

Designing Multiple Choice Questions

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Parts of a Multiple Choice Question

A traditional multiple choice question (or item) is one in which a student chooses one answer from a number of choices supplied. A multiple choice question consists of

1. A **stem** - the text of the question
2. The **key** - the correct answer in the list of options
3. **Distracters** - the incorrect answers in the list of options

Getting Started

Consider the learning outcomes for your course. Write MCQ questions that assess at the appropriate degree of complexity.

Write questions throughout the term. Effective multiple-choice questions are challenging and time-consuming to create. Make an effort to write a few questions each week when the course material is still fresh in your mind.

Instruct students to select the “best answer” rather than the “correct answer”. By doing this, you acknowledge the fact that the distracters may have an element of truth to them and discourage arguments from students who may argue that their answer is correct as well.

Use clear, unambiguous and familiar language. Avoid using unfamiliar expressions, unnecessarily elevated language or jargon.

Avoid giving verbal association clues from the stem in the key. If the key uses words that are very similar to words found in the stem, students are more likely to pick it as the correct answer.

Avoid trick questions. Questions should be designed so that students who know the material can find the correct answer.

Avoid negative wording. Students often fail to observe negative wording and it can confuse them. As a result, students who are familiar with the material often make mistakes on negatively worded questions. In general, avoid having any negatives in the stem or the options. In the rare cases where you use negatives be sure to emphasize the key words by putting them in UPPER CASE, and **bolding** or underlining them.

Excerpted from “Designing Multiple-choice Questions,” University of Waterloo
http://cte.uwaterloo.ca/teaching_resources/tips/designing_multiple_choice_questions.html

Writing Stems

Express the full problem in the stem. When creating the item, ask yourself if the students would be able to answer the question without looking at the options. This makes the purpose of the question clear.

Put all relevant material in the stem. Do not repeat in each of the alternatives information that can be included in the stem. This makes options easier to read and understand, and makes it easier for students to answer the question quickly.

Writing Answers

Answer options should be about the same length and parallel in grammatical structure. Too much detail or different grammatical structure can give the answer away.

Limit the number of answer options. Research shows that three-choice items are about as effective as four-choice items. Four choice items are the most popular, and never give more than five alternatives.

Distracters should all be plausible. If you can, include among the distracters options that contain common errors. This will improve the validity and reliability of your test.

Avoid use of:

- **Extreme words** like "all," "always" and "never" (generally a wrong answer).
- **Vague words** or phrases like "usually," "typically" and "maybe" (generally a correct answer).
- **"All of the above"** - eliminating one distracter immediately eliminates this, too.
- **"None of the above"** - use only when the correct answer can be absolutely correct, such as in math, grammar, historical dates, geography, etc.

Suggestions for Writing MCQs Which Measure Higher Objectives

Present practical or real-world situations to the students. Items can be written which call for the application of principles to the solution of these practical problems, or the evaluation of several alternative procedures.

Use charts, tables or figures that require interpretation.

Present actual quotations taken from newspapers or other published sources or contrived quotations that could have come from such sources. Ask for the attribution, interpretation or evaluation of these quotations.