Colab workshop

# The limitation/s of multiple choice questions is/are:

* Negative marking
* Scoring is quick and reliable
* Writing style cannot be tested
* Guessing
* None of the above

# How can the power of an MCQ be increased?

* By integrating it into the curriculum
* By administering it as an open-book exam
* By using questions from a pre-validated question bank
* Providing automated feedback
* None of the above

Nicol explains that the power of an MCQ test increases not only by improving its construction but also by locating it the appropriate context i.e. learning design. Integrating MCQ tests into the curriculum (eg. linking it to topics, staging them through the module) and learning activities (eg. follow-up classroom or online discussions, peer learning) provides more opportunities for learners to understand the MCQ topic. An open-book MCQ exam does away with the pressure to memorise and learn by rote and frees up the student to engage more deeply with the course material. While validated questions are more reliable and valid, they are more suited to summative tests and do not necessarily increase the power of a formative MCQ with respect to deep learning. The immediate, automated feedback and hints provided in online MCQs are examples of high-quality, specific feedback that help learners become self-regulating and independent. The teacher-led or peer-to-peer discussion that follows in the classroom encourage further dialogue resulting in deep learning.

# The single most important element of an MCQ test is the:

* Scoring
* Feedback
* Clear, unambiguous wording
* Technology
* None of the above

While all these factors are important considerations, it is the design of the MCQ that is key. Read the Discussion section of Nicol’s article for a fuller discussion. Feel free to post your thoughts, comments and questions in the MCQ discussion forum.

# How can we facilitate deep learning?

Confidence-based marking

Offering hints rather than solutions to students when it comes to problem-solving

Posing questions on confusing topics

Weighting the score a student receives in an MCQ and counting it towards the final grade

None of the above

Confidence-based marking where the test-taker has to rate her/his confidence with respect to the option she/he has chosen does require the learner to think more deeply about the question and the options, especially if a higher confidence level on an incorrect option carries negative marking (see case study 2 in Nicol). Hints can be used as a form of intermediate feedback to get students on the right track before making the answers available. This results in learners re-evaluating their choice in light of the new information (hint), thereby engaging at a deeper level. Questioning and probing techniques can be used to identify areas of confusion and clarify them, thereby enabling students to develop a deep understanding of the topic. Counting the score in an MCQ towards a summative assessment incentivises getting it right rather than understanding it, consequently resulting in the learner adopting a strategic approach to learning.

1. Aly is a technophile and always one of the first in her department to use the latest learning technology. Last term she taught descriptive statistics using formative MCQs to a final-year undergraduate class of 56 students from different majors. She didn’t know their academic backgrounds, but did not want to spend too much time going over basics. She used an MCQ quiz for these reasons. Please tick the reasons with which you agree.

* Students can complete the MCQ quiz before class saving precious classroom time
* A quantitative subject like statistics lends itself well to MCQs
* Students can discuss their answers in groups during the class
* It can be repurposed as an exam revision aid
* None of the above

Discuss Aly’s use of MCQs in her teaching – what are the strengths of this activity, what could be improved?

* Not thought much about design, how it fits in with the learners’ needs, etc.
* Take it multiple times, not too frequently though. It is not suited to all topics and questions. You don’t want to lose the novelty value (about three-four times in a sem)
* Discussion fora
* No feedback
* Diagnostic
* Perhaps use it for more complex topics – inferential stats?

In the second case study, Gardner-Medwin uses MCQs in a medical programme. He could increase the power of the MCQs by:

* Linking it to just-in-time teaching
* Removing negative marking
* Combining it with a peer discussion activity
* None of the above

<http://www.nairtl.ie/documents/EPub_2012Proceedings.pdf#page=23> – Sixth conference on threshold concepts - NAIRTL

<http://www.ee.ucl.ac.uk/~mflanaga/thresholds.html> - threshold concepts literature links