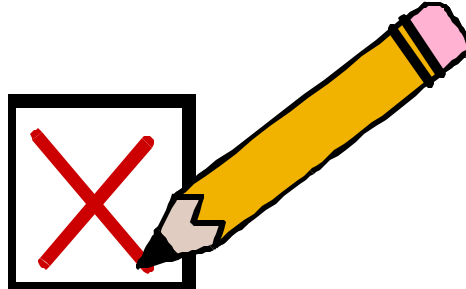


Objective Tests for On-Line Assessment



June 18 and 19, 2001
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Dr. Rice teaches courses on assessment in health professional higher education and conducts laboratories in objective structured clinical evaluation. She also regularly conducts workshops for professionals on how to develop case-based multiple choice questions for board examinations.

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Workshops

Day 1 Writing Objective Critical Thinking Examination Questions

Day 2 Creating On-Line Examinations

Objectives for sessions:

Design quality test questions at the higher cognitive levels

Create and critique multiple choice and matching questions

Design a short on-line quiz

Make testing decisions

- online vs. paper and pencil
- suggestions to minimize cheating
- test blueprinting
- administration
- providing feedback

Your Objectives.....



Multiple Choice Pre-Test

Instructions: For each item, circle the letter of the one best answer.

1. _____ The primary purpose of the stam is to remove the
 - a. carm
 - b. denton
 - c. menice
 - d. stambar

2. _____ Which of the following is/are most closely associated with the ABC agreement?
 - a. Stephen Douglass
 - b. Robert E. lee
 - c. Abraham Lincoln
 - d. All of the above

3. _____ Which of the following pairs has won the greatest number of Abby awards?
 - a. Jones and Smith
 - b. Smith and Taylor
 - c. Smith and White
 - d. White and Allen

4. _____ How many pounds of pressure is exerted by a Callam?
 - a. 2.6
 - b. 150
 - c. 260
 - d. 2600

5. _____ The stanon is aided by a
 - a. anstel
 - b. immon
 - c. octal
 - d. port

6. _____ The stanon frequently overheats because
 - a. all anstels are belious

- b. no immon is directly fectitious
 - c. ports are always actial
 - d. the octal is usually casable
7. _____Stamation normally occurs when the
- a. anstels rupture
 - b. immon falls and the denton is in place
 - c. octal rotates easily
 - d. ports pass over the carm

Guidelines for Designing Multiple Choice Questions

1. Choose _____ to test. Make sure that _____ indicate to the student what ideas might be tested and that the objectives, as much as feasible, indicate the way a concept will be tested. For example, if a student will be asked to list something in the test, the objective would indicate that students should be able to "list" Multiple choice questions often require "selecting" the best response or "recognizing".....
2. The **stem should present the problem** _____ consistent with precision and clarity. The stem should contain all the information essential to understanding the problem, but it should not be padded with superfluous material. Test your stem this way... Does it have a verb in it? Does it give enough information that an informed student could write the correct answer without looking at the choices? Is it longer than the answers?
3. Related to the above, the question should be designed to be able to be answered as _____ as possible by the knowledgeable test-taker. Designers will want to avoid unnecessary repetition of material in the options by including as much of the item as possible in the stem. In other words, do not repeat words in each option that could be put in the stem one time.
4. The test writer must be certain that there is **only** _____. When designing the question, write the correct response first and then the distractors. Writing the correct response first ensures that

adequate attention is given to formulating the one *correct* or clearly *best* answer for the question.

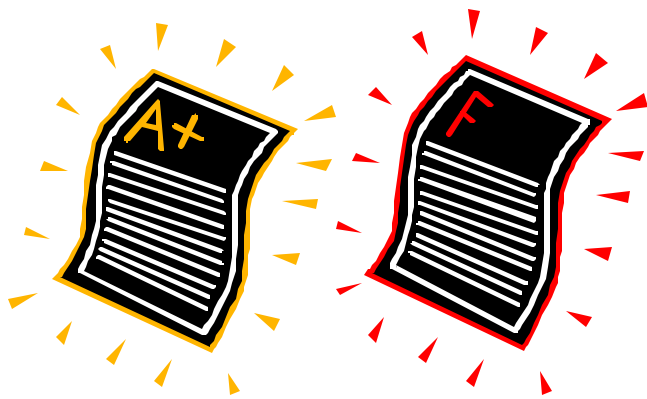
5. **Distractors must be** _____ or “less best” than the keyed correct or best response. Writing distractors is, for most test designers, the most challenging part of developing multiple choice items. The distractors must be plausible enough to attract the students who do not know the material very well. It is often difficult to come up with three or four reasonable distractors, but without appropriate incorrect responses, your item will not distinguish between students.

