

# Course: Educational Assessment and Evaluation (8602)

## Semester: Spring, 2023

### Assignment No. 1

#### Q.1 What is classroom assessment. What are the characteristics of classroom assessment.

Classroom Assessment is a systematic approach to formative evaluation, used by instructors to determine how much and how well students are learning. CATs and other informal assessment tools provide key information during the semester regarding teaching and learning so that changes can be made as necessary. "The central purpose of Classroom Assessment is to empower both teachers and their students to improve the quality of learning in the classroom" through an approach that is "learner-centered, teacher-directed, mutually beneficial, formative, context-specific, and firmly rooted in good practice" (Angelo & Cross, 1993, p. 4).

In their book, Classroom Assessment Techniques, Angelo and Cross describe 50 Classroom Assessment Techniques (CATs)-simple tools (instruments, forms, strategies, activities) for collecting information on student learning in order to improve it. CATs are easy to design, administer and analyze, and have the added benefit of involving students in their own learning. They are typically non-graded, anonymous in-class activities that are embedded in the regular work of the class. The 50 CATs are divided into three broad categories:

- Techniques for assessing course-related knowledge and skills
- Techniques for assessing learner attitudes, values and self-awareness
- Techniques for assessing learner reactions to instruction

#### EXAMPLES OF EASY-TO-USE CATS

- Minute Papers and Muddiest Point, the best known and easiest CATs, are used to assess course-related knowledge and skills.
- One-Sentence Summaries challenge students to answer the questions "Who does what to whom, when, where, how, and why?" about a particular topic, and then to synthesize those answers into a single, informative, grammatical, and long summary sentence. It allows you to find out how concisely, completely, and creatively students can summarize a large amount of information on a given topic. The format allows you to scan and compare responses quickly and easily. This CAT gives students practice in using a technique for "chunking" information-condensing it into smaller, interrelated bits that are more easily processed and recalled-and makes it is easier for them to recall the information. To use:
  1. Select an important topic that your students have recently studied in your class and that you expect them to learn to summarize.
  2. Students should be told to answer the questions, "Who Did/Does What to Whom, When, Where, How, and Why?" in relation to the topic. Providing a matrix with the questions ("Who?" "Does What?" etc.) listed down the left side of the page makes it easier for students to create the sentence. Some topics don't fit into this format described and you may need to create a different pattern, such as, "How Does Who Do What and Why?"
  3. Students should then turn their answers into a grammatical sentence that follows the pattern given.

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4. Practice the task yourself to be sure you can coherently summarize the topic in one sentence.
5. You can evaluate their responses by marking each component (Who, What, How, etc.) with a zero, check, or plus. You can then make a matrix to represent the whole class's responses. This will tell you if students are having a more difficult time, for example, answering the "how" and "why" questions than the "who" and "what" questions.

- Course-Related Self-Confidence Surveys are used to assess your students' levels of confidence in their ability to learn the skills and content of your course. This is especially important to know in some specific contexts: students' mathematical skills, their ability to speak in public, their athletic ability, etc. When you know the confidence levels of the students, and what affects their confidence, you can build assignments that build confidence. To use:

1. Focus on skills or abilities that are important to success in the course.
2. Make up questions to assess students' self-confidence in relation to these skills or abilities.
3. Create a simple survey to gather the data. For example: How confident do you feel you will be able to do the following by the end of this course? For each, indicate: Very confident, somewhat, not very, not at all confident
  1. Feel comfortable working out in a gym and/or running in a public place.
  2. Run three miles in 30 minutes.
  3. Maintain your exercise program for a year after the class has ended.
4. Allow students a few minutes to respond. Be sure to tell them that the survey is anonymous.
5. Summarizing the data is a simple process of tallying responses to each question.

- Reading Rating Sheets and Assignment Assessments are used to assess learner reactions to instruction. Reading Rating Sheets are short, simple assessment forms that students fill out in response to their assigned course reading. The purpose is to provide you with feedback on students' evaluation of course readings. You can use this CAT to find out how motivating, interesting, clear, and useful the readings are to your students. Assignment Assessments ask students to consider the value of assignments to them as learners. You can use this technique to see assignments from the students' perspective; get feedback on difficulty level, learning value, and interest level of the project/assignment; and also motivate students to complete assignments because they know they will have an opportunity to assess the assignments. To use:

1. Determine why you want students to rate the course readings or to assess an assignment and then write a few questions that will elicit the information you desire.

### Reading Rating Sheets

- How much time did you spend reading this assignment?
- How useful was this reading assignment in helping you understand the topic/concept?
- How interesting (or clear, etc.) was the reading? Why?

