

## Designing Multiple-Choice Questions



### General Strategies

- **Write questions throughout the term.** – Creating many questions at one time takes a lot of energy and can reduce the quality of each question created.
- **Instruct students to select the “best answer” rather than the “correct answer”.** – If two answers aren’t quite similar then accuracy of knowledge is not being fully tested.
- **Avoid trick questions.** – Answers should not be designed to purposefully draw in students. Answers should be similar, but easily distinguishable by a student who has the correct knowledge.
- **Use familiar language.** – Careful not to introduce new terminology or describe content differently than was presented in class.
- **Avoid giving verbal association clues from the stem in the key.** – Effective paraphrasing reduces the chance that a student can connect to an answer from similarities in terminology.
- **Avoid negative wording.** 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.

### Designing Stems

- **Express the full problem in the stem.** – a simple test for this is to ask yourself if the student could answer the question without prompting from the answers.
- **Do not repeat information in answers.** – Put all relevant information in the stem.
- **Eliminate excessive wording and irrelevant information from the stem.** – Aim for conciseness to avoid confusing or misleading test-takers.

### Designing Alternatives

- **Limit the number of alternatives.** “Use between three and five alternatives per question. Research shows that three-choice items are about as effective as four or five-choice items, mainly because it is difficult to come up with plausible distractors.”

- **Make sure there is only one best answer.** Similarity in answers is needed but avoid questions where one question is 'more right' than another.
- **Make the distractors appealing and plausible.** "When testing for recognition of key terms and ideas keep the distractors similar in length and type of language as the correct solution. When testing conceptual understanding, distractors should represent common mistakes made by students."
- **Make the choices grammatically consistent with the stem.**
- **Place the choices in some meaningful order.** Put answers in a logical order if possible, i.e. most to least, highest to lowest, *etc.*
- **Randomly distribute the correct response.**
- **Avoid using "all of the above".** If a student knows two of the answers then it will be easy to guess 'All of the above' and if they know one answer is wrong, it will help eliminate two choices.
- **Avoid using "none of the above".** – This only tests that the student knows the choices are wrong, but does not indicate they know the correct one.
- **Refrain from using words such as always, never, all, or none.**
- **Avoid overlapping choices.** "It should never be the case that if one of the distractors is true, another distractor must be true as well."
- **Avoid questions of the form "Which of the following statements is correct?"** – True/False questions instead provide a more direct path to the same student knowledge.

*Adapted from:*

University of Waterloo. (2017, June 27). *Designing multiple-choice questions*. Centre for Teaching Excellence. <https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching-tips/developing-assignments/assignment-design/designing-multiple-choice-questions>