

# Designing Online Research Integrity Training | QUT's Experience

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### Context

It is increasingly important that universities have strong policies and practices in place for research integrity coupled with meaningful training for those that undertake research.

With large numbers of staff and students requiring training, it is not always feasible to offer comprehensive face to face training sessions for everyone. Providing online training is therefore the preferred route, but making online training both engaging and effective is not trivial. We present our experience developing and implementing an online training program about research integrity at the Queensland University of Technology, and our assessment of the first 9 months of the program.

Our experience may be of interest to anyone developing, running or planning to implement online research integrity training. We also believe it will be of interest to those developing other related courses and those who are interested in how such courses are developed and assessed.

### Setting

QUT is a major university in Brisbane, QLD, Australia with a strong research focus, and some 50,000 students. QUT places a high value on research integrity and its Office of Research Ethics and Integrity was established in 2014.

### Outline

In 2018 we developed Research Integrity Online (RIO), which is now required training for all higher degree research students, and all staff involved in research, research management or research support at QUT. RIO replaced a commercial online training program that we previously used for 3 years.

RIO aims to provide a concise and engaging introduction for researchers to the responsible conduct of research. The content conveys the importance and relevance of research integrity, explains researchers' responsibilities under the Australian Code for the Responsible Conduct of Research (2018).

We collect routine data as part of the audit of this program which we use to improve the program iteratively. This audit assesses the time spent reviewing the content and the associated quiz, and the number of attempts required to successfully complete the program.

### Design and structure

A diverse team designed the training including people with expertise in learning design, ethics and integrity, scholarly publishing and research, law and philosophy. The course also includes interviews conducted with senior academics from a variety of different disciplines at QUT.

The training is structured as a house with 6 rooms. Participants enter and complete all 6 rooms to complete the course, and proceed to the quiz. As each room is completed the "lights" go out. Each room represents a different topic, as shown in the figure to the right. Participants can complete and review these topics in any order. Alternatively, participants may choose to review a text-only accessible version of the course.

We developed the course using Articulate Storyline, and exported it as a SCORM package, which is an industry standard method for running courses on Learning Management Systems.

### Next steps

We will continue to assess the effectiveness of RIO, and evaluate its place in the broader suite of training about research ethics and integrity that we offer at QUT.

We have made a number of changes to the course since it has been launched in response to feedback, and we will continue to make these changes. They might include the addition of new optional content, updated links to additional resources, and changes to improve the quiz questions in response to our analytics.

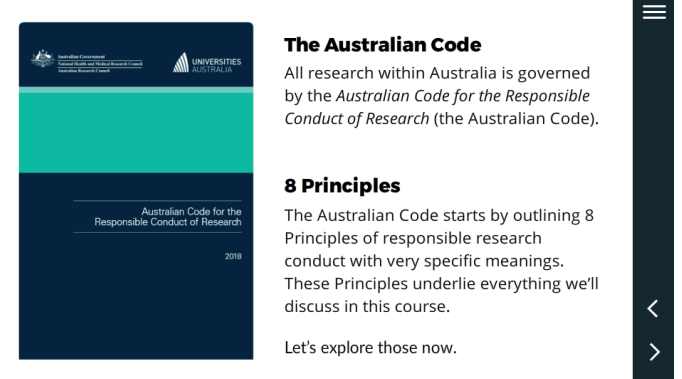
We are also customising the training to suit other institutions with a need to offer online research integrity training.



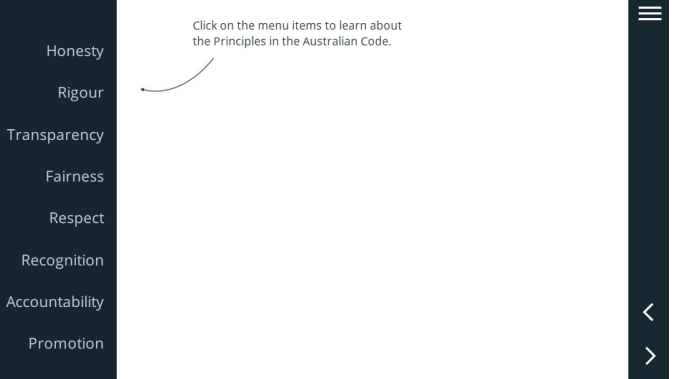
## Example content and features



The course begins with a short video introduction [1:36] by our Deputy Vice Chancellor (Research and Innovation). This conveys that the training is supported at the highest levels.



