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Podcast Pre-Labs for Enhanced Learning

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Title of project Podcast Pre-Labs for Enhanced Learning
Type of project Development

Aims of project

- To script, record and make available a series of short (5-7 minutes) video podcasts which support first year chemistry laboratory sessions
- To evaluate the effectiveness of this approach

Background to project

Many students arrive at university with limited practical experience and hence a lot of laboratory time was spent demonstrating how to assemble equipment or correcting minor (but significant) errors in procedure. Whilst the laboratory handbook had been refined over several years, there is a limit to the amount of experience that can be transferred via the printed page. Hence, it was decided to made a series of short (<7mins) video podcasts in which issues could be discussed and techniques demonstrated.

Methods used

Video production

As I have run the practicals in this module for several years, I knew where the common mis-understandings occurred. Once I had outlined these, I could write a script which addressed these issues. At this point, consideration was given to the visual shots to avoid too much "talking head" at once and to ensure clarity. Some items were much more easily demonstrated than discussed. Also, the pre-lab questions were designed to be scattered throughout the video and relate directly to a point just discussed.
Once this was done, the equipment (a laptop to act as autocue and a digital camera) were set up and the script recorded to camera. The required demonstration/lab shots were then recorded. Video editing was done in the library's video edit suite and was limited to overlaying the laboratory images or pre-lab questions onto the recorded script. Once edited, the podcasts were uploaded to the module Tulip site.

Evaluation

Two evaluation methods were used:
1. A simple paper-based questionnaire to all students in the module. This occurred during the fourth laboratory session and focussed upon the technological aspects of the project. In particular, the ease of access, loading speed and resolution of the podcasts. This was to inform the podcasts to be prepared for the second term.
2. A focus group was used to probe how the students used and approved (or not) of the podcasts. This was carried out in the final term with volunteers from the cohort. The focus group was run by a PhD student from the School of Education who is not part of the degree teaching team and hence was more likely to get unbiased answers.

Results

The questionnaire demonstrated that students were happy with the distribution method for the podcasts and that download times were not an issue. The vast majority of students watched the podcasts on their home computer. Given the rise of portable devices, this was a surprising finding. However, it would seem that the chosen compromise between image quality and file size is a suitable one. Over 70% of students watched the podcasts more than once, something that could not be done with an in-class demonstration.92% of students agreed or strongly agreed with the statement "I felt more confident about the practical." The focus group discussion centred on how useful the students found the material presented in the podcasts. The students were very positive about the use of the podcasts and valued the ability to replay parts of the video. Lots of comments related to how information was more easily assimilated when presented visually: "I had seen him do it so I remembered it", "useful for setting up the equipment and things like seeing when a reaction is complete."

Associated publications

"Podcast Pre-labs for Enhanced Learning" presented at "The Vice-Chancellor's Teaching and Learning Conference", Plymouth University, June 2012

"Podcast Pre-labs for Enhanced Learning" presented at "Variety in Chemistry Education", Edinburgh University, September 2012

"Podcast Pre-labs – Evaluation", Chemistry Education Research and Practice (2013) – in preparation

Keywords podcasts, video, laboratories

Appendix

Information on conditions
1) "They felt that your experience of producing the podcasts would be of interest to others, and would like you to capture this process for others to learn from." – the process has been captured as a case study as part of the Seedpod programme.
2) "The project should include student evaluations of the podcasts" – a two level evaluation programme was implemented – see above. Ethical approval was sought and approved.