Assignment Assessment: (about in-class example problems)

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- What do you like about the example problems?
  - Who do you not like about the example problems?
  - What specific changes would you suggest to improve the example problems?
2. Make up a simple assessment form and give it to the students to complete in class or as homework.
  3. Use their feedback to improve the assignments you use. However, don't ask for feedback on assignments/readings that you are unwilling to change.

### **AN EXAMPLE OF A MORE COMPLEX CAT**

- Concept Maps are drawings or diagrams showing the mental connections that students make between a major concept stressed in class and other concepts they have learned. This technique provides an observable and assessable record of the students' conceptual schemata (the patterns of associations they make in relation to a given focal concept). Concept maps allow you to discover the web of relationships that your students bring to the task at hand-their starting points-and compare their understanding of relevant conceptual relations to your own. By literally drawing the connections they make among concepts, students gain more control over their connection making. They can scrutinize their conceptual networks, compare their maps to those of peers and experts, and make explicit changes. This CAT prompts students to consider how their own ideas and concepts are related and to realize that those associations are changeable. Some students will find this activity challenging and even frustrating. (Note: There are many resources on this topic on the web with sample concept maps). To use:
  1. Select a concept that is both important to understanding the course and relatively rich in conceptual connections to use as the stimulus or starting point for the Concept Map.
  2. Before class, create your own concept map to determine if the topic lends itself to the mapping process.
  3. Proceed to have your students draw their own maps, either individually or in groups. Give them the directions and show a simple example of a concept map.
    - Begin the process by brainstorming for a few minutes, writing down terms and short phrases closely related to the stimulus.
    - Draw a concept map based on your brainstorming, placing the stimulus in the center and drawing lines to other concepts. It can look roughly like a wheel with spokes, or it might take other forms such as a geographical map, a hierarchical chart, a flowchart, etc.
    - After sketching in the primary associations, move on to add secondary and even tertiary levels of association, if appropriate.
    - Determine the ways in which the various concepts are related to each other and write those types of relations on the lines connecting the concepts.
  4. You can compare the students' maps to your own, being aware that they might come up with different elements and relationships.

**Q.2 Write a note on cognitive Domain of Educational Objectives.**

Developing and delivering lessons by teachers are integral in the teaching process. It is hence important for teachers to ensure that the three (3) domains of learning which include cognitive (thinking), affective (emotions or feeling) and Psychomotor (Physical or kinesthetic) to be achieved. It is imperative to understand that there are different categories of learners. Who have varying needs and as such different methods must be adopted in the planning and delivery of lessons to ensure that such needs are addressed. The world of education has gradually adopted the strategy of 'Every child matters' structure. That requires that all learners with different needs are counted.

This article aims to evaluate the three domains of learning (cognitive, affective and psychomotor) and their benefits to addressing the different learning styles of students.

**DOMAINS OF LEARNING**

Initially developed between 1956 and 1972, the domains of learning have received considerable contributions from researchers and experts in the field of education. Studies by Benjamin Bloom (on cognitive domain), David Krathwohl (affective domain) and Anita Harrow (Psychomotor domain) have been encompassed into the three domains of learning (Sousa, 2016).

A holistic lesson developed by a teacher requires the inclusion of all the three domains in constructing learning tasks for students. The diversity in such learning tasks help creates a comparatively well – rounded learning experience that meets a number of learning styles and learning modalities. An increased level of diversity in the delivery of lessons help engage students. As well as create more neural networks and pathways that helps with recollection of information and events.

Learning helps develop an individual's attitude as well as encourage the acquisition of new skills. The cognitive domain aims to develop the mental skills and the acquisition of knowledge of the individual. The cognitive domain encompasses of six categories which include knowledge; comprehension; application; analysis; synthesis; and evaluation. Knowledge includes the ability of the learner to recall data or information. This is followed with comprehension. Which assesses the ability of the learner to understand the meaning of what is known. This is the case where a student is able to explain an existing theory in his or her own words (Anderson et al, 2011). This is followed by application which shows the ability of the student to use abstract knowledge in a new situation.

A typical case is when an Economics student is able to apply. The theory of demand and supply to the changing market trend of clothing during a particular season. The analysis category aims to differentiate facts and opinions. The synthesis category shows the ability to integrate different elements or concepts in order to form a sound pattern or structure to help establish a new meaning. The category of evaluation shows the ability to come up with judgments about the importance of concepts. A typical scenario is when a manager is able to identify and implement the most cost effective methods of production in the bid to increase profits whilst sustaining a high level of competitive advantage.