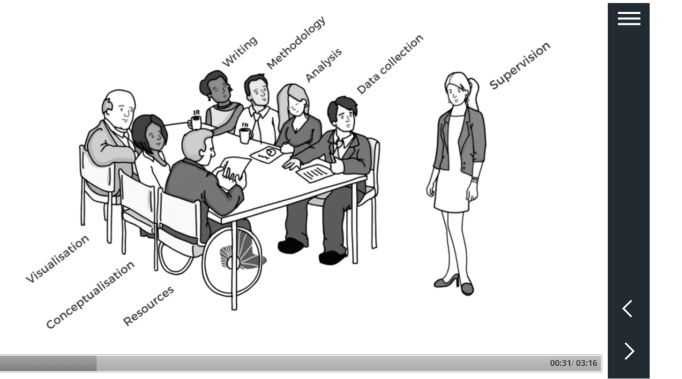
The training is based on the Australian Code for the Responsible Conduct of Research (2018).



Participants explore the 8 Principles of the Australian Code via a simple interactive menu.



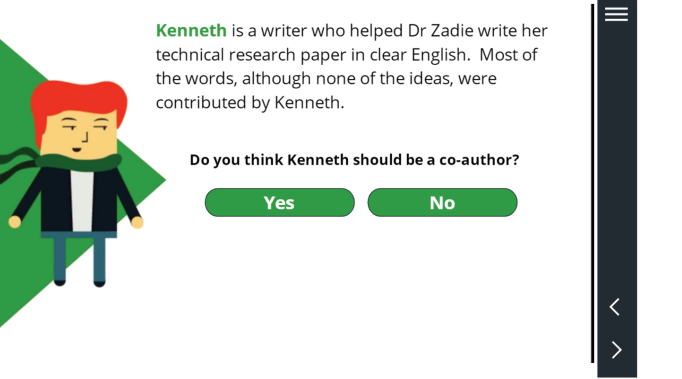
The course aims to flesh-out all of the responsibilities for researchers under the Australian Code. This is one of those responsibilities.



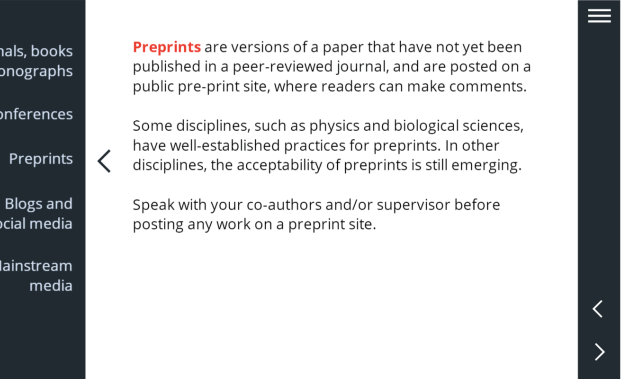
Short animated videos explain key topics. This video, for example, is about authorship, including responsibilities, challenges, and disciplinary differences.



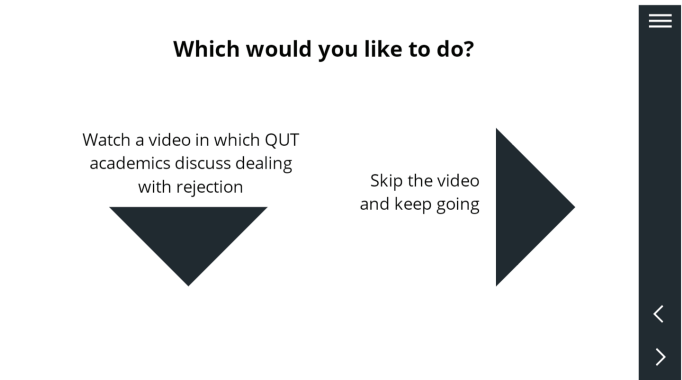
Interview clips with senior researchers explore the topics from a variety of perspectives.



Interactive case studies promote active engagement with some complex issues in research integrity. This activity is about deciding who should be an author.



Participants consider issues in emerging forms of dissemination including preprints, blogs, and social media.



At some stages participants are asked how they would like to proceed. In this case, they can choose whether to watch or skip a video about dealing with rejection.



Where research integrity is closely related to other topics – for example collaborative agreements – we link to other important sources of information and contacts.



