

UNDERSTANDING TEST PREPARATION AND APPLICATION OF MULTIPLE CHOICE (MC) AND CRITICAL THINKING (CT) QUESTIONS

GOAL

1. Create effective multiple-choice (MC) tests.
2. Create effective questions that elicit application/critical thinking (CT) responses.
3. Apply use of tests in varied educational and facility/organizational situations.
4. Evaluate testing outcomes to increase the validity and reliability of existing questions.

KEY WORDS FOR APPLICATION

1. Theory of Multiple-Choice (MC) Questions
2. Recall Questions
3. Critical Thinking (CT) Questions
4. Introductory Statement
5. Distractors
6. Options
7. General Rules for Writing Multiple Choice (MC) Questions
8. Use of Multiple Choice (MC) Questions

NOTE: HEREAFTER IN THIS DOCUMENT, “MC” WILL BE USED FOR THE WORDS MULTIPLE CHOICE AND “CT” WILL BE USED FOR THE WORDS CRITICAL THINKING

Regardless of a person’s profession, there is a body of knowledge related to expected leadership behaviors. Out of necessity, there will need to be a process to determine the understanding of principles and concepts that provide knowledge and/or ability to perform expected behaviors. Testing and validation of this required information and principles (in some way) should occur, almost, on a daily basis.

The following information and concepts of testing are for all leaders in every field of endeavor for at least the purpose of:

1. Determining understanding of policies/rules
2. Comparing of test pre-lecture with post-lecture understanding
3. Understanding and application of presented information

METHODS OF LEARNING

Two of the most viable means of testing using MC questions are:

1. Testing *recall* either verbally or in writing is a relatively quick way to determine understanding. It is often used for reinforcing of acquired information.
2. Testing of *ability to apply* by using CT (not a simple recall question) is a relatively active dynamic process that encourages problem-solving through the exchange of ideas. It is very effective when working with groups.

For example, it is fun to have students come to class after receiving verbal information or assigned reading and have them present to the group their own MC questions to encourage critical thinking by the group as they (the group) determine the best/correct answer. This requires active involvement to decide, defend, and present rationale for their answers to any type of question. (Is there any better way to determine a future leader than to watch his/her interaction with others during a CT debate? I think not!!)

WRITING MULTIPLE CHOICE (MC) QUESTIONS

Many professions use the MC question to measure either *recall* of information provided or the ability to *critically think* and apply information/theory. In order for any MC question to be mutually understood as to its framework, there is some common language regarding the make-up of a MC question that should be followed.

*The shared language of MC questions related to the ability to use *recall* involves:

1. An introductory statement requiring the selection of the best/correct/right answer from the options provided. This statement (one of the three choices—best, correct, or right) provides necessary direction for the test-taker.
2. Distractors—the possible answers provided in the list of choices of a question that are *not* correct
3. Options—all of the available answers

*The shared language of CT questions related to the ability to use *application* involves:

A requirement of the tester for the students/employees to discuss the reasons or degree *each* answer option is correct, right, or wrong. It requires justification for each optional answer.

The general rules for writing MC questions—recall or CT questions:

1. Use simple clear language to help thwart misinterpretation
2. Use simple sentence structure and precise wording—no trick questions
3. Place the majority of the words in the question/beginning introductory statement
4. Make the distractors plausible but not completely accurate according to the question
5. Make the length of the options approximately the same length or make one-half of the answers short and the other one-half of the answers long
6. Do not use negative words, such as not, nor, un (as a prefix) etc.
7. Mix up the order of the correct answers so that there is no consistent placement of answers in the questions
8. Make the number of options 4 or 5 in number for each question
9. Try not to use as one of the options the statement of “all of the above” or “none of the above.
10. Of course, the tester should know the answer that is considered to be best/correct/right answer (according to the directions). Know WHY you have determined it to be the expected answer!

Examples

MC EXAMPLES (remember there are two kinds—recall and application/critical thinking)

MC—*Recall question is a part of a sentence that requires a completion of a sentence:*

Directions: Select the BEST answer.

Bread is *mostly* made of:

- A. Salt
- B. Water
- C. Flour
- D. Yeast

(Answer is C—all other answers are considered “distractors.”)

(This recall question can be made into an application/CT question if you require the students/employees to present the rationale for why they did or did not use each option).

MC—*Application/CT question is a sentence that is a question and ends in a question mark. Thereby, the need to use application principles are required to answer the question:*

Directions: Select the BEST answer and EXPLAIN verbally in class your reasoning regarding the correctness/incorrectness of each option.

Your presentation on how to bake bread would most likely include what kind of information?

- A. Use salt and mix it with the water and then stir to a paste. Bake at 450 degrees.
- B. Use water, butter, salt, flour, and yeast and mix well. Let rise. Bake at 400 degrees.
- C. Use milk, yogurt, salt, and rye flour and cook on a stove burner for 2 minutes. Let cool.
- D. Use tea water, oatmeal, and yogurt to make a thick paste. Knead. Do not bake.

(Answer is B—all other answers are considered “distractors.”)

NON-MC EXAMPLES (These are questions that *by themselves* with no multiple choice options.)

Directions: Write your answer to the following:

I have been making bread for 21 years and I still have times when the outcomes are different. Sometimes the bread is flat, sometimes full of holes, and sometimes it doesn't rise. What do you think the problem might be with my process of making my bread?

YOUR NON-MC RECALL AND CRITICAL THINKING QUESTIONS:

1. State a MC question that is a recall question
2. State a MC application question
3. State a non-MC question
4. What kind of questioning best suits your needs in your situation? Why?
5. Recall at least 5 general rules for writing MC questions
6. What are the advantages of using CT questions?