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The affective domain includes the feelings, emotions and attitudes of the individual. The categories of affective domain include receiving phenomena; responding to phenomena; valuing; organization; and characterization (Anderson et al, 2011). The sub domain of receiving phenomena creates the awareness of feelings and emotions. As well as the ability to utilize selected attention. This can include listening attentively to lessons in class. The next sub domain of responding to phenomena involves active participation of the learner in class or during group discussion (Cannon and Feinstein, 2005).

Valuing involves the ability to see the worth of something and express it. This includes the ability of a learner to share their views and ideas about various issues raised in class. The ability of the student to prioritize a value over another and create a unique value system is known as organization. This can be assessed with the need to value one's academic work as against their social relationships. The sub domain of characterization explains the ability to internalize values and let them control the behavior of the individual. In view of this, a student considers the academic work highly important as it plays an important role in deciding the career path chosen rather than what may be available.

The psychomotor domain includes utilizing motor skills and the ability to coordinate them. The sub domains of psychomotor include perception; set; guided response; mechanism; complex overt response; adaptation; and origination. Perception involves the ability to apply sensory information to motor activity. For instance, a student practices a series of exercises in a text book with the aim of scoring higher marks during exams. Set, as a sub domain, involves the readiness to act upon a series of challenges to overcome them. In relation to guided responses, it includes the ability to imitate a displayed behavior or utilize a trial and error method to resolve a situation (Sousa, 2016).

The sub domain of mechanism includes the ability to convert learned responses into habitual actions with proficiency and confidence. Students are able to solve exams questions after they have confidently been able to answer some past questions. Complex Overt responses explain the ability to skillfully perform complex patterns of actions. A typical instance has to do with the ability of a student to have an increased typing speed when using a computer. Adaptability is an integral part of the domain which exhibits the ability to modify learned skills to meet special events. An instance is when a student who has learnt various underlying theories is able to invent or make a working model using everyday materials. Origination also involves creating new movement patterns for a specific situation (Sincero, 2011).

### **CONCLUSION**

Learning is an integral part of every individual's life. It is very key to growth and development and hence requires the need for both students and teachers to be committed to the process. It is further necessary to ensure that the delivery of learning combines generally different facets which have been identified to be the domains of learning. With the continually increasing need to ensure that students are taught with varying strategies and techniques. It is important for teachers to adopt a teaching strategy. That combines various domains of learning to enable teaching and learning to be considered as effective.

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At London School of Management of Education (LSME) we are proud to inform our cherished students and stakeholders. That we actively ensure that all our facilitators apply the best and suitable delivery techniques. That would impact positively on the Cognitive, Affective and Psychomotor Domains of the students.

All our lecturers are well trained and experienced in pedagogy. They excel based on the feedback from the results churned by our students in all external exams and standardization. All our graduated students are in gainful employment in the UK, USA, Canada, UAE, India, Pakistan, Saudi Arabia, Qatar, Bahrain, Germany, Spain and most countries in the EU. We are proud of our enviable record in delivering the best training to our students, our partners!

The learning process must go beyond reading and memorizing facts and information to the ability to critically evaluate the information, explain to others as well as design things out for everyday use... and that is what we do best at LSME.

### **Q.3 Why intelligence tests are used? Also write the advantages and disadvantages of intelligence tests.**

An intelligence test is a process of checking a person's intellectual abilities through various tasks such as different types of reasoning and dealing with novel situations. An Individual Intelligence test is a test given by one person at a time to measure the person's intellectual potential. It is a method of checking an individual's reasoning and problem-solving skills by providing a series of tasks. This is done to measure the person's IQ (Intelligence quotient) level. The types of Individual Intelligence tests are the verbal method, non-verbal method, and performance test.

The advantages of the Individual Intelligence test are the following:

1. As the test is given by one person at a time, the invigilator can pay better attention to the participant.
2. A friendly and harmonious relationship may be formed between the invigilator and the participant.  
There is a better understanding of one another between both parties.
3. The behaviour of the participant can be observed easily by the invigilator throughout the assessment.
4. The participant is not dependent on anyone during the test but their intellectual ability.
5. The results are accurate as it is the outcome of just individual effort and hard work.
6. The invigilator can encourage and motivate the participant if necessary.

Following are the disadvantages of the Individual Intelligence test:

1. It may be time-consuming as the test is given by one person at a time.
2. It is also a costlier method when compared to other procedures of Intelligence tests.
3. A highly skilled and experienced examiner is needed to invigilate such a test.

However, the Individual Intelligence test is considered to be the most effective way of testing an individual's intellectual ability as all the problems are solved by the individual himself/herself and the results are accurate.

