

Using multiple-choice questions for assessment

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Rose Hipkins (2006)

Multiple-choice questions provide a number of options from which students select the best answer. The format of a multiple-choice question consists of two parts:

- The stem, which is the introductory question, or an incomplete statement;
- The options, consisting of the correct answer, and the incorrect answers (distractors).

Often a number of multiple-choice questions are grouped together to form a test.

When to use

They can be used to assess students' ability to:

- recall information;
- interpret graphs and diagrams;
- understand concepts;
- discriminate between fact and opinion;
- make inferences from data; and
- solve problems.

They assess students' ability to recognise a correct answer, rather than to construct an answer.

The theory

The options should provide plausible alternatives to the correct answer. Research into students' commonly held alternative understandings or responses provides a starting point for designing relevant distractors.

How the strategy works

Well-designed distractors provide alternatives that identify particular misconceptions. Providing a number of alternatives may scaffold the students' thinking.

Advantages of this strategy are:

- Writing is not a barrier;
- It is quick and easy to administer and mark;
- Marking is objective;
- Inter-marker reliability is maximised;
- It allows assessment to cover a broad range of concepts;
- Well-constructed items can be used for determining misconceptions.

What to do

- Identify the objective of the assessment. If the response is better measured by the student doing something, choose a different assessment strategy.
- Write the stem, either as a question or an incomplete statement. It should be written clearly and concisely, and contain as much of the relevant information as possible.
- Include any language in the stem that you would have to repeat in each answer option.
- Write distractors that are credible. It is better to provide less options than have obviously wrong alternatives. Providing they are credible, the more distractors, the less likely students can guess the correct answer.
- Make sure that the options are grammatically consistent with the stem.
- Check that there are no clues to the right answer.

- Avoid using keywords in the options.
- Avoid the use of words such as never, always, all, and only.
- Check only one correct answer is provided.
- Set out neatly. Put each option on a separate line.
- Make sure the correct answer is randomly placed. Some people tend to place the correct answer in the middle.
- Keep vocabulary and sentence construction as simple as possible.
- Avoid double negatives.

Limitations

- Writing effective multiple-choice questions is difficult and time-consuming.
- The amount of reading required may be a barrier for some students.
- Vocabulary and sentence structure can be a barrier, particularly to ESOL students.
- Multiple-choice questions do not give information about **why** a particular response has been selected.
- Multiple-choice questions do not evaluate performance.

Adapting the strategy

If you want to find out more about what students are thinking:

- Ask students to tell you why they chose that answer;
- Have students work in small groups to decide on the best answer, and justify their decision;
- Adapt a traditional multiple-choice question to a Predict, Observe, Explain (POE) or Using concept cartoons for assessment or a group discussion.

Reference

Burton, S., Sudweeks, R., Merrill, P., and Wood, B. (1991). *How to prepare better multiple-choice test items: Guidelines for university faculty*. Brigham Young University Testing Services and the Department of Instructional Science.

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