

Bioethics and Molecular Biology Project

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The HEAT TechDis grant was awarded to allow the purchase of a DVD camcorder, and related equipment (tripod, microphone and discs). This equipment was then to be used in two different projects: one running in a bioethics module, the other in a molecular biology module.

Bioethics project

A new Bioethics module was introduced in 2007/2008, open to all final year students in the School of Biology. Given the nature of bioethics it was thought that it would be useful to develop different assessment strategies than those used in more traditional modules in biology. To that end the assessment for Bioethics involved the development of a case study, the scripting of a dialogue based on the case study, a reflective essay, and an extended essay examining the literature behind the bioethical dilemma described.

For the case study the students had to think of a particular scenario which would fall under the heading of 'bioethics' and which was not covered in detail in the rest of the module. It could however be from any number of angles: medical, environmental, biological – whatever they thought would be interesting. The case study itself was to be a piece of written work, 2 pages in length and it had to comprise a particular scenario, named stakeholders, and possible points of conflict. Further, the case study had to be specific and focused i.e. a case study called "genetically modified organisms" was not appropriate. In addition to the written assignment, students also had to present the case study orally (5 minutes) in front of the rest of the class using no more than 5 slides or overheads.

The HEAT equipment was used for the second part of this assessment: the dialogue component. As bioethical dilemmas can at times be framed in a very theoretical manner, the idea behind thinking up a case study, had been that this would help the students to 'ground' their dilemma, and also allow them to understand the real life questions and values that people have to weigh up when making decisions. To further that grounding, and concretely give a human-dimension to the dilemmas in question, it was thought that scripting a dialogue between particular stakeholders would help all the students (not just the author of the dialogue, but fellow students too as they watched and listened) to fully realise what the implications of some of the advances in science and medicine mean for different people. Free rein was given as to how and where the dialogues were recorded. The acting ability of those presenting the dialogue on the DVD was not assessed, only the content of the dialogue itself.

Then, half way through the semester, all the students were asked to present their case study (described above) and their short dialogue was played. There was then a short time for questions before the next student presented their work.

The quality of the dialogues was very good and both members of staff who were involved in marking them commented on how well the students had risen to the challenge. The dialogues were intelligent, real, and thoughtful. Some students simply sat at a table and read out their dialogue (having persuaded a friend or flatmate to help out), others 'got into the part', e.g. a stereotypical (?) scientist dressed up in a lab coat and Sherlock Holmes pipe, and the like.

Overall I think the benefit of the dialogues was two-fold: not only did it perform the task that I had hoped it would (illustrating the case study, and making the dilemma more 'real') but it also helped 'break the ice' with the students. I think the fact that the dialogues were filmed and watched on DVD, rather than read out in front of the class, made the experience less nerve-racking, and the students less self-conscious. They also injected humour into the class (always a good way to help the class relax with one another). There was even a section of 'out-takes' where things had not gone according to plan.

From the student point of view, some students commented in their reflective essays (which they wrote about the experience of researching and writing their case study) and end-of-module feedback forms about the dialogue directly:

- *"The dialogue was something I particularly enjoyed and made my case study seem real as opposed to just some writing on paper."*
- *"...always good to attempt different activities, e.g. dialogue, as it keeps enthusiasm and interest levels high."*
- *"...was unsure of video case study but it was well organized and was an enjoyable method of assessment."*

When this module runs again next year, a filmed dialogue will continue to be part of the overall assessment.

Molecular Biology

The second use for the HEAT TechDis equipment was for a quite different purpose: to show 'life in a science lab' to undergraduate students. There is a focus at present on research-teaching linkages in higher education (current QAA enhancement theme). It was thought that one way to strengthen research-teaching linkages in a first year module would be to emphasise and demonstrate the research going on in the department. I think it is crucial that students arriving at university sense that they are no longer at school, that there is something different about the teaching they receive at a university. Part of the difference is due to the fact that they are taught by those actively involved in research, and it is important for them to know that they are part of the same institution, and that they too can play a role. Further, it is important (and has been commented in the scientific press of late) that even those students who do not pursue a career in science, ought to be 'scientifically literate' and able to understand the process of science and the way it is carried out in a research lab, breaking down the 'them and us' mentality, and building trust between scientists and the public.

Last year, I introduced a new initiative into the first year molecular biology: some of the PhD demonstrators, who help to teach the practical classes, gave short talks on their research, linking in techniques the students had been taught, and had themselves used in the practical classes (albeit it a lower level). The feedback from these talks had been extremely positive – the students had really appreciated the fact that they were hearing about up-the-minute research by people only a few years ahead of them. I think the link was particularly strong as they had been taught by these graduate students and so already knew them before they heard about their research. The graduate students also underlined the fact that they would be happy to answer any questions the students might have about research, and the hope is that a sense of academic community could be nurtured.

To further strengthen that link, and develop the interest and understanding of work in a research laboratory, the HEAT TechDis equipment was used to film short clips of the PhD demonstrators carrying out protocols in the lab. For example, one of the PhD demonstrators works on molecular markers of prostate cancer and so she was filmed carrying out immunocytochemistry. She explained the purpose of her work, and then carefully performed an experiment in front of the camera. This short film will be shown at

Available from:

www.techdis.ac.uk/getheatscheme

www.bioscience.heacademy.ac.uk/resources/disability/heatprojects.aspx

the end of this term, to strengthen the research-teaching linkage described above. Another PhD demonstrator has agreed to be filmed carrying out a PCR reaction, again, a method taught in lectures, and uses discussed, but for the students to actually see what it looks like in action is invaluable.

Concluding remarks

In both of the projects described above the initial funding application had said that the movies would be available on the University of St Andrews VLE (WebCT) but it was decided, for privacy reasons, that this method would not be used in either case. However, I do not think that this has in any way detracted from the purpose and value of these projects, and both are scheduled to run again next year with, one hopes, similarly successful results.