

A Guide to using Multiple Choice Questions and other Objective Test Questions

With the increase in the use of the Learning Management System (LMS) at La Trobe University, more staff are using quizzes, diagnostically, formatively and summatively to assess student learning. These quizzes are most often in the form of multiple choice questions (MCQs) or some form of objective test. However, it is often difficult and time consuming to write questions which address adequately the learning outcomes we want to assess.

This brief guide provides an outline for writing multiple choice questions. It gives some guiding principles about

- [the types of objective tests questions](#)
- [the terminology of MCQs](#)
- [using objective test questions as an assessment tool](#)
- [writing objective test questions](#)
- [scoring objective test questions](#)
- [feedback](#)
- [some of the issues surrounding their use](#)

This guide should be read in conjunction with other documents outlining assessment practices, such as developing rubrics for assessment tasks and the policy and procedures for assessment at La Trobe University.

A bibliography is appended to this guide for those wishing to find more detailed information about and examples of MCQs and other objective tests.

<p>What types of objective test questions are there?</p>	<p>There are many forms objective test questions can take:</p> <ul style="list-style-type: none"> • Multiple response options (MCQs) • True/false • Matching • Cloze – fill in the gap <p>For more detail see The Computer Assisted Assessment Centre's page at http://www.caacentre.ac.uk/resources/objective_tests/index.shtml</p>
<p>What terms are used when designing MCQs?</p>	<p>In order for us to discuss the development of MCQs, it is helpful to have a shared understanding of the terms most often used.</p> <p>STEM: How many campuses does La Trobe University have?</p> <p>a. 5 <input type="text"/></p> <p>b. 4 OPTIONS <input type="text"/></p> <p>c. 7 <input type="text"/></p> <p>Wrong answers DISTRACTERS Correct Answer – KEY (C. 7)</p> <p>The whole question is called an ITEM.</p>

<p>Why would I choose to use objective tests?</p>	<p>MCQs may be used for diagnostic assessment. That is, when beginning a new topic in the subject, we may give a short quiz to inform us about students' knowledge and understanding of the area. With this information, we can then engage students in learning at an appropriate level and design relevant learning activities for them. In any subject, it is the intended learning outcomes (ILOs) that are assessed, both formatively and summatively. In designing assessment tasks, we should start with the question about what form of assessment would best assess the learning outcomes. This is the question we need to ask before using objective tests. Are they the best way to test the learning outcomes I want to assess? If we consider it appropriate in a summative examination, then formative assessment and practice answering such questions may be provided for students in the LMS during the semester.</p> <p>MCQs, in theory, can be designed to test most of the Biggs's SOLO levels, or Bloom's Taxonomy of cognitive levels. In reality, it is very difficult to devise MCQ items at the higher end of the cognitive levels. For more detailed information and examples of Bloom and MCQs, see the University of Leicester's site at http://www.le.ac.uk/castle/resources/mcqman/mcqappc.html</p> <p>When designing items you should ask yourself which of the following levels your ILO addresses and design the item to fit.</p> <ol style="list-style-type: none"> 1. Remembering: Test of fact, basic concepts, recall of specific information Key words: What, select, where.... This is the simplest item to devise 2. Understanding: Test of understanding - more than recall, advanced concepts Key words: Why, how, when. 3. Applying: applies knowledge in a new relevant situation/context Key words: Choose, select, identify, which, what.... These can be scenario or case questions. 4. Analysing: Tests ability to make a judgement on the basis of information presented Key words: Decide, determine, evaluate, recommend, interpret, prioritise, confirm. These also can be scenario or case questions. 5. Evaluating: Tests ability to come to a conclusion given information presented Keywords: choose, conclude, decide, determine, evaluate, judge, rate, assess, value, estimate.

<p>How do I write objective test items?</p>	<p>Before writing, ensure that</p> <ul style="list-style-type: none"> • the MCQ format suits the purpose for assessment • each item matches with one or more ILOs for the subject • you use clear, direct and simple language <p>In writing stems, ensure that they</p> <ul style="list-style-type: none"> • are clear and unambiguous and so do not rely on high level comprehension skills just to understand the question • have only relevant text • do not use negatives if at all possible • have as much of the question as possible, so it is not duplicated in the options. It is a good idea to write stems as full sentences. <p>In writing the options and the distracters, ensure</p> <ul style="list-style-type: none"> • there is only one correct answer • the distracters are credible but not too close to the correct answer to be confusing • to avoid 'all are correct' 'none is correct' choices • they are culturally appropriate • they are research/evidence-based, representing typical misconceptions, preconceptions, or wrong answers.
<p>How do I score objective tests?</p>	<p>As with all other assessment tasks, a criteria and standards rubric should be provided to students.</p> <p>The most common way to score a MCQ test is to assign one mark per item. Incorrect responses and those items left blank score no marks.</p> <p>Some staff are concerned that MCQ can reward guessing by the student. This can be negated by</p> <ul style="list-style-type: none"> • ensuring MCQ is only one type of assessment task in the subject • raising the pass mark for the MCQ test • negative marking (not recommended – see University of Queensland's resource at http://www.tedi.uq.edu.au/downloads/quickbites/MCQ_Quickbite%20Aug07.doc)
<p>How do I give feedback to students?</p>	<p>Using the LMS quiz tool provides a very useful way of giving automatic feedback to students, especially when using it as formative assessment. An explanation as to the reasons why an option is correct or incorrect can be a powerful learning tool for students, if it is correctly constructed. However, feedback responses are also difficult and time consuming to write.</p>

<p>What are some issues in using objective tests?</p>	<p>Some of the issues identified with MCQs and other objective tests include:</p> <ul style="list-style-type: none"> • difficulty in developing appropriate questions • time taken to develop questions • their use in assessing deep learning outcomes • providing useful feedback to students • testing them before implementation to ensure validity and reliability
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McKenna C and Bull J (1999) [Designing effective objective test questions: an introductory workshop](#) Retrieved 2 September, 2008, from http://www.caacentre.ac.uk/resources/objective_tests/index.shtml (the CAA Centre's useful guide to question design, with examples of tested questions demonstrating alternative formats)

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