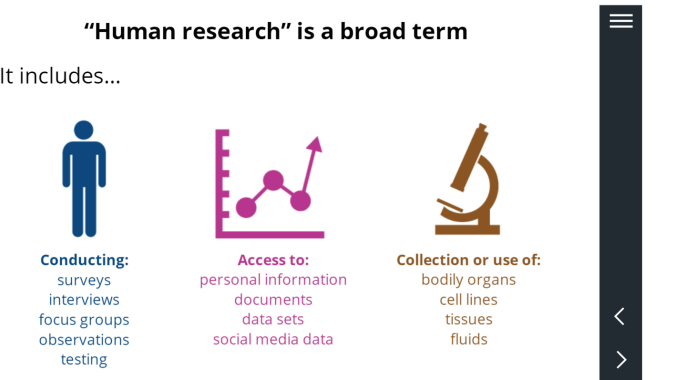
An animated video [7:32] introduces conflicts of interest in research. This introduction focuses on the importance of transparency.



The course emphasises the importance of all supervisors and students contributing to a strong culture of research integrity.



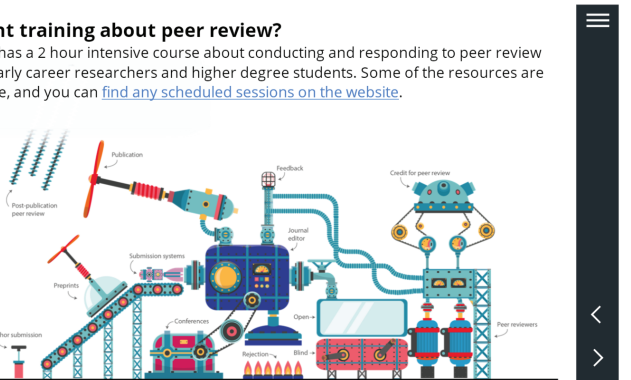
Responsibility 19 is a new addition to the Australian Code in 2018. This section explains the importance of engaging Aboriginal and Torres Strait Islander peoples and respecting their legal rights and local laws, customs and protocols.



Human and animal ethics are considered briefly. Researchers are pointed to more comprehensive training resources in these areas.



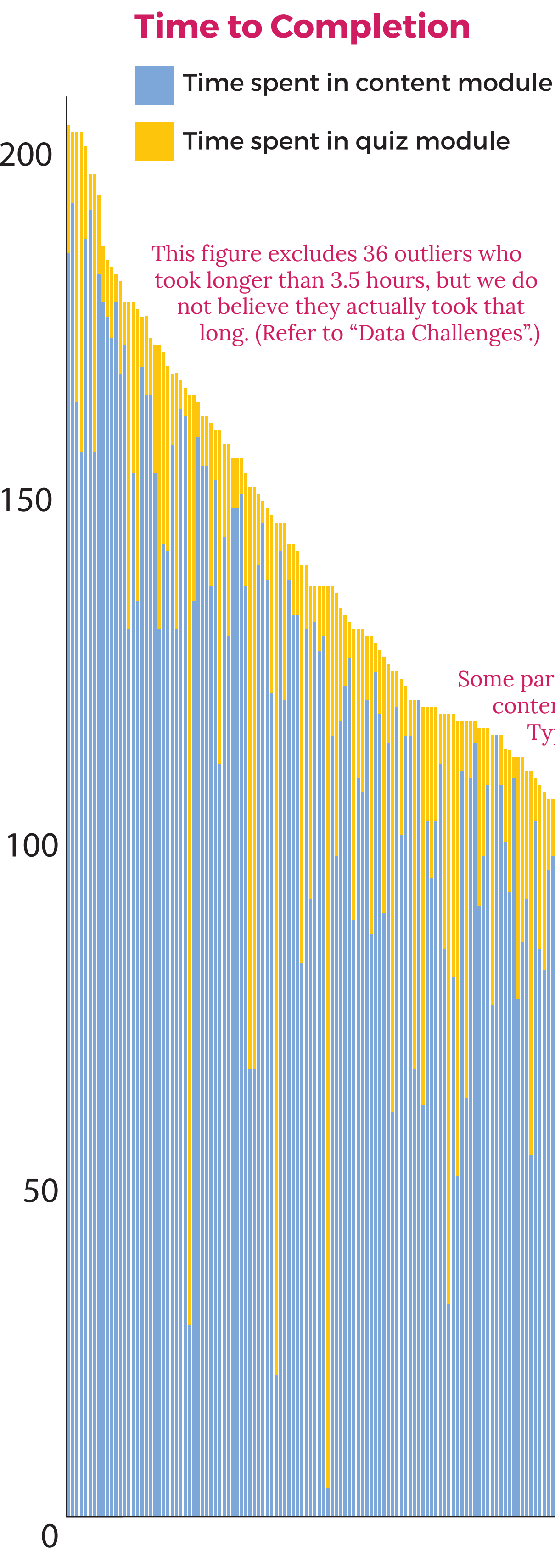
The training explains how to report any concerns or complaints about research integrity, and links to the university procedures for dealing with allegations of research misconduct.



