- • **Results of diagnostic studies**
- • **Initial treatment, subsequent findings**

Session 3 :

MCQ :

Its advantage:

- MCQs can assess a broad range of knowledge, for a big number of learners, in a short period of time
- MCQs can be developed to test higher order thinking such as application and evaluation of knowledge
- Can be administered in a relatively short period of time, and can be marked and graded by computer
- MCQs proved effective in indicating "who does know" and "who does not know"
- It is easy to establish validity for MCQ items through:
  - Writing flawless items and
  - Good sampling (blueprinting)
- MCQs have a high degree of reliability because they are objectively scored

Its disadvantage:

- Time consuming
- Needs training and experience
- Ineffective in measuring synthesis and creation
- Scores can be influenced by reading ability of the examinee
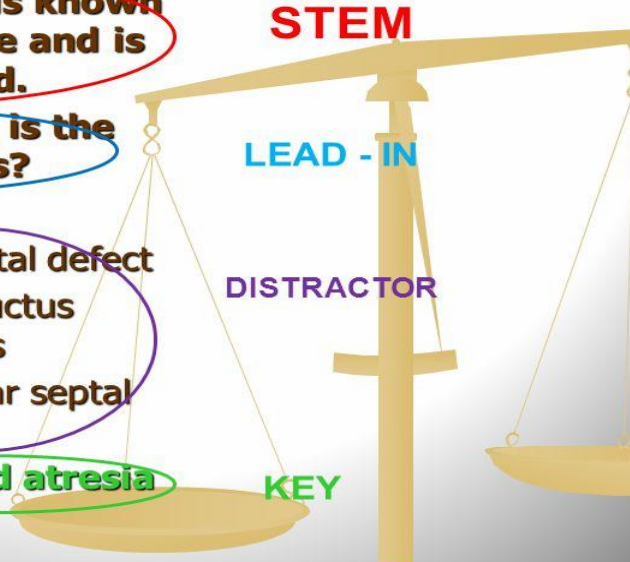- Guessing
- Cheating

Anatomy of MCQ:

Stem   - lead in Question   - Alternatives (key answer – distractors)

MCQ criteria:

Stem	Lead in question	alternatives
➢ Preferred to be a case scenario or clinical vignette (e.g., a clinical problem) ➢ Clear, unambiguous, unequivocal, word	• Follows the stem. • In the form of question • Should relate to the stem. • Can be answered	➢ Use plausible distractors choices ➢ Independent, not overlapping ➢ Should be in same category

it POSITIVELY
- ➢ Should be long compared to options
- ➢ Enough information that one can formulate and answer without looking at options (avoid window-dressing or red-herring

without looking at the options
- • Not used absolute terms as (never- always – sometimes)
- • Limit used of NOT or EXCEPT

as correct answer
- ➢ Homogeneous in content and grammatical construction
- ➢ Keep the length almost equal
- ➢ Avoid specific determiners such as All, Never, Always, absolutely..
- ➢ Do not use All of the above or NON of the above

Extended Matching Questions (EMQs)

Structure:

1- An option list (Generally more than 5, usually 8)

2- A lead-in statement

3- Three or four stems or clinical scenarios.

4- For each stem, the candidate should choose the most appropriate option from A–H on the answer sheet.

5- An option can be correct for more than one question.

Common flaws in MCQs and how to avoid:

Flaws that aid test-wise examinee:

- **Grammatical clues**

- **Logical inconsistencies**

- **Absolute or vague terms**

- **More detailed correct answers**

- **Word repeats (clanging)**

- **Convergence**

- **All of the above and None of the above**

Flaws that add irrelevant difficulty:

- **Unnecessary words in the stem**

- **Unnecessary words in the options**

- **Options not in logical order**

- **Overlapping numeric options**

- **Vague frequency terms**

Session 4:

Definition ofBlueprint (Test Specification):

It is something intended as a guide when making something else.First used at construction and industry, later it was used in car modeling, animation, etc.Basically, when a detailed plan of action wanted before performing finally.

Characters of blueprint:

- It is a matrix or chart reporting the number and type of test questions

- The questions represent the topics in the content area

- The questions are based on the learning objective from each topic

- Also identifies the percentage(%) weighting of cognitive dimensions

Steps to Prepare Blueprint:

CONTENT ANALYSIS | DETERMINATION OF LEARNING OBJECTIVES | DETERMINATION OF NUMBER OF ITEMS FOR EACH TOPIC BASED ON LEARNING OBJECTIVES | DETERMINING THE TYPES OF QUESTIONS

Benefits of Blueprint:

- Guide construction of question paper

- Links assessment to learning objectives and domains

- Helps to match various competencies with the course content and the appropriate modality of assessment

- Helps the teachers in designing the instructional strategies as per the guidelines expected in the Curriculum

Item analysis:

It is the process of analyzing the performance of MCQ after it has appeared in a question paper.

Item analysis provides:

1- **Difficulty Index (p):**
   The question difficulty is the percentage of students who selected the correct response

2- **Discrimination Index (item effectiveness-d):**
   Indicates how well the question separates the students who know the material well from those who don't

3- **Distracter Effectiveness: Effectiveness of the options (alternatives)**

Thanks so much

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