

Guide for Quizzes

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Overview

A quiz is a useful touch point to confirm whether or not a student has understood a topic or concept and to gauge how much the student has understood. The quiz has become a ubiquitous component of online learning as it is a useful tool for both formative and summative assessment and it is relatively simple to deploy within MyUni. An effective quiz however requires more thought and alignment to the learning experience and the student's journey through the course. A quiz shouldn't simply be a hurdle throughout the course, it should convey actionable information to both the student and teacher.

For the student, it should assist them in developing a sense of where they are in the course, how their learning is progressing (or not) and aid in their understanding of key concepts within the course. When this is the case, feedback and question design are vitally important so that students are being presented with the right information at the right time.

For the teacher a quiz should provide a picture of where the class is at that moment in time. It should inform their practice, highlight areas that need to be improved, or go through in more detail, provide extra examples or illustrate more clearly. A quiz shouldn't be set and forget - it should form a useful data point in understanding what learning is actually happening within the course.

Considerations

A quiz must have a clear purpose. A quiz should be directly linked to an intended learning outcome and should enable the student to validate their understanding of a concept, topic or idea. A quiz is not a structural necessity, so it should not be included if a clear purpose cannot be defined.

Placement of a quiz should be at the culmination of a cascading sequence; what the student has learnt and/or done prior to the quiz is being confirmed in the quiz.

The language must be at an appropriate level for the intended student cohort. If there is uncertainty about what the appropriate level is, it is strongly advised that certain things are taken into consideration, including that the student might speak English as a second or third language or be studying the topic for the first time.

Consider if the purpose of the quiz or quiz question is to enable the student to practise and hone their understanding of a concept or if it is to test and confirm their understanding of a concept.

For a **formative** approach, it is worth considering if multiple attempts at a question (or a randomisation of the same type of question) should be enabled or if no marks or points values are used.

For a **summative** approach, consider the reward versus effort for the student. How much effort will be required to get a mark and how does that fit into the overall assessment strategy? How many attempts would be "fair" without penalising the student?

When designing a quiz in MyUni, ensure you take into account the limitations of the platform. There are a [few different question types](#) available and these can be configured in a variety of ways using randomisation, question banks and the settings at a question and quiz level.

Quality Criteria

A quiz provides clarity to a student around their understanding of a core learning concept. Ensure that the quiz either enables the student to practise and hone their understanding of a concept or it tests and confirms their understanding of a concept.

The wording of each question has to be written and presented in a way that ensures it is accessible and inclusive for all students.

A question should have a meaningful correct answer that helps develop the student's understanding of the concept.

Meaningful feedback should be provided for incorrect responses to ensure that a mistake is a learning opportunity for the student. In some cases, providing feedback to help contextualise meaning for all correct responses would be useful.

How To

Instructions and feedback responses

Instructions precede the actual quiz question(s) and help the student contextualise the area(s) being tested.

Clear instructions set the student up for success. However, sometimes more than just clearly written questions are required; sometimes, a thorough series of instructions might be required before the student is able to attempt a question - refer to [Clear instructions example 4](#).

Instructions must contextualise what the student is about to do, especially when actions are required outside of the question itself; for example, if data programming or analysis of data is required using another program, such as R.

The feedback responses provided to a student are as important as the instructions. Therefore, strive to make the feedback as accurate and insightful as possible to ensure that the learning experience remains a positive one - refer to [Feedback example 5](#).

Incorrect! Try again! is not meaningful feedback and should never be used.

If you were to put yourself in the student's position, where your response was marked as incorrect but you weren't given an explanation for why your response was incorrect, what would you have learnt from that experience?

Single correct response and Multiple correct responses questions

This question type is suitable for online higher education assessment.

An alternative way to word a gap fill question would be to make it a multiple choice question (or a multiple correct answers question). The most common form for a multiple choice question is the construct:

- 'Which of the following is/are...?'

Additional detail, such as 'Which *three* of the following are...' or 'What are the *three*...' also help to clearly instruct the student about what they are expected to do/show to achieve success. This additional detail is recommended if the objective of the question is to reduce the barrier to achieving success.

The validity of questions and answers

It is common for questions to be written with an '*All of the above*' correct answer. This is potentially problematic because:

- it is invalid when the answer is isolated in the context of the entire statement (refer to [Original form example 2](#)), and
- it becomes an easy mark/point for the student if this construct is used consistently as the correct answer.

Additional considerations

- 'All of the above' and 'None of the above' correct responses

'All of the above' and 'None of the above' should be avoided as there is little (if any) validity to this form of questioning.

In the case where 'None of the above' is the correct response, firstly consider how intuitive it is to ask someone to identify what they **have not** learned. Additionally, consider the cognitive load required to firstly recall which of the options being presented in the question have been learned, and then to identify the option(s) that have not been learned.