Intelligence tests are widely used in various settings, including educational, clinical, and occupational fields, to measure an individual's cognitive abilities and intellectual potential. These tests aim to provide an estimate of an

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individual's intelligence, which can help inform decision-making processes in education, clinical diagnoses, and career placements. Here are some advantages and disadvantages associated with intelligence tests:

### Advantages of Intelligence Tests:

1. **Measurement of Cognitive Abilities:** Intelligence tests assess a wide range of cognitive abilities, such as logical reasoning, problem-solving, verbal comprehension, perceptual reasoning, and working memory. They provide a standardized and objective measure of an individual's intellectual capabilities.
2. **Predictive Validity:** Intelligence test scores have demonstrated predictive validity in various areas, such as academic performance, job performance, and success in educational and occupational settings. They can help identify individuals with high intellectual potential or areas where additional support may be needed.
3. **Individualized Assessment:** Intelligence tests allow for individualized assessment, highlighting each person's unique cognitive strengths and weaknesses. This information can guide personalized educational interventions, career counseling, and interventions for individuals with specific learning needs.
4. **Standardization and Norms:** Intelligence tests are developed using rigorous psychometric methods and undergo extensive standardization procedures. This ensures that the test results are reliable and comparable across individuals and populations. Norms are established to compare an individual's performance to a representative sample, allowing for meaningful interpretation of test scores.
5. **Diagnostic and Clinical Applications:** Intelligence tests can be valuable tools in clinical and diagnostic settings. They help assess cognitive abilities in individuals with suspected intellectual disabilities, learning disabilities, or cognitive impairments. The results can inform diagnosis, treatment planning, and intervention strategies.

### Disadvantages of Intelligence Tests:

1. **Cultural and Ethnic Bias:** Some intelligence tests may exhibit cultural and ethnic biases, favoring certain groups or cultural backgrounds. The content and context of the test items may not be equally familiar or relevant to individuals from diverse cultural backgrounds, potentially impacting their performance and test validity.
2. **Limited Scope:** Intelligence tests primarily focus on cognitive abilities and may not capture other important aspects of human intelligence, such as creativity, emotional intelligence, or social intelligence. Therefore, relying solely on intelligence test scores may provide an incomplete understanding of an individual's overall capabilities.
3. **Test Anxiety and Motivation:** Test anxiety or low motivation can negatively impact performance on intelligence tests. Some individuals may experience heightened anxiety or lack of engagement, leading to underperformance or inaccurate representation of their true cognitive abilities.

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4. **Potential Stereotyping:** Intelligence tests have historically been associated with negative stereotypes and biases. The misuse or misinterpretation of intelligence test results can perpetuate unfair judgments, stigmatization, and discrimination against certain groups or individuals.
5. **Limited Cultural and Linguistic Adaptation:** Intelligence tests may not always be adequately adapted or translated for individuals who speak different languages or come from diverse cultural backgrounds. This can introduce language barriers or cultural biases, affecting the validity and reliability of the test results.

It is important to interpret intelligence test results cautiously, considering the limitations and potential biases associated with these assessments. Intelligence tests should be used in conjunction with other assessment measures and consider multiple sources of information to gain a comprehensive understanding of an individual's cognitive abilities and potential.

### **Q.4 Write a detailed note on extended response essay type items.**

Extended response essay type items, also known as constructed-response items or open-ended questions, are a form of assessment that requires students to provide a detailed, written response to a prompt or question. Unlike multiple-choice questions that offer predefined options, extended response items allow students to demonstrate their understanding, critical thinking skills, and ability to articulate their thoughts in a coherent manner. These items are commonly used in various educational settings, including classrooms, standardized tests, and evaluations.

#### **Key Features of Extended Response Essay Type Items:**

1. **Open-endedness:** Extended response items do not have a single correct answer or a set of predetermined options. Instead, they provide students with the freedom to express their thoughts and ideas in their own words.
2. **Depth of knowledge:** These items often require higher-order thinking skills, such as analysis, synthesis, evaluation, and application of knowledge. Students are expected to demonstrate a deep understanding of the topic and provide well-supported arguments or explanations.
3. **Communication skills:** Extended response items assess students' ability to effectively communicate their ideas in written form. This includes organizing their thoughts, using appropriate vocabulary and grammar, and structuring their responses coherently.
4. **Authentic assessment:** Essay type items provide a more authentic assessment of students' knowledge and skills compared to selected-response items. They require students to think critically, apply concepts to real-world situations, and construct their responses independently.

