Multiple Choice Test Construction: Variations on a Theme

MC tests can be effective ways to:

- Analyze phenomena
- Apply principles to new situations
- Discriminate between fact and opinion
- Interpret cause-and-effect relationships
- Interpret charts and graphs
- Judge the relevance of information
- Make inferences from given data
- Solve problems

Example A: Analyze Phenomena/Interpret Charts & Graphs

Objective: Identifies the correct application of principle (problem solving).

In the diagram above, parallel light rays pass through a convex lens and converge to a focus. They can be made parallel again by placing a:

a. concave lens at point B.
b. concave lens at point C.
c. second convex lens at point B.
d. second convex lens at point C. **

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Example B¹: Apply principles to new situations

ANALYSIS

Objective: Analyzes poetry and identifies patterns and relationships.

*I Hear America Singing*

“I HEAR America singing, the varied carols I hear;
Those of mechanics—each one singing his, as it should be, blithe and strong;
The carpenter singing his, as he measures his plank or beam,
The mason singing his, as he makes ready for work, or leaves off work;
The boatman singing what belongs to him in his boat—the deckhand singing on the steamboat deck;
The shoemaker singing as he sits on his bench—the hatter singing as he stands;
The wood-cutter’s song—the ploughboy’s, on his way in the morning, or at the noon intermission, or at sundown;
The delicious singing of the mother—or of the young wife at work—or of the girl sewing or washing—Each singing what belongs to her, and to none else;
The day what belongs to the day—At night, the party of young fellows, robust, friendly, Singing, with open mouths, their strong melodious *songs*.”

– Walt Whitman

Questions 4-7 refer to the poem above.

4. Whitman’s work above uses multiple devices, but chief among them is ____.
   A) Symmetry
   B) Repetition
   C) Alliteration
   D) Assonance

5. The chief unifying device in this poem suggests that this poem could best be described as ____.
   A) prose
   B) an ode
   C) a tome
   d) free verse

6 and 7. etc.
Example B²: Apply principles to new situations

CRITICAL THINKING

One complaint of MC tests is that it is either right or wrong. An alternative mixes MC and “select the best answer” with a short justification. This seems especially helpful in scenarios that function at or near the synthesis level of complexity. Students may earn X number of points for the correct answer and Y points for a correct justification.

Questions 8-12 will refer to the following information:

A music teacher is a new hire in an elementary school. The school counselor greets her and lets her know that there are several students with special needs in this school. She indicates that she will be sending a list of the students and their appropriate IEP protocols. The following is a partial list of what she provided.

**Cindy Lou Who**: Third grade – Dyslexic. *Accommodations*: Should be allowed additional time for writing assignments, extra time to complete non-math assignments, and the following numbers should always have a line underneath them – 2, 5, 6, 9. Matching that requires learner to draw lines should be adapted to a different format. Dyslexia is both flipping and reversal in this case. *(LESSON you’ll be teaching is recorder – learning low E today.)*

**Fros T.**: Fifth grade – AD/HD. *Accommodations*: Student has been described by parents and teachers as fidgety and flighty. Student should use kinesthetic learning aides when possible. Student should not be corrected for any movement that remains personal. Teachers should seek means by which student’s energy can be redirected into that which is to be learned or into a personal space (like tapping his leg with a pencil). *(LESSON you’ll be teaching is conducting triple meter – today you’re introducing the 3 pattern.)*

**Rudy**: First grade – Asperger’s Syndrome. Student has higher than average IQ. Seems to pick up quickly on most concepts – especially math related. He prefers extreme structure. *Accommodations*: When structure is changed OR when an activity is non-structured, student needs to be warned in advance. Normal societal conventions are overlooked, so student may speak out while others are speaking or he may walk around the room during class. Reminders of appropriate behavior typically will be sufficient. Participation points should not be deducted for misbehavior as described above. *(LESSON you’ll be teaching is working in small groups to demonstrate both the rhythm and pitch of Are You Sleeping using icons.)*
Using the above information, select the best answer to each of the questions below. Succinctly justify your answer on the line following the question.

