Writing multiple choice questions (MCQs)

MCQs should test the anticipated learning outcomes. This will ensure that students/learners are tested on the content of the course.

A good MCQ requires the learner to demonstrate a thorough understanding of ideas and their application. Often MCQs fail to dig deep enough to probe the learning which has taken place and focus instead on recall, asking the learner to simply remember something they have read or heard.

When designing MCQs, Bloom’s Taxonomy proves a useful guide to ensuring the questions are as thorough as possible. Bloom’s Taxonomy of Learning is a respected educational hierarchy of tasks, from the lowest to highest levels of learning.

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<tr>
<th>Level</th>
<th>Description</th>
<th>Definition</th>
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<tr>
<td>One</td>
<td>Recall</td>
<td>List, identify, locate, describe or define.</td>
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<tr>
<td>Two</td>
<td>Understanding</td>
<td>Interpret, summarise, explain or infer.</td>
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<td>Three</td>
<td>Application</td>
<td>Use, apply, solve or calculate.</td>
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<td>Four</td>
<td>Creation, evaluation and analysis</td>
<td>Plan, invent, judge, criticise or defend.</td>
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You should try to include as many questions at level three as possible and avoid, or limit, the number of level one questions. Depending on the course and content, it may be possible to include level four questions, potentially relating to specific case studies or more detailed questions.

Examples

Below are examples of MCQs which match each level of Bloom’s Taxonomy.

Level one/two - Allows the learner to demonstrate a clear understanding of a concept

Q: What is the precautionary principle? (incorrect)

A: We should interrogate evidence to make sure it is fully impartial before we act. (incorrect)
A: We only need a majority concern and sound supporting evidence before we act. (correct)

We must wait until we have a largely undisputed evidence base before we act. (incorrect)

Strengths of this question: The choices all seem similar so the learner needs to review the question in more detail and apply understanding. The choices are all plausible and logically related to precaution, so it is less easy to guess.

Level two – Learners infer concepts from a situation

Q: The 1997 Kyoto Protocol was signed by 87 countries, who committed to reduce emissions thought to cause climate change. Which course concept might have led them to do this?

A: Coasian bargaining

A: Precautionary principle (correct)

A: The nature of values

Strengths of this question: The learner must understand all three options, and extract the correct one from the situation.

Level three – Learners apply concepts to a situation

Q: Lake Vega is becoming polluted due to run off from a local factory. The lake is used for fishing. What actions should the local council take if they are using the precautionary principle?

A: Ensure release sites are located so the pollution remains within legal levels in fishing areas.

A: Test the water to see if pollution is causing issues in the environment or local economy.

A: Ban chemical release and clean up existing damage to local fish breeding sites. (correct)

Strengths of this question: The learner must extend their understanding definition to relate it to real scenarios.
Feedback

Feedback is very important in MCQ writing. For all types of questions, feedback should explain what is correct and incorrect, and how it can be improved.

If the question is formative, i.e. it is designed to check understanding and be part of the teaching process, then the feedback should affect what the student does next.

If the question is summative, i.e. it is meant to assess understanding, then it should show the learner’s success.

Correct answer feedback

Do not merely paraphrase the option they have selected or say: “well done”. If the learner knows the answer then they understand that aspect; now their understanding should be extended further with additional detail or links.

Correct: This new material fundamentally alters the emphasis of the main plot of The Comedy of Errors, by turning attention to the re-unification of the family.

We will return to this theme at the end of the play. You may want to consider what differences to the comic tone Shakespeare’s addition of this romance frame makes to the main Plautine plot.

See Tony Tanner, Prefaces to Shakespeare, in the reading list to learn more.

Incorrect answer feedback – attempts remaining

This is a key teaching step. The learner has demonstrated that they do not understand something. Therefore, the feedback should correct their misunderstanding.

1. Explain why the answer is wrong and highlight why they may have misinterpreted the question to select that answer.
2. Support them by providing additional information or background.
3. Refer the learner back to course information that will help them.
Be careful to avoid directly signposting the correct answer in feedback for questions as this may invalidate any assessment results.

Incorrect – try again. Shakespeare does give more prominence to the character of Adriana, the wife (Plautus does not even give his equivalent character a name), but he does not draw on romance elements to achieve this. Rather he develops hints from Roman New Comedy stagecraft. See Colin Burrow, *Shakespeare and Classical Antiquity*, for more discussion. Have a look back at the discussion in section 1 of the unit, particularly the details about quest elements.

**Incorrect answer feedback – final answer**

Identify and explain the correct answer. You should include summary details of why the other answers are wrong. Refer the learner back to relevant information.