This type of question would be valid if one of the learning outcomes was for the student "to eliminate implausible options so as to satisfy a statement".

Do not include questions that have an 'All of the above' or 'None of the above' response.

- Positive versus negative wording in a stem

Mixing a negative keyword, such as 'not', along with a positive keyword such as 'successfully' can potentially result in the student choosing the incorrect option because they may not have registered that there is a negative form ('not') in the question.

Adding a negative form ('not') to the question tests reading skills or whether the student is paying enough attention to the question. Assume that the student has learned what has been taught: if that happens to be positive traits about a subject/concept, then it would be fair to expect the student to be prepared to be tested on what those positive traits are and to prove that they have learned those positive traits.

Gap fill

This question type is not suitable for online higher education assessment.

Gap fill questions, which are also known as *sentence completion* questions, are commonly used in language proficiency testing – for example International English Language Testing System (IELTS), Test of English as a Foreign Language (TOEFL), and Test of English for International Communication (TOEIC). It is also one of the foundational question types for testing primary school children.

Gap fill questions tend to test a student's knowledge of grammar rather than whether or not the student has understood the key concept(s). The validity of this type of interrogation can also come under scrutiny, especially if the question and the options are grammatically flawed.

True/False "questions"

This question type is not suitable for online higher education assessment.

When is a quiz question not a quiz question? The answer is when it is a quiz question that is phrased as a statement, and the student is being asked to choose whether that statement is *true* or *false*. It is helpful to the learning experience to include a reference to the type of question being asked - for example, 'Is the following statement true or false?' - as it is likely that the student has become accustomed to reading and answering questions, not reading and answering statements.

True/False statements should only be used in formative quizzes to facilitate practice of key concepts. The true/false statement *must include* meaningful feedback to ensure the learner has adequate explanation for why the chosen response is correct or incorrect. This means that the course author must prepare valid explanations for each incorrect response.

For additional considerations for the inclusion of true/false statements in quizzes, refer to [Feedback example 5](#) (feedback that meets recommended practice) and [Feedback example 6](#) (feedback that does not meet recommended practice).

Numerical input questions

This question type is suitable for online higher education assessment.

A numerical input question is one that requires the student to type in a number or several numbers in order to submit the response. This type of question involves a mathematical calculation of some kind, the result of which may or may not include a decimal point. It is imperative that a numerical input question has clear instructions about what the expectation is so that the student understands what success looks like.

This type of question requires a lenience, for example, +/- 0.1 (or whatever is deemed to be acceptable) so as not to penalise incorrect rounding off - refer to [Numerical input example 9](#).

Text input questions

This question type is suitable for online higher education assessment.

A text input question is similar to a numerical input question, except it requires the student to enter a text response (that is, letters and words) into a text field. This type of question should be used sparingly as any correct response beyond a word could be difficult to grade automatically due to spelling discrepancies.

It's important not to penalise the student for things such as spelling variation (for example US English spelling versus Australian English spelling) or capitalisation, as is evident in the two acceptable versions of 'Alice' in [Text input example 10](#), as that ensures the student is not penalised for a lowercase 'a' in 'Alice'. For either 'alice' or 'Alice' to be accepted as the correct answer, it must be configured in the back end of the platform.

Examples

In [Original form example 1](#), a gap fill question is presented in its original form; the way that it was scripted by the course author. The same question is then presented with alternative wording, [Alternative wording example 1](#), to represent the preferred practice.

Incorrect option/distractor = red

Correct option(s) = green

Note: Meaningful feedback has not been included in these examples as the focus is on rewording questions to meet recommended practice. For examples that address meaningful feedback, refer to [Feedback example 5](#) onwards.

Original form example 1

*The three main activities of a project are _____ ,
_____ and _____ .*

- (a) planning, executing, feedback*
- (b) organising, executing, feedback*
- (c) planning, organising, feedback*
- (d) planning, executing, controlling*

Original form example 1: Alternative wording

What are the three main activities of a project? Select each correct option.

- (a) Feedback*
- (b) Planning*
- (c) Organising*
- (d) Executing*
- (e) Controlling*

Original form example 2

The role of the project manager includes:

- (a) leading the functional manager towards reaching the strategic objectives.*
- (b) leading the human resources department to meet the labour ratio requirements.*

- (c) *leading the team that is responsible for achieving the project objectives.*
- (d) *all of the above.*

In *Original form example 2*, the entire statement - which includes the correct answer - is:

The role of the project manager includes all of the above.

This does not provide a definitive statement of the role that a project manager has, which is the key takeaway for the student.

Original form example 2: Alternative wording

Which (three) of the following actions is the project manager responsible for? Select each correct option.

