KEEP CALM AND KEEP MARKING

Using Moodle Quiz in summative assessments for large classes
A case study from Biology & Biochemistry
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> All summative quizzes should be designed with the principle that any online assessment activities presented to students should be reliable, fair, accurate, secure and subject to good practice.

Why we did it
- To provide instant feedback to students (marks)
- To reduce marking time to zero!
- To ensure breadth of learning (no question-spotting and strategic learning of select topics by students)

Unit context
- BB10006 - first year unit with a class size of 264 students (2014-15), taught by 4 academic staff
- Traditionally assessed using essay-type assessments (75%) and hard-copy multiple-choice/short answers (25%) in the same exam
- Time spent marking exam scripts was approximately 5-7 min per script (25-35 hr)
- Feedback to students (essentially marks) took at least 2-3 weeks

How we did it
- Created a Moodle Quiz bank of questions to replace exam essays. This took the most time (creating questions from scratch, but well worth it!!). PhD /MSc/final year students could potentially be used to create the draft questions, before final approval by academic
- Two question banks were created (**formative and summative**) as separate sections on the Unit Moodle page. Assessment time was consistent (students attempted 48 questions in 60 min). The formative quiz was opened to students 3 weeks in advance of the exam and closed 24 hr before the final exam. This is to ensure that
    - Students are familiar with the assessment format and the technology being used prior to any summative e-assessment
    - the assessment provides a valid and reliable measure of the student's achievement of specific outcomes
    - any technical issues or ambiguous questions could be identified earlier
- Format of questions included fill in blanks, figures etc (see appendix 1 for a checklist before you begin).
- All 4 academic staff checked the questions and ANSWERS and QUIZ SETTINGS in advance of the assessment
- Contingency measures were in place, including
    - Exams Office were informed during scheduling period to ensure PC rooms were allocated for the unit assessment. They also ensured that the rooms were available for at least 1-2 hr in advance of the exam start to rectify any technical problems)
    - Registry were informed
    - Audio-Visual team informed, so the PCs were checked for technical faults
    - Paper version printouts (in case of technical failure)
    - Presence of AV technical staff in each venue
    - Students requiring extra time/separate venues were given university laptops (which also need to be checked by AV support)

Benefits
- **Instant feedback:** Students received the marks as soon as they completed the test (provisional, subject to approval by Unit Boards)
- **Time spent marking = zero!**
- **Enabled a breadth of knowledge to be assessed**

Points to consider…..

1. Consider sub-dividing the entire question bank into categories which define specific areas of knowledge (ensures breadth of knowledge is tested fairly)

2. Consider shuffling question and answer order in order to minimise the likelihood of cheating. Randomising ANSWERS is better, so it does not affect your analysis (e.g. identifying easy/challenging questions)

3. Set a specific time limit for the quiz. For students requiring extra time, you can set alternative times on Moodle for individual students (usernames). This could be done by the administrators.

4. Consider limiting the number of questions that are presented to the student on each page – this minimises the amount of date likely to be lost in the event of network / hardware failure (or similar). Students can save responses manually at any point in the quiz, but Moodle will only automatically save responses when the student moves between pages in the quiz. ***Recommend using 1 question per page.***

5. If possible, create large question banks – it could be used to change questions over the years and minimise sharing of questions between cohorts. ***Recommend creating an extra 10% questions as backup***

6. Ensure ALL other sections on the Moodle page are CLOSED just before the test. Later in the year, a more secure browser technology may be available to ensure this

7. Notify students (in advance) of the scoring used for questions / number and type of questions / contribution to overall mark / time limit / regulations etc. If possible, create a formative quiz as a separate page on the Moodle unit to ensure this. *If you do not have the time to create a formative quiz with the same rubric, you may want to consider using a lecture slot to familiarise students with the rubric and/or test it during a problem class or with tutees.*

8. Decide on a contingency plan

   - What happens if there is a technical failure in the first 75% of the event, versus what happens if there is a technical failure in the last 25% of the event?
   - a 10% additional hardware capacity needs to be available in event of machine failure

DURING

1. Invigilators should have a list of usernames of those people expected to be taking the test, and at least one of them should be familiar with the online environment / tool being used (in the event of issues arising).

2. Invigilators should instruct candidates at the start as under any examination conditions (including students caught accessing any browser/page apart from the examination will be considered to be cheating).

3. Where possible, invigilators should position themselves within sight of the screens

4. Where possible, lock down computers using approved secure browser technology.

5. To avoid possible performance issues (large groups of students accessing simultaneously), we advise allowing students to login to Moodle when they are settled in but advise everyone start the quiz at the same time (Moodle's inbuilt clock starts when students begin the first question).

6. Ensure students have submitted their responses before they leave the room (Grader Report: Admin > Grades to see who has not submitted).

AFTER

1. Where possible, provide individual feedback (how students did on each question without revealing answers) and / or generic feedback (e.g. which topics were understood well, explaining/expanding on concepts which were challenging to students).

2. Analyse the responses to

   - identify areas for improvement (e.g. weak/challenging questions)

   - Identify cohort-specific variations in outcomes (especially for large first year units with students from different cohorts)

A checklist for creating the Quiz bank on Moodle

For the Unit convenor / assessor	
Which year group (yr 1,2 etc)	
How many students in the cohort?	
Do you need approval?	
Quiz description	
Type of exam	
Opening & Closing date and time (formative / summative)	
Time limit	
Number of attempts	
Grading method	
Questions per page	*1 per page*
Shuffle questions	No; can create problems during analysis
Shuffle options *(I recommend this option)*	
Feedback on answers	
Negative marking	
Marks available to students	*immediately on completion, with the 'provisional' disclaimer in the feedback comment box*
Answers available to students	Not for summative
Type of questions	
Miscellaneous	