

[O28] ACCESS (Audio Content Creation for Educational Success)

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Background

Over the last two years, we have successfully rolled out the Blackboard Virtual Learning Environment within the School of Biological Sciences at the University of Leicester. Every undergraduate module is now represented on the VLE, providing supporting material and improving access for all students. Podcasting is currently focussing attention on the potential for audio teaching materials. In order to enhance accessibility for all students, the ACCESS project aimed to promote increased online use of audio teaching materials via the VLE, employing the same peer-to-peer strategy which was so successful in rapid adoption of the VLE initially. Funding was received from TechDis to support the purchase of equipment for this project.

Over the last two years, a programme of sustained promotion and training has embedded the use of the VLE, Blackboard, within the School of Biological Sciences. In 2003/4 only 51% of undergraduate modules were represented on Blackboard, since uptake was voluntary (Badge, et. al. 2005). Following the programme of peer-to-peer intervention, every undergraduate module is now represented on the VLE, providing supporting material and improving access for all students. However, we are concerned that this move to eLearning does not disadvantage any of our students, in particular those who may be dyslexic (the Faculty of Medicine and Biological Sciences has the highest number of students registered as dyslexic in the University). Recent research has shown that single format audio is superior to text plus images as it reduces cognitive overload in dyslexic students (Beacham and Alty 2006). Therefore our aim through the ACCESS project was to mirror the success with the uptake of the VLE to promote the use of audio on the VLE throughout the School. The pool of microphones was available to module staff to record narration for a variety of uses such as providing sound tracks for PowerPoint slides, breeze audio presentations and podcasting. The extra kit comprised two digital recording devices which allowed the direct recording of sound to mp3 files.

The ten microphones and two portable digital recorders have been used by 8 staff in the School of Biological Sciences in the first two months of the project and all the microphones will be used by a student group later this semester. Over 200 undergraduate and postgraduate students have had one or more of the audio projects in their courses during the first semester of 2006/7. This will be expanded to reach a further 500 students in the second semester.

All of the projects attempted to provide some alternative format for existing learning resource materials, in some cases to capture information that would be otherwise lost in discussion, in others to supplement visual material. This emphasis on the provision of

audio material as supplemental and alternative resources was the main aim of the ACCESS project.

Evaluation of each instance of audio use was carried out through online surveys on our VLE. The students reported that the addition of audio increased their understanding of the topics concerned and allowed them to work at their own pace. Many reported that they would use the resources provided during revision for exams and they liked being to stop and start the recordings. Some cited the fact that they found concepts easier to understand in an online audio format.

Specific projects and sample materials

Weekly audio feedback for first years

A portable digital recorder was used to try to capture student voices during help sessions conducted in computer laboratories so as to provide an alternative means of feedback via audio podcasts for students on the module. Difficulties were experienced with this approach. Because of the noisy setting and the mobile nature of the staff helping students, it was difficult to get acceptable sound quality for the podcasts, even though the portable digital recorders performed well under more controlled circumstances (e.g. a quiet office environment where the speaker was static). Sound problems and continuous recording meant that editing the recording to produce a podcast took an unacceptable amount of staff time, and that the final result was technically disappointing. The informal, non-scripted nature of the source material would also pose difficulties for hearing-impaired students as no script-based transcript could be made available unless secretarial help was available to transcribe the recordings.

Student feedback indicated that the take-up of the podcasts was poor, and this was in part due to the poor audio quality. Comments included the following:

- The podcasts were useful. They are an interesting way of giving feedback to weeks assessments.
- I found the task using the university email system helpful, although learning was self-directed as there were no adequate notes explaining how to use it. I found podcast unnecessary but think it is a good way of learning and communicating specific ideas.
- Podcasts are a great idea, although I forgot about them (until now) after the first week – might be good idea to mention/refer to them again during lectures later through the course.
- Fairly helpful if had time to listen to them, e.g. when doing next assignment. But to help with problems, I felt it was just better to look through example answers afterwards.
- I didn't use the podcasts for feedback of this module because I didn't find them particularly interesting to listen to.
- As for the podcasts, I listened to about 1 minute of a podcast a few weeks ago. The person who was speaking seemed enthusiastic, although the need for such podcasting is questionable in the context of this particular module.
- It would be better if there was some feedback available in text on blackboard as I couldn't listen to the podcast on my computer. This meant that I missed out on all feedback all term due to a technical problem which was not under my control.

- Unfortunately I found it difficult to download the podcast for reasons that are still unknown so I am not able to comment on this.
- I don't have speakers on my computer so I didn't listen to podcasts.

In addition, the loss of visual information was a major problem