- (a) *Leading university research and laboratory testing.*
- (b) *Leading the functional manager towards reaching the strategic objectives.*
- (c) *Leading the human resources department to meet the labour ratio requirements.*
- (d) *Leading the sales team to meet annual sales targets.*
- (e) *Leading the team that is responsible for achieving the project objectives.*

Original form example 3

Which of the following is not an attribute of successfully managing a project?

- (a) *Meeting your project requirements.*
- (b) *Delivering your project on time.*
- (c) *Allowing the schedule to lapse.*
- (d) *Delivering the project to budget.*

Original form example 3: Alternative wording

Which (three) of the following are attributes of successfully managing a project? Select each correct option.

- (a) Meeting your project requirements.
- (b) Delivering your project on time.
- (c) Allowing the schedule to lapse.
- (d) Delivering the project to budget.

Clear instructions example 4



Instructions

For this quiz, you'll need to refer to the works specified using `gutenberg_download()`. There are questions about:

- Lewis Carroll's *Alice's Adventures in Wonderland* and *Through the Looking-Glass* (Gutenberg IDs: **11, 12**)
- Charles Dickens's *Oliver Twist* and *David Copperfield* (Gutenberg IDs: **730, 766**)
- Mark Twain's *The Adventures of Tom Sawyer* and *Adventures of Huckleberry Finn* (Gutenberg IDs: **74, 76**)
- Jules Verne's *Around the World in Eighty Days* and *Twenty Thousand Leagues Under the Sea* (Gutenberg IDs: **103, 164**) and
- Arthur Conan Doyle's *A Study in Scarlet* and *The Hound of the Baskervilles* (Gutenberg IDs: **244, 2852**).

Go get them!

Below are two `ggplot`s - the first shows the **top ranked words by frequency for each author**, while the second shows the **top ranked terms by TF-IDF for each author**.

Read each question, input your answer, and click "Submit". If you don't get the right answer at your first attempt, try again! The total number of attempts you have remaining for each question is noted next to the Submit button.

Feedback example 5

Is the following statement true or false? Treatment for hepatitis B can reverse its effects on health.

- (a) True
- (b) False

Feedback:

False: Damage to the liver caused by hepatitis B cannot be reversed, although treatment can slow or prevent further damage, so early detection and treatment of hepatitis B are essential for long-term health.

Above: This feedback clearly articulates why "**False**" is **correct**. If the learner were to choose option (a), a similar explanation would need to be present - explaining why "**True**" is **incorrect** - to meet the recommended practice.

Feedback example 6

Is the following statement true or false? Intracytoplasmic sperm injection (ICSI) involves injecting several sperm into an oocyte.

- (a) True
- (b) False

Feedback:

False: A single sperm is injected into an oocyte during ICSI

Above: Is the response meaningful? No, it isn't. Does the question itself address a learning outcome? No, it doesn't. Has the focus of the question – that is, testing understanding of 'several' versus 'a single', perhaps a detail that could be "missed" by the student – missed the mark? Yes, it has missed the mark. Not only is the question poorly worded but the feedback is limited in its explanation, which is to say that it lacks explanation of the clinical aspect of the question: the explanation for the grammatical aspect of the question is fine.

Numerical input example 7

The current Australian Football League (AFL) games record holder (amongst all active and former players) is Brent Harvey, whose career tally stands at 432 games played. Use the R output to calculate the z-score for Brent Harvey's games record.

Give your answer to three (3) decimal places.

Above: In *Numerical input example 7*, the student is already aware of what 'R output' is and needs to calculate the 'z-score' and enter the result to three decimal places into the number field (not shown). The student will then receive a grade and feedback for the response.

Numerical input example 8

What is the maximum number of flights you could have taken in 2013? Enter only the number (e.g. 22000)

Above: In *Numerical input example 8*, the student has already answered several questions prior to this question. This example focuses on correctly modelling how to enter the number (22000 not 22,000).

Numerical input example 9

State, in order, the four entries in the third column of the matrix P (the third principal component).

Separate each entry by a comma and insert a negative (-) if required (e.g. 0,-1,2,-3). Do not put a space after the comma.

Above: In *Numerical input example 9*, the degree of difficulty is much higher as the student has been asked to enter four digits – potentially including numerals with a negative value. While the instructions may seem confusing at first, they provide a step-by-step analysis of what to do and also an example of what the student's response might look like when commas and negative values are included.

Text input example 10

***What is the most common word used by Lewis Carroll in 'Alice's Adventures in Wonderland' and 'Through the Looking-Glass'?
Note: You must spell the word correctly.***

(Answer: 'alice' or 'Alice')

Above: The instruction 'You must spell the word correctly' has been included to establish a standard of rigour as an alternative spelling of 'Alice' – for example 'Ailce' or 'Ilace' or 'Alec' – would be careless in this context as the actual word is the basis for getting the answer correct.