Throughout the course participants are directed to additional resources and training opportunities, including this face-to-face workshop that QUT offers each semester about conducting and responding to peer review.

## Tracking engagement

In the first 9 months, 660 participants completed Research Integrity Online at QUT: 417 research students and 243 research staff.



### Data challenges

One challenge in tracking time to completion is that our Learning Management System (LMS) cannot tell whether a participant is actively engaging with the content or merely idle. The figure below excludes 36 outliers who took longer than 3.5 hours, but we do not believe they actually took that long. We know that some participants simply leave the content open while they go and do other things.

Occasionally our LMS fails to record the quiz completion time. We can identify these cases, so it is only a minor limitation of our quality improvement data.

There are about 100 participants for whom we have no time to completion data at all. Some of these participants completed the training before we configured our course to track the relevant data. Some other participants choose to review the text-only version of the course, which is a PDF document that we cannot track.

### Quiz questions

Our aim was to design a quiz that is easy for anyone who knows the content thoroughly, but difficult for anyone who doesn't. This is especially important for our course because we don't force participants to review all the content. In other words, we don't require participants to click-through any screens.

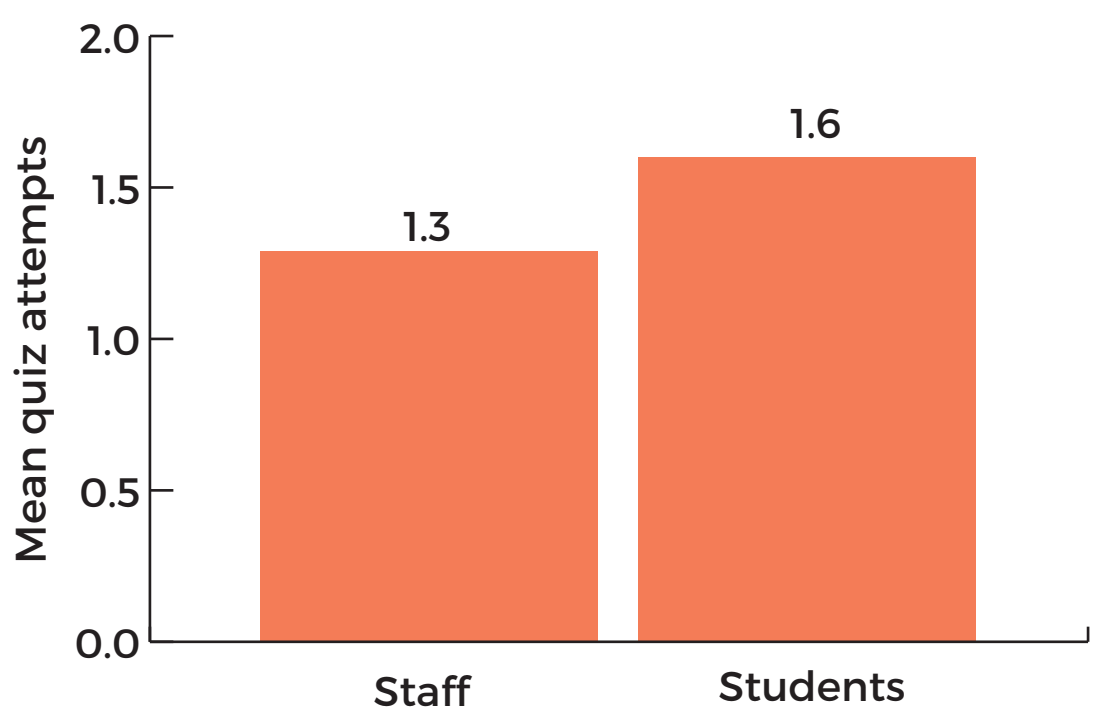
Our quiz is currently a pool of 29 multiple choice questions, of which participants are asked 10 questions at random. Participants require 80% or better to receive their completion certificate. All questions provide feedback to participants.

We are conscious that some participants attempt to skip the content and go straight to the quiz but, as illustrated in the figure below, most do not.

Notably, students who attempt to complete the quiz before reviewing the content typically take about as long to complete the whole course as other students who review the content before attempting the quiz. The majority of the very fast course completions (quicker than 20 minutes) are by staff and not students.

We monitor which questions are difficult, and which are easy. To date, the questions most commonly answered incorrectly relate to: (i) the principle of **Recognition** for Aboriginal and Torres Strait Islander peoples (which is new to the Code in 2018); (ii) appropriate strategies for managing a **conflict of interest in research**; (iii) what activities may constitute a **breach of the Australian Code**; and (iv) what sorts of research may require **human ethics approval**.