8. Which of the following would be the most important way to alter the objective for Cindy Lou Who in today’s lesson?

A) Cindy will need extra time. I would invite her back at recess to continue the lesson.
B) I would add the names of the notes and the fingerings above the notes.
C) No accommodation will be necessary.
D) I would prepare special music for Cindy using colors to represent each note. *

________________________________________________________________

9. What accommodations will be necessary for Rudy to succeed today?

A) No actual accommodations necessary since each class period begins with a discussion of the MIG and process to achieve it.**
B) Rudy will be invited to work in the Resource Room today during music because the amount of noise and distracting movements from other children will make learning nearly impossible for him.
C) Rudy will be invited to work alone today and facing a corner (all students face the wall to work so T. can easily assist students in need) to help him cope with the distractions.
D) Rudy will be placed in a group with students he typically works. This group will have written instructions (others will have verbal instructions). Written instructions will be step-by-step to accommodate Rudy’s needs.

________________________________________________________________

10. Consider the lesson you’ll be teaching Fros. Use your knowledge of the topic to be taught, the process used to teach the skill and content knowledge, and your knowledge of ADHD to anticipate points of challenge for Fros during the lesson. Which of the following is MOST LIKELY to pose the biggest risk for FROS to exhibit misbehavior during this lesson?

A) Because this is a lesson that involves movement, Fros is not likely to have any challenges.
B) The down time between reviewing the 2 pattern and teaching the 3 pattern will be the most likely transition problem in this lesson for Fros.
C) The most likely problem spots (there are 2) will be at the beginning and end of the lesson. **
D) Fros will struggle the most when the teacher works with each individual student to ensure all are conducting the correct pattern.

________________________________________________________________
Example C: Make Inferences from Given Data

MULTIPLE TYPES OF INFORMATION

11. Of the following items used in historical research, identify each as either Primary (P) or Secondary (S). Also identify as a Document (D), an Oral Record (O), or a Relic (R). (14 points)

<table>
<thead>
<tr>
<th>ITEM</th>
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<tbody>
<tr>
<td>A newspaper article summarizing the number of students scoring proficient or above in the ISAT test in an 11 district region.</td>
</tr>
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<td>The actual organ J.S. Bach played in 1741.</td>
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<td>An interview with Aaron Copland’s niece about the life and times of her uncle.</td>
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Example D: Make Inferences/Analyze Cause & Effect

**Variation**  One variation of the multiple-choice question is one in which a question is posed in which the answer is either yes or no, but a reason is attached to the yes or no response. The student must not only know whether the response is yes or no but also the reason behind it.

12. Do students who study Spanish generally do better in Language Arts (English) than students who study Latin?
   A  Yes, because they are more likely to see and hear Spanish words.
   B  Yes, because the Spanish language is so similar to ours.
   C  No, because many of our words are derived from Latin words.
   D  No, because the study of Latin requires more discipline.

Example E: Discriminate between fact and opinion

Another variation that links multiple-choice and true-false questions occurs when the student has to indicate whether each of the alternatives is true or false, or to mark those that are true (after evaluating each alternative). This is sometimes referred to as multiple true false. The item is structured like a multiple-choice item with a stem and multiple responses. In actuality, the student treats each item (A through E) as a forced choice question.

13. Which of the following are good assessment practices? Mark "G" beside each good practice, "P" beside each poor one.
   ____ A  assessments are matched to objectives
   ____ B  a variety of assessments are used
   ____ C  test items in the teacher's manual are ignored
   ____ D  assessments are administered frequently
   ____ E  grades are determined primarily on written tests

Example B³: Apply principles to new situation

Operant Conditioning: Place an “X” in the grid that matches the type of conditioning described.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Positive</th>
<th>Negative</th>
<th>Punishment</th>
<th>Extinction</th>
</tr>
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<tbody>
<tr>
<td>Rat presses bar in cage and receives a shock.</td>
<td></td>
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<tr>
<td>Rat presses bar in cage multiple times and nothing happens.</td>
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<tr>
<td>Rat is put in cage and gets a shock until bar is pressed.</td>
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<tr>
<td>Rat presses bar in cage and gets food or water.</td>
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