
Mapping University Mathematics Assessment Practices

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Chapter 4

Students Designing Assessment Questions

Abstract This case study presents the assessment structure for a first year geometry module and a second year statistics module. This approach involves the use of the PeerWise (<http://peerwise.cs.auckland.ac.nz>) platform within the modules' assessment, allowing students to create their own question and answer sets based on the course materials.

4.1 Background and rationale

The rationale behind the use of this assessment and teaching tool is that neither of the two modules, geometry and statistics, had existing continuous assessment mechanisms and so the feedback students received during the module was seen to be limited. The lecturer came across PeerWise by chance, but thought that this tool could help address the feedback and engagement issues without involving a significant increase in staff time. The lecturer's interest in the use of this platform came from working towards his postgraduate certificate in academic practice and his interest in investigating how a new teaching tool could be used in mathematics.

4.2 Implementation

PeerWise is an open access platform that can be used for a variety of academic subjects. The software allows the students to design their own multiple choice questions together with the answers. This platform allows the lecturer to create a site for his module and restrict access to himself and his students.

The lecturer believes that providing the answers as well as designing the questions helps the students to think more deeply about the material. Other students on the same module can take the tests designed by their peers to assess their own understanding and can also leave feedback about the tests. The lecturer has access to the materials the students have produced and can monitor which parts of the module have had more questions created and which ones have been overlooked. He can also examine the general performance of the students on the questions created.

The lecturer can, if needed, intervene with comments and explanations. This platform also offers discussion forums on the mathematical concepts included in the questions. Students can offer each other valuable feedback and thus learn from each other.

The key advantages for using this form of assessment appear to be that it allows for continuous assessment and feedback without a large increase in staff time; students are encouraged to think more deeply about the material because they have to engage with it in a different way in order to write the questions and students interact with each other (through the question-taking and feedback processes). Since these key aims are generally formative, the contribution of engaging with PeerWise to the final mark tends to be nominal. For example, in the geometry module, students receive 5% for producing at least 2 questions and answers on the material and for providing feedback and comments on between 6 and 8 questions produced by their peers.

4.3 Assessment

Module	Stage	No. of students	Assessment pattern
Geometry	Year 1	70	45% for a course test 50% for a project 5% participation to PeerWise
Statistics	Year 2	170	20% course test 20% course test 50% open book examination 10% participation to PeerWise

4.4 Discussion, learning and impact

Prior to the use of PeerWise, there was no continuous assessment in either of the two modules and thus the students received very limited feedback. The lecturer found he had full support from the teaching committee and head of department when he suggested the use of the tool. The platform allows staff to see what students look for within the various questions posed and to assess the level of interaction with the material. Informal feedback given by the students shows that they find the use of this tool beneficial to their understanding. Moreover, high ability students seemed to be more enthusiastic and to engage more with the platform than struggling students. Their participation throughout the course and their willingness to answer and create hundreds of questions shows involvement beyond the level expected. Differences in students' performances and marks are not available yet as this is the first time the modules have been offered in such a format. Improvements for a second implementation of this assessment include the production of some sample questions (designed by the previous cohort of students).

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