

MCQ Tips [HPEC Fast Facts]

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HPEC Fast Facts

Writing exam questions is a skilled task for educators, as it can be difficult to craft high quality questions that accurately reflect the course learning outcomes.

For the final Fast Facts of 2018, we focus on tips from the research around one of the most popular forms of assessment, the multiple choice question (MCQ) exam.

Jenny Moffett

Editor, HPEC Fast Facts

Fast Facts: Writing MCQs



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- *MCQ exams are a popular form of assessment in health professions education*
 - *Good MCQ exams can be valid and reliable, but only if the individual items are well written*
 - *MCQ items can be hard to write with up to 92% having one or more flaws*

- *Simple tips to improve item quality can be applied*
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Multiple-choice questions (MCQs) have a number of methodological strengths, and provide educators with a tried-and-tested way to differentiate between students who understand the course material and those who do not. However, they must be written carefully to support valid and reliable assessment. Good MCQ exams accurately reflect the course learning outcomes and include questions which address higher order thinking (e.g. analysis, evaluation) as well as simple recall.

Research has shown that many examination items in health professions exams (up to 92% in some studies) can be poorly written and contain at least one flaw ([Rush et al., 2016](#); [Tarrant et al., 2016](#); [Hijji, 2017](#)). It's also been demonstrated that flawed items can disadvantage specific groups of students ([Downing, 2003](#); [Tarrant and Ware, 2008](#)).

Many flaws can be avoided by following some simple steps (see Quick MCQ Checklist image). As you write each item, consider how it fits alongside the rest of the course material? Having a process to cover important topics, i.e. "[blueprinting](#)", can help you to ensure that you are staying on track.

Also consider each constituent part of your items. The most common type of MCQ is the "single best answer" question, which has three parts: a stem, a lead in and a list of options (which include the correct answer and a list of distractors). Taken together, a good stem and lead in tend to be short, clearly written and pose a question that can be answered without looking at the options. Ask yourself if your items pass the "cover test" i.e. can you cover the options with your hand and still answer the question? Also, if you keep your questions as linguistically simple as possible, without "dumbing down" your content, this helps to ensure the question is testing health professions knowledge, or knowledge application, rather than language skills.

In constructing your list of options, aim for plausible, homogeneous distractors, which do not contain grammatical clues. Avoid convergence, e.g. the repetition of key words, which can cue [test-wise students](#). It's also important to avoid distractors such as "none of the above" and "all of the above" as many students will easily eliminate these.

Finally, remember that MCQ exam data can give you valuable information about the strengths and weaknesses of your current teaching approach. The [RCSI Quality Enhancement Office](#) can provide advice and support to help you develop your module further.

Useful resources

- [Boland, R. J., Lester, N. A., & Williams, E. \(2010\). Writing multiple-choice questions. *Academic Psychiatry*, 34\(4\), 310-316.](#)
- [Collins, J. \(2006\). Education techniques for lifelong learning: writing multiple-choice questions for continuing medical education activities and self-assessment modules. *Radiographics: a review publication of the Radiological Society of North America, Inc*, 26\(2\), 543-551.](#)
- [Dell, K. A., & Wantuch, G. A. \(2017\). How-to-guide for writing multiple choice questions for the pharmacy instructor. *Currents in Pharmacy Teaching and Learning*, 9\(1\), 137-144.](#)
- [Kennedy, C. \(2013\). Method of the Month: Multiple Choice Questions. *MedEd World*](#)
- [Paniagua, M. & Swygert, K. eds. \(2018\). Constructing Written Test Questions For the Basic and Clinical Sciences. 4th edition. NBME. Philadelphia: PA.](#)

Podcast: [Learning and assessing with multiple-choice questions](#)

Video: [Writing good multiple choice questions \(RSNA\)](#)

Where can I find out more?



For more information about RCSI's HPEC (Health Professions Education Centre) and its activities, please visit our [website](#).

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