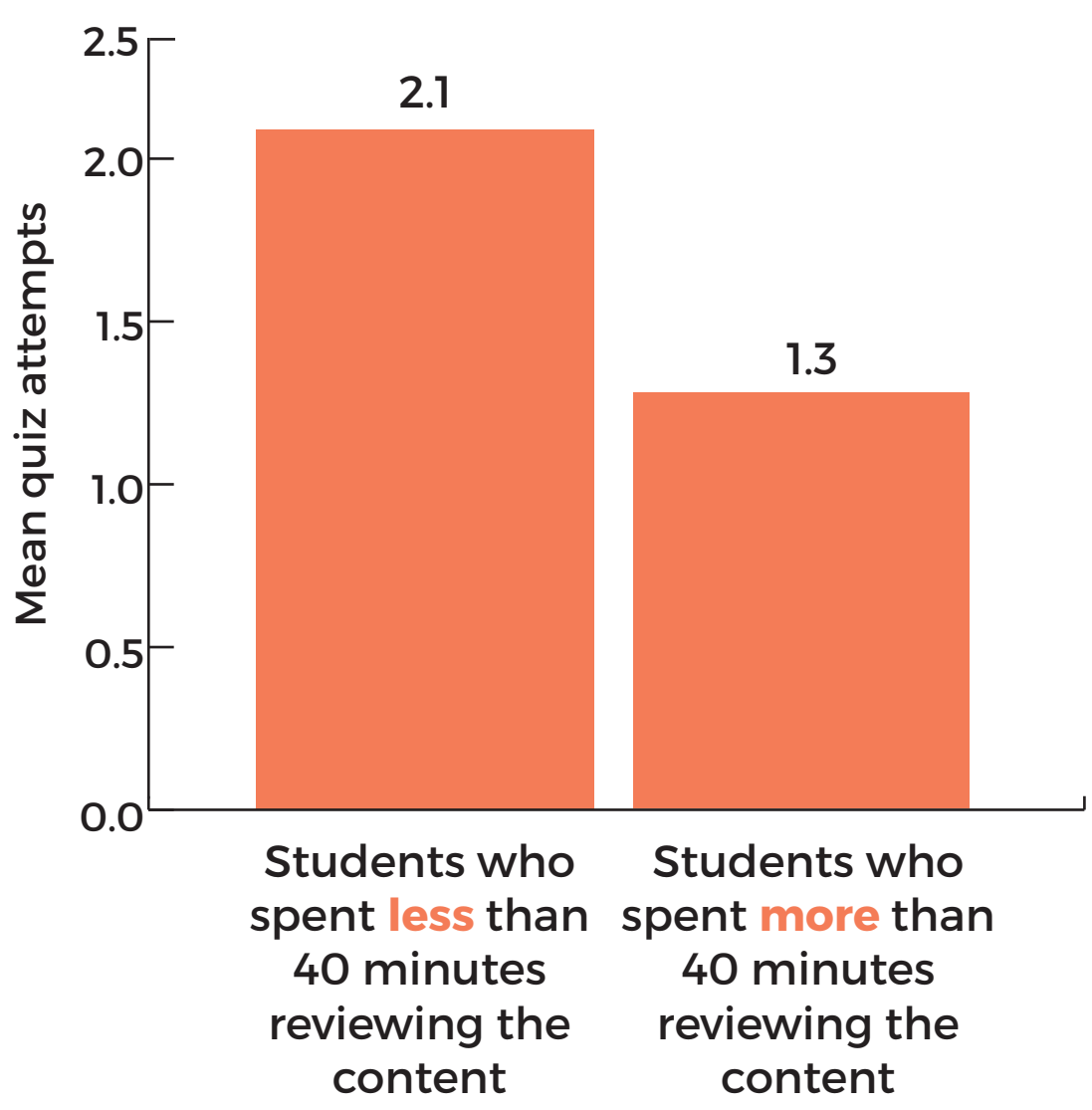
### Quiz attempts



Research students find the quiz harder than research staff, which is to be expected.

Most participants (both staff and students) pass the quiz on their first attempt (470 of 660).

One participant required 9 attempts to pass the quiz, which is the maximum number of attempts we have observed so far.



Students who review the information more carefully (or at least for longer) tend to find the quiz easier.

For staff, the mean time to completion (including the quiz) is about 56 minutes.

Of the 51 participants who completed the course in under 20 minutes, 7 were students and 44 were staff.

Competing interests: All contributors work (or worked) for the Office of Research Ethics and Integrity, QUT. QUT licences this training to other institutions, which benefits the creators.

