Setting up and using an iLearn (Moodle) quiz as an exam
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7 April 2020.

What we have and can do now!

An iLearn (Moodle) Quiz offers the opportunity to replace a traditional exam in many discipline areas. It comes with the benefit of automated marking using a variety of structured question types while also allowing for constructed responses. We do need to consider that the quiz was primarily designed as a formative learning activity and it works best if used in this manner. However we can twist it to serve our needs and we can explore the use of different question types in creative ways!

Note: for those reading this from beyond Macquarie University, "iLearn" is what we call our Moodle LMS. We are on version 3.5 as of writing.

An exam-like experience
You may attempt to get closer to an "exam-like" activity if Quiz is used according to the advice below (but let us call it a "time limited assignment" instead).

The caveat - Academic Integrity
In short - an online iLearn (Moodle) quiz is not a 'secure' environment in the sense of an exam hall. Settings such as time limits or using a password will not ensure academic integrity protection - unless it is done in an invigilated space (either in person and to a lesser extent via remote invigilation or proctoring online).

Without invigilation there are risks of:
- a) students having someone do it for them.
- b) students having someone sit next to them to provide help.
- c) students accessing unauthorised materials.
- d) we are unable to verify the identity of the person doing the quiz (MQ login can be easily given to someone else).

As such all quizzes used by students in non-invigilated settings must still be considered to be essentially 'open book' and will carry similar risks as do all non-invigilated assessment types such as a take home essay assignment.

Note: The current prospect of remotely invigilated online exams is limited for a variety of reasons. In short – it is not ready for show time in our context. This may be the subject of a future post.

But in these hard times we probably need to release the finger off the student's throat a bit around security matters and we will likely have to go with the flow a bit more!

Setting up the quiz

There are some things we can do to approach an exam like experience or get students into the exam mood! The advice that follows assumes the student is just using their web browser and any other software you direct them to use.

Note: This guide will not result an invigilated environment.
Question design

In the move to non-invigilated or 'open book' assessment formats the type of questions that are set need to change with a greater use of higher-order responses that involve creativity, analysis and integration. It is also a good opportunity to leverage the capabilities of available technology tools to introduce a degree of authentic task design even when using a quiz. The suggestions below increase in complexity as we go:

a) Try using the different Moodle question types - mix it up a bit (don’t just use essay and MCQ). Moodle has 16 standard question types you can try. [https://docs.moodle.org/35/en/Questions](https://docs.moodle.org/35/en/Questions)

But if you do include MCQs then be sure to use random ordering of distractors (see Quiz settings). This makes it harder for direct collusion between students to occur. e.g. if everyone's response "a" is different.

(Tip: Moodle has statistical analysis of MCQs that can help identify problematic questions and help improve question quality. See [https://docs.moodle.org/35/en/Quiz_statistics_report](https://docs.moodle.org/35/en/Quiz_statistics_report)).

b) Consider posing questions that require analysis and not just recall. For example: You can attach material to the question prompt such as a mini case, scenario or data and then ask students to analyse, reflect, compare or contrast. You may ask students to link to theory taught, their own experience or events in the industry.

c) Using one of the calculated question types provides the ability to present random variables or elements (from a pre-defined range) within the question. This makes it harder for direct collusion between students to occur because each student will get a different set of values in the question variables. Complex formulae can be used to generate a large array of possible answers.

See further information on the calculated question types: [https://docs.moodle.org/35/en/Questions](https://docs.moodle.org/35/en/Questions)

d) The embedded answers (cloze) question type allows for multi-part and multi-variable questions that can include a mix of constructed convergent fields (text or numbers) and selection elements (radio button or drop-down selection list) as well as differential weighting
of components. Building the question requires the use of a relatively limited set of syntax. More info on cloze questions https://docs.moodle.org/35/en/Embedded_Answers_(Cloze)_question_type

e) Consider having students do something to arrive at the answer e.g. attach a spreadsheet or similar that students will need to use or manipulate to arrive at the answer (constructed enquiry). Students may be asked to respond using one of the many standard question types in an iLearn (Moodle) Quiz.

f) Consider having the student create something using a software application. There are two options:

1) The iLearn Atto editor that appears in the essay question type can be used by students to record short (less than 3 minutes) audio or video clips.