#### **Benefits of Extended Response Essay Type Items:**

1. **Higher-order thinking skills:** By engaging students in extended writing, these items encourage critical thinking, problem-solving, and analysis of complex ideas. Students have the opportunity to showcase their ability to think deeply and apply knowledge in a meaningful way.



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2. Individualized assessment: Extended response items allow students to express their unique perspectives and demonstrate a deeper understanding of the subject matter. They provide insight into each student's thought processes and level of comprehension.
3. Assessment of writing skills: These items assess not only content knowledge but also students' writing skills, including grammar, organization, coherence, and clarity of expression. It helps teachers identify areas for improvement in students' written communication abilities.
4. Authentic assessment: Extended response items mirror real-world scenarios where individuals are required to express their ideas and arguments in a written format. This type of assessment better prepares students for higher education, professional careers, and everyday life.

Designing and Scoring Extended Response Essay Type Items: When designing extended response items, consider the following guidelines:

1. Clear prompts: Provide a clear and concise prompt or question that guides students' responses. Ensure that the prompt is focused and specific enough to elicit the desired knowledge or skills.
2. Rubrics: Develop a scoring rubric or criteria that outline the key components or qualities of a strong response. Rubrics help ensure consistent and fair grading, providing clear expectations for students.
3. Supportive materials: If necessary, provide relevant information, data, or resources to support students in formulating their responses. This helps scaffold their thinking and ensures they have access to the necessary information.
4. Time management: Clearly communicate the time limit for completing the extended response item. Consider the complexity of the task and the amount of writing required when setting the time limit.
5. Feedback and revision: After scoring the responses, provide meaningful feedback to students, highlighting strengths and areas for improvement. Encourage students to revise their responses based on the feedback, fostering a process of continuous improvement.

In summary, extended response essay type items offer a valuable means of assessing students' knowledge, critical thinking skills, and written communication abilities. By incorporating these items into assessments, educators can gain deeper insights into students' understanding and provide more authentic evaluations of their learning.

### **Q.5 Make two tests of Mathematics and compare its reliability through parallel form reliability method.**

Test A:

1. Solve the equation:  $2x + 5 = 15$ .
2. Calculate the area of a rectangle with length 8 cm and width 5 cm.
3. Simplify the expression:  $3(2x + 4) - 2(3x - 2)$ .
4. A triangle has angles measuring  $30^\circ$ ,  $60^\circ$ , and  $90^\circ$ . What is the length of the side opposite the  $60^\circ$  angle if the hypotenuse is 10 units?
5. Find the value of  $x$  in the equation:  $4(x + 3) = 20$ .

Test B:

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1. Solve the equation:  $3x - 7 = 16$ .
2. Calculate the circumference of a circle with a radius of 6 cm. (Use  $\pi = 3.14$ )
3. Simplify the expression:  $2(x + 5) - 3(2x - 1)$ .
4. A rectangle has a length of 12 units and a width of 4 units. Find its area.
5. Find the value of  $x$  in the equation:  $2(x - 4) = 10$ .

Administer both Test A and Test B to the same group of individuals, ensuring counterbalancing by randomly assigning half of the participants to take Test A first and the other half to take Test B first. Afterward, calculate the correlation coefficient to determine the parallel form reliability of the two tests.

To compare the reliability of two tests of mathematics using the parallel form reliability method, you need to administer both tests to the same group of individuals and then calculate the correlation between the scores obtained on the two tests. Here's an example of how you can perform the parallel form reliability analysis:

Step 1: Develop two parallel forms of the mathematics test. The tests should cover the same content and have similar difficulty levels.

Step 2: Administer both tests to a sample of individuals. Make sure the order of administration is counterbalanced, meaning that half of the participants take Test A first, followed by Test B, and the other half take Test B first, followed by Test A. This helps control for any order effects.

Step 3: Calculate the correlation between the scores obtained on Test A and Test B. You can use Pearson's correlation coefficient ( $r$ ) to assess the strength and direction of the relationship between the two sets of scores. The closer the correlation coefficient is to 1, the higher the reliability.

Step 4: Analyze the correlation coefficient. Generally, a correlation coefficient above 0.70 is considered to indicate good reliability, while coefficients between 0.60 and 0.70 suggest acceptable reliability. Coefficients below 0.60 indicate lower reliability.

Step 5: Interpret the results. If the correlation coefficient indicates good or acceptable reliability, it suggests that the two tests have consistent results and can be used interchangeably. However, if the correlation coefficient is low, it indicates poor reliability, and the tests may not be equivalent.

Remember that parallel form reliability assesses the consistency between two different versions of a test. By using counterbalancing and calculating the correlation coefficient, you can determine the reliability of the parallel forms and compare their consistency.