

Teaching Students to Learn Through the Use of Peer Teaching

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This case study has been developed from data gathered through a demonstration of the teaching and learning materials available, interviews with the tutor and a student focus group.

Background

Peer teaching was initially introduced to engineering students at The Robert Gordon University in their first year at the outset of their studies. Teams were given a topic to research and prepare for teaching to their peers in a thermodynamics module. They had four weeks to research and compile a lesson, and then devise the means of presentation. Facilitators were careful to assist the students to devise their own research, analysis and presentational methods. Although formative feedback was given the activity was entirely self-assessed by the members of the group.

The teams were designed to help them to appreciate the advantages of collaborative learning groups, *“in the hope that this would persist”*. The team element of the peer teaching exercise was also seen as an opportunity to integrate students into the university and introduce them to peers, helping them to have a sense of community. *“The facilitated group organisation not only developed inter-personal skills but ensured that all students quickly came to know fellow students and staff members.”*

To develop this idea further the tutor introduced a further peer teaching exercise in a second year ‘Products in Service’ module. Students are divided into groups and asked to write, film and digitally edit a lesson on component failure, failure mechanisms and methods of prevention. At the end of the module the students deliver the lesson to the rest of the class via the university’s virtual campus, followed by an online question and answer session between the groups. As well as helping the students to develop their research and analysis skills, it is hoped that through this coursework exercise students will gain useful key IT presentation skills. *“These students are learning to use tomorrow’s business communications tools today.”*

As part of the teaching on the module, training sessions were provided in research methods, presentation skills and use of audio-visual equipment and video editing software. The tutor and a technician were on hand in various timetabled sessions to answer the students’ queries about the equipment or software, and computer labs were timetabled for the students to use.

Reasons for introducing this teaching method

It has been identified that a prime reason for students struggling in their first year of an undergraduate course is that they lack good independent study skills. The tutor wanted to help students to make more effective use of information sources, theory and experiments and be able to make reasoned judgments based on the information. *“I wanted to quickly, in engineering terms, get them into having the ability to source information, assess its value, assimilate it and use it.”*

Teaching to teach was secondary but nonetheless important. Engineering students are frequently required to produce presentations, these are important skills for the professional engineer, but here the intent was to enhance the students’ learning. In preparing to teach the topic the students were required to conduct research, come to an agreed understanding within the group and organise concepts into a coherent presentation.

Lecturer's perspective

The tutor admits that he put a lot of work into the introduction of the first year module and believes that being *"thoroughly prepared"* was key to its success. Tacit support was provided for the Products in Service Module, but it required considerably more time from the staff involved than first anticipated, including the technician, and the tutor found it difficult to drive the necessary changes before the start of the module. However the tutor *"felt that the outcomes were well worth any effort that goes into it"*. The tutor recognised the resources needed, *"most particularly it takes the commitment of a lot of staff time, as well as classroom time, in relation to the amount of curriculum that you want to cover"*.

Students' perspective

A focus group was conducted with students from the Products in Service module. They had mixed views on the success of the peer teaching coursework exercise but this seemed to be related to individual experiences when using the computer equipment. Some students felt like *"guinea pigs"* and although they did not blame the tutor for the technical problems encountered, there was concern that the equipment could have been better prepared before the coursework assignment was set. However feedback about the exercise after the lessons had been delivered to their peers were very positive, *"it was the best thing we have ever done here"*.

Students believed that the tutor had introduced the methodology because he felt *"it's the best way to for us to learn"*. Some students welcomed the opportunity to learn one topic in depth whilst others felt that this limited their breadth of knowledge. *"You don't get an even base – you only know about your own specific thing"*. Teams were expected to ask questions at the end of each presentation as part of their assessment and the students felt that this helped them to engage with the other material that had been studied.

Overall the coursework helped them to gain more communication and presentation skills, and encouraged better time management as the filming and editing of the lessons took longer than expected.

Issues

This was the first delivery of the peer teaching exercise using the virtual campus. The tutor had concerns about the number of problems that arose during the development of the web-based coursework. Software and equipment had to be purchased and set up, and this took longer than first anticipated. Some Audio-visual equipment, for example, was made available for the students to sign out from the department.

Benefits

One benefit which the tutor had not anticipated was how *"it's helped to develop my relationship with the students and it has very much helped me to be what I would hope to be... a partner in their learning"*. Considerable emphasis is placed on students' responsibility for their own learning. The tutor comments that *"working actively rather than sitting in a classroom helps, and I think they enjoy discovering new ground"*, and these are concepts that could be applied to a range of subjects and disciplines.

Students felt the module had helped to enhance the way they worked with other students *"we came together and really worked as a team"*.

Reflections

Despite problems with the technical equipment, the delivery of the students' lessons was said to *"run like clockwork"*. The tutor was delighted to see *"the motivation and sense of achievement which was so evident in the students"* after they had delivered their lessons, and he also commented on their clear sense of *"team identity"*.

Students saw the tutor as someone who was *"prepared to give you his time"* and a tutor who would *"make you work things out for yourself instead of just giving you the answers."*