2) Using the Essay question type with file upload enabled allows you to receive a complex constructed response as part of quiz e.g. Direct students to use an external software application to do a programming task, spreadsheet task, drawing task etc. Then upload their response to the question. Note: Some consideration is needed in terms of being flexible regarding the use of different software tools to complete the task (For example: “use any drawing tool capable of exporting a PNG”, rather than insisting on specific name brand proprietary tool). Be sure to provide clear instructions on what you want the student to do.
g) Use one or more 'random questions' from selected categories. Using random questions helps make direct collusion harder because students will each see a unique set of questions. You do this by placing multiple questions into a category in the question bank. Then insert a 'random question' when building the quiz, in doing so specifying the category that holds your pool of questions. Note: not all questions in the quiz need be random thus allowing you to preserve sequences where necessary. Quiz statistics will also help determine the relative performance of each question used from a pool or category. More information on using random questions [https://docs.moodle.org/35/en/Random_question_type](https://docs.moodle.org/35/en/Random_question_type)

**Recommended Quiz settings for exam-like assessment**

These settings used for the quiz can help to minimise opportunities for cheating, however you may find that some choices are a balance between minimising cheating and good test design from the student point of view. Relevant settings for using a quiz as an exam are explained below and are shown in the order in which each appears in iLearn (Moodle).

**Timing > Open/close**: Used to control when the quiz is available for students to do the quiz attempt. e.g. if you want everyone to do a 1 hour test between 10am to 11am on Tuesday 12 March 2020 then you can specify the times that you would want students to have access with open and close times. However it is also a good idea to provide some leeway and set the close time a bit later to allow for technical mishaps. For example you might want students to be able to begin from 10am but to allow others to start the quiz as late as 10:30 and therefore set the close time at 11:30am in case some students started up to 30 minutes late. Note to enforce a 1 hour duration you need to also set the 'Time limit' (see below). The close time can also determine when feedback is displayed – if suitable 'Review options' are also set – the latter is useful to reduce the ability for a student to pass on questions/answers to others who may be starting much later. See 'review options' to define what students can see before and after the close time. If the close time passes then the quiz attempt will end. Refer to 'When time expires' to decide what happens!

**Timing > Time limit**: For example, 1 hour (other values can be used as needed). A countdown timer will be displayed within the quiz that displays the time remaining. Using a time limit means it will reduce (but not eliminate) the opportunity to look up answers online or in unauthorised resources (although we would encourage questions to be constructed in such a way that the answer can’t just be ‘Googled’). In this example the time of 1 hour is given to each student from the moment they press the 'attempt quiz now' button (i.e. if a student starts 10 minutes late or up to 30 minutes late they still get 1 hour). However if the 'close' time passes before their 1 hour has elapsed then the duration available is reduced. E.g if the
student started at 10:45am the student would only get 45 minutes to do the quiz instead of
the full 1 hour i.e from 10:45 until the close time of 11:30am). See ‘dealing with exceptions’
where you can override specific quiz settings for a selected student on-the-fly.
Note: in a formative activity using a time limitation can simulate the urgency of decision
making in contexts where this is relevant. i.e. in an emergency.

Timing > When time expires: As it happens the default is "Open attempts are submitted
automatically" – this is good. This means that if the close time or the timer expires then the
quiz responses that have been entered so far will be submitted automatically. The student can
still submit early if they want.

Grade > Attempts allowed: When set = 1 this best suits summative uses such as a graded
test/exam. This prevents students returning once the quiz has been submitted.
When used for formative and practice activities it is best to set attempts > 1 to allow students
to review their work and try again.

Layout > New page: Set this to "every question" (as outlined earlier) to have this quiz display
only one question per page. Note: This setting will be the default for how this quiz will be seen
by students, however as you build the quiz you also have the opportunity to selectively move
questions onto the same page where this makes sense (for example, if you have multi-part
questions). This helps minimise exposure of questions on the screen to others in the vicinity
and it makes it harder to take photos of the exam (that may be shared). Note: this has a
pedagogical cost in that it is much harder for students see the whole test at the beginning and
therefore it decreases their ability to plan their work strategy. You may decide to have
multiple questions on a page as a compromise or to group questions into topic sections on a
per page basis.

Layout > Navigation method: Set this to "free" to allow students to navigate freely back and
forth though the pages on the quiz. It is not advisable to prevent back tracking because we
want to encourage students to review their work. While enforcing a sequence would make
collusion a bit harder the sacrifice in pedagogy is not worth it in terms of disallowing students
to review their work.

Question behaviour > Shuffle within questions: Set this to "yes". This randomises the
display of question response choices where a question has multiple response possibilities or
distractors such as multiple choice and matching questions. This helps to make direct
collusion a bit harder because each student will have a different option ‘a’.

Question behaviour > How questions behave: using 'Deferred feedback' means students
don’t get to see feedback until after the quiz is submitted. This replicates a standard test or
exam. You may also want to disable 'marks' whilst displaying written feedback (see also
‘overall feedback’).

