

Guidance on Using Multiple Choice Questions (MCQ) in Assessment

1. Decisions about the use of MCQs are always a matter of judgement as to whether their properties suit the assessment circumstances and purposes.
2. The two main types of question are 'True/False' and 'one best answer' (the latter usually simply called MCQ in the UK). The former type has many formats including single statements that have to be marked T or F and a multiple or cluster type with a stem and several possible responses, each of which has to be marked T/F. The MCQ type consists of a stem and options, usually five, of which, usually, one is the correct answer and the other distracters. Answers can be in words, numbers, diagrams, solutions etc., as appropriate to the discipline.

Strengths	Weaknesses
Easily marked, e.g. optical scanning	Very hard to set well
Good for testing factual knowledge	Less good/ not effective for higher order thinking skills, and reasoning cannot be seen
Can test a large part of a factual syllabus	Danger of guessing (single T/F type questions are particularly discouraged for this reason)
Can be run on-line, avoiding the need for paper altogether – but for summative purposes all the class needs to do at same time, unless you have a validated bank of 'equal' questions to draw on. The medium may have an impact on	Female students have been shown to be less prone to taking assessment risks than male – so they may be less likely to guess and therefore be disadvantaged vis-à-vis male students.
Once questions are developed MCQs should save time and	Danger of assessing that which is easy to assess, not that which is important to assess
Can be used formatively, including for diagnostic testing, and summatively	Can encourage a surface approach to learning

3. The more important the assessment in which they are used then the more important having good psychometric properties becomes. For an important examination all test items should have been piloted and any that caused problems rejected. It is common to build large banks of questions that have been piloted and can be drawn on as needed, enabling a change of questions from one exam to another, for example.
4. Pointers about using MCQs:
 - The question bank (set) needs good psychometric properties (especially reliability).
 - Make sure the content of the question is important and relevant.
 - Use stems and options that are unambiguous and each contain only one idea.
 - Be very careful that any T/F items are unequivocally either true or false.
 - Avoid negative statements.

- Construct plausible distracters e.g. likely errors and using an appropriate part of speech so that the correct answer does not draw attention to itself.
- Do not use 'all of the above' or 'none of the above' as possible answers.
- From question to question, distribute the correct answer among the lettered responses.
- Negative marking, i.e. trying to penalise guessing, is a contentious matter with divided evidence; on balance (and fashion) the evidence appears to be against using negative marking.
- Consider asking students to indicate their level of confidence in each answer. This gives them very useful formative information. (The School of Medicine has collaborated with UCL in using this approach and may be able to advise further.)
- Consider subject matter, level of module and intended student outcomes in the decision about whether or not MCQs are a suitable form of assessment.
- Remind students to attempt to answer every question and to pace their work so that they reach the end of the test paper.
- Consider carefully what you judge a suitable pass mark to be. This may be quite different from how it is finally represented in terms of the marking scheme bands. If you are testing key, basic knowledge 40% may be too low a mark.

5. Useful references:

- 5.1. <http://www.nbme.org/about/itemwriting.asp> (from the States and medical education, but very useful about formats)
- 5.2. John Heywood (2000), *Assessment in Higher Education*; Jessica Kingsley Publishers, London. Pages 350-372, include guidance about various psychometric properties of MCQs and how to calculate and deal with them.

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