6. Follow rules of _____ when developing tests.
 - Use a blueprint to plan the test
 - Be _____, e.g., four options
 - Use proper _____
 - _____ like questions and/ or topics together
 - Make sure your test looks _____ / type / copying / white paper

7. Develop questions which test the _____, as well as those which ask simply for recall or simple understanding. Researchers have found that while most faculty think that they test at the higher cognitive levels at least one third of the time, analysis reveals that at fewer than 10% of the test questions go beyond knowledge and comprehension.

8. Avoid multiple answers e.g., “a,b,c” or “all but one” or “two of the above”. This is a lazy way to test and either helps unknowledgeable (but test-wise) students do well, or confuses the students who know a great deal. This method used to be used heavily in medical professions and even in board examinations, but is no longer recommended.

9. Avoid _____.



Clues to answers for multiple choice questions

1. Length clue

The longest answer is often the correct one because the writer has excessively qualified the information to ensure that it is correct. If the correct answer must be quite long, then instructors should attempt to make at least one of the incorrect options approximately the same length. They should also occasionally make an incorrect answer the longest option.

2. Verbal association clue

Avoid writing options in which a verbal association can be made between the stem and the correct option. Watch for a different form of a key word in only the correct answer and none of the distracters.

3. Grammatical clue

The options must complete a grammatically correct statement. If not, clues are provided to the right answer. For example, if the stem asks for a singular answer and all of the incorrect answers are plural, the student could correctly guess the answer to the question without knowing anything about the content of the question.

4. Specific qualifiers

Qualifiers or determiners are words, such as *always, all, or never*, which rarely show up in a correct answer, but are often found in distracters. On the other hand, *usually, rarely, sometimes, typically and maybe* are more likely to be found in the correct option. Wise test-takers can often guess a correct answer simply by looking for these qualifying or determining words.

5. Convergence

Convergence refers to the tendency of test designers to use the correct answer possibilities more frequently than the incorrect possibilities. Thus, the student can guess at the best answer simply by counting up the options that occur most frequently and selecting that response.

6. All of the above / none of the above

Research has shown that the option "all of the above" is the correct response 50-75% of the time. Whereas, "none of the above" is the best answer less than 10% of the time. If you need to use these options, the right answer at the above" the



10% of the time. If you need to try to make "none of the above" least 25% of the time and "all of right answer no more than 25% of

the time.

Guidelines for Developing Matching Questions

- Include only homogenous material in each matching item.

Do not include apples and oranges in matching items. In the example below, only types of test items and their characteristics are included. Authors and works could make up a homogenous item. Terms and definitions are often handled well in a matching question. Without homogeneity, all responses will not serve as plausible alternatives and the value of the question is seriously reduced.

- Keep the lists of items short and place the brief responses in the right column.

Try to keep the list of items short (less than 10) in order to save reading time and thus making it easier for the student to locate the answer.

- Use a larger or smaller number of responses than premises and permit the responses to be used more than once.

This results in the student having to make decisions down to the last choice and increases the complexity of the task, reducing the guess factor.

- Place the responses in alphabetical, numerical, or logical order.

The test taking task is simpler if we arrange items in a systematic order of some type. This makes the test taking job easier allowing students to concentrate on the content instead of being distracted by hunting for the answers.

- Specify in the directions the basis for matching and indicate that each response may be used once,

This will clarify the task for the students and prevent any misunderstanding. Take care, however, not to make the directions too long and involved.

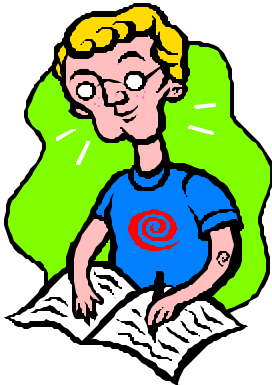
- Put all of the matching item on the same page.

Prevent the need for flipping pages back and forth, which greatly increases the distractions of the test taking process. This will also prevent students from overlooking responses on another page.

Matching Example Question

Instructions: Column A contains a list of characteristics of test items. On the line to the left of each statement, write the letter of the test item in Column B that best fits the statement. Each response in Column B may be used once, more than once or not at all.

Column A	Column B
(B) 1. Least useful for educational diagnosis	A. Multiple Choice Item B. True-False Item C. Short-Answer Item
(A) 2. Measures greatest variety of learning outcomes	
(C) 3. Most difficult to score objectively	
(B) 4. Provides the highest score by guessing	



On Line Testing

Options for the OnLine Exam

- Show detailed receipts
- Reveal correct answer
- Show feedback
- Allow anonymous
- Allow multiple attempts

Considerations for Online Examinations

- Administration
- Open Book / Closed Book
- Individual / Group
- Difficulty for Students
- Cognitive Functions Testing
- Testing in Psychomotor or Affective Domain



- Feedback