Review options: In general you will want to disable all items (untick all the boxes) for an
exam. You may like to leave some feedback types enabled under "After the quiz is closed".
This will allow you to delay release of feedback/marks until the 'close' time you specified.
This can reduce (but not eliminate) the opportunity for those who submitted early from
passing on answers to those still undertaking their attempt.

Extra restrictions on attempts > Require password: Setting a password may help prevent
unauthorised access outside of those people given access (access rules linked to their user
name could also be used instead). The password will need to be communicated (e.g. via email) to all students just prior to the time a quiz is set to open (but there is nothing stopping students from forwarding the password to someone else!).

**Overall feedback**: Place suitable overall feedback here as you see fit. Note: You can include a statement in the overall feedback that "results displayed are not final and may be subject to moderation and changes as part of the academic review process".

**Dealing with exceptions**

**Students who need extra time due to access plans:**

When you know the requirements for each student in advance you can establish these in advance. This means less things you need to worry about on exam day. There are two options:

a) You can use iLearn (Moodle) 'groups' and 'restrict access' to set up extra time for selected students by having multiple copies of the exam that different groups can access.

Further information:


b) Alternatively you can also use the quiz override function (see below) to set up exceptions such as extra time for selected students in advance.

**Students who need extra time due to real-time incidents:**

For on-the-fly changes it is best to use the Moodle quiz override functions to adjust some quiz settings for a selected student(s). e.g. provide extra time. Note if the student experiences a browser or computer crash they can regain access to 'continue the attempt' by returning to the quiz page. However, if the student was to accidently submit the quiz without entering any responses then you can use the override to give a student an additional 'attempt'. Note: if the student has already entered quiz responses then the quiz will follow the settings you have established for the quiz e.g. highest score or latest attempt etc. When providing a second attempt (when the original setting was 1 attempt) Moodle will not be able to re-inset the responses from the previous attempt, however those first set of responses will be stored in the attempts record for you to review later. While the prior attempt is not lost, the student will not be able to see their prior work during the second attempt. [For further information on using overrides, see "Special consideration or conditions for a particular student" on the page](https://staff.mq.edu.au/teach/learning-technologies-and-spaces/teaching-technologies-and-tools/ilearn/ilearn-quick-guides-for-staff/quizzes)

**General recommendations**

To improve the student experience and your sanity we recommend that you:

**Provide clear accessible instructions and resources to students**: You can use the information question item to provide clear instructions to students within the quiz itself. This allows students to refer back to instructions whilst inside the quiz. The information question can also be used to attach or link to information sheets that are applicable for the whole exam or a section of the exam e.g. a formula sheet or extended case study. Be sure to advise students to save the file to their computer for easy reference in another window.
Use quality review processes such as the peer review that you use to ensure the quality of paper based final examinations also need to be used for online assessment. Tip: Be sure to preview the quiz using 'switch role to' (student) or use a dummy student account to do the quiz yourself before letting it loose on your students!

Always give students an opportunity for a 'practice run' before they need to use an online tool for an assessment that carries a mark. i.e. set up a short non-marks practice quiz with the settings above to allow students to experience the process in the weeks prior to the exam. Better yet, it is a good idea to have students use online tools in formative and lower stakes assessments within the unit before you start using it in an exam or similar higher stakes assessment. This allows students to build their confidence and competence in using new tools or even existing tools in new ways before they are hit with it in a stressful exam-like situation!

Support for students undertaking time-limited assessment needs to be in place. Just as you need to be available during an on-campus exam event to answer questions from students you also need to be contactable during the period of an online or take-home assessment task. Be sure to make it clear how you can be contacted and your response times. If the assessment task has a tight timeline then provide a real-time method for them to contact you.

Have a backup plan in place and build in a buffer in case something technical goes wrong. Tell students about the backup plans because this will give them reassurance. Some examples are: If using a quiz, be ready to be able to jump in and provide quiz time extension or an additional attempt using override. Build-in additional time as a buffer (i.e. provide 3 hours in cases where you expect it to be done in 2 hours – and let the students know this too). If you are using word document based task to be submitted to TurnItIn then set up a Moodle assignment or allow students to email you the document. If you are setting a multimedia submission such as a video then be prepared to allow for alterative formats. E.g. Powerpoint with notes or audio recording instead of a video submission. This could be on a case by case basis – but clearly communicate to students as part of the assessment specification that if they feel they cant meet the media or technology requirements that they should contact you.

Marking and moderation

Consideration of how you will manage the marking of online assessments with respect to splitting workloads and grade moderation processes will also need to be explored. If using Moodle quizzes then a portion of the assessment using selected or convergent question types will be automatically marked. Moodle also has some basic statistics and item response analysis that can help with those processes. This may be the topic of a future article.