
Tip sheet - Designing online quizzes to minimise collusion

There are several measures available to reduce opportunities for [collusion](#) when students are completing online quizzes, particularly when they are used for exams (which ideally should only be used under very specific circumstances). You can use one or more of these measures at the same time depending on how your quizzes should function. This tip sheet outlines each measure.

Randomisation

Within FLO there are three main ways to incorporate randomisation, so that your students don't all get the same questions and answers in the same order.

Preliminary considerations

Before you start incorporating randomisation, you will need to do some preliminary planning about how your quiz will be populated with questions. Although it is possible to simply start adding questions, taking this approach will mean that every student will complete the same questions. It is also important to note that using this option will prohibit the opportunity to fully incorporate randomisation within your quiz.

The alternative way to populate your quiz – and which will provide opportunities to maximise randomisation – is to add questions to the question bank. The question bank allows you to create different categories, which you can in turn populate with any number of different questions. This will be explained in more detail in section three below.

Shuffle the order of potential answers within automated quiz questions

It is possible to shuffle the order answers are presented for each question using the *shuffle the choices* function. When creating questions, this is usually ticked by default. Note you will need to ensure *Shuffle within questions* is set to yes within the quiz settings, before you can use the shuffle function within each individual question.

Be mindful of the wording used within your questions' answers when using this function. Instead of "all of the above" you could use "any of the available options" so that it doesn't matter what position the answer falls in, and the question will still make sense. Questions where the answer is a combination of options, like A & B, will need the full text written out for each option. Instructions on how to do this for the following question types are available:

- [Multiple choice](#)
- [Fill in the blanks](#)
- [Drag and drop](#)

Shuffle the order of questions

The order in which questions are presented can be shuffled so that each student still receives the same questions, but in a different order. If you have some questions that rely on others being answered first, it's possible to break your quiz into sections and shuffle within each section.

Using the example of a quiz with thirty questions that have been allocated from several categories (which is explained below), two or more students may get the same question. Changing the order in which the questions are asked means that while a common question might be placed as number 5 in a quiz for one student, it may be number 26 - or any other random number – in another. Instructions on how to do this using the [Shuffle](#) function are available.

Allocating from a pool of questions

The most effective way to incorporate randomisation is to allocate questions randomly to each student. This allows you to plan and build your quiz in a more robust way, meaning the more preparation you do now, the easier maintenance will be in the future. Adding your questions directly to the question bank ensures they are reusable across multiple quizzes, for example an exam and a supplementary assessment.

The first step for this approach is to determine what concepts and difficulty levels you would like each student to receive within their quiz. It's possible to create a single category within the question bank to store all the questions for your quiz and select questions randomly from this pool, so students would receive 10 questions from a pool of 30 for example. The more questions you have in the pool, the greater the randomisation, but you have no control over the subject matter of each question given to your students.

To expand on this approach, you can group your questions into sub-categories within the question bank. If you have three different concepts you want to include in your quiz, you could create a category of questions for each concept and draw 5 questions from each category. This will ensure all students are tested on each concept. You could also categorise your questions on difficulty level, so each student gets 2 easy questions to get them settled, 6 intermediate questions and 2 hard questions to test their knowledge within the quiz. You could consider developing your questions using [learning taxonomies](#) to move from easier to harder questions. It's possible to create a mixture of the above or any other split of categories appropriate for your situation.

If you opt to use the sub-categories approach, you will need to be mindful about the equity of the experience for students, and ensure that questions:

- have the same weighting. When random questions are delivered, FLO assigns the same marks to each question, but for example, a drag and drop question may have many components to be matched - whereas a multiple choice question has one item to be selected
- take approximately the same length of time to complete. For example, a multiple-choice question asked as a single sentence and with only one answer, may take considerably less time to complete than a multiple-choice question that is compiled with multiple sentences and/or has multiple answers.
- are based on similar levels of complexity. For example, questions that are based on recalling information are not equivalent to questions that involve higher levels of understanding, such as interpreting or evaluating information.

Whilst setting up a randomised quiz takes lots of planning and forethought, in the long term, this approach makes the management of your assessment artefact and any future maintenance easier. Whilst your quiz is running, if students are having problems with a particular question, you can move it from the category contained within your quiz and it will no longer be given out. Likewise, if you have a new question, you can add it to the category, and it can immediately be picked up and given to students. Each year you can add new questions to your categories to enhance and refresh your quiz without having to make any changes to the actual quiz (other than updating dates and instructions)

Another way to increase the pool of questions available is to modify existing questions. While it can take time to create questions, it can often be faster to modify something that already exists. Consider making a copy of a question and then make an alteration to some aspect of it. Possible examples of how this might work include labelling the constituent components of a graph and asking students to select what would happen under different application-based scenarios (multiple choice question) or changing the key terms within a missing word question.

Questions that automatically produce multiple versions

A further opportunity for randomization is inbuilt into some question types which can produce different versions of a question for each student.

For questions that involve a numeric answer which is the result a formula, there are 3 calculated question types which can be used. During setup, variables are defined within the question and the correct answer is defined by a formula using these variables. FLO then generates sets of values for these variables. How many sets of values are generated and the value ranges for each variable are definable. When the question is presented in a quiz, the variables within the question are replaced with a randomly chosen set of the generated values. In essence, one question produces many random versions.

A further capability is to share value sets across questions which use the same variables and ensure that a student is given the same values for a variable in multiple questions within a quiz, allowing individualized scenarios.

Example:

Question:

You have bought {onions} kilos of onions which cost \${dollars} per kg.
How much will that cost?

Answer: \${onions}*{dollars}

One Student's view

Question:

You have bought 3.2kilos of onions which cost \$1.99 per kg.
How much will that cost?

Answer: \$6.37

Incorporating time limits within your quiz

Another way to reduce opportunities for collusion and cheating to occur is by applying time limits. This can occur in the following ways:

- When you set up your quiz, define a time limit for how long students have to complete the quiz. This period needs to be defined by what is a reasonable completion time for the nature and number of questions that have been included. Having quizzes open for longer periods increases opportunities for questions to be answered after consulting with external sources or materials.
- Another time-related setting is the availability period. This is the time period during which the quiz can be attempted. Having the quiz available for an extended period of time – even if a time limit is applied to the attempt – increases opportunities for students to share information with others who are yet to undertake their assessment. Therefore, consideration should be given to the length of the availability period. We recommend that even when you require all students complete the quiz at the same time that you provide a small amount of leeway in the availability period. For example, make a 1 hour time limited quiz available for 1hr 10 minutes.

Although it is possible to imagine other ways that randomisation and time limitations could potentially be introduced, the information that has been presented here reflects what is technically possible within our existing LMS. If you are using quizzes as part of your summative assessment, remember to have them [moderated](#). Further information on setting up quizzes can be found in the [FLO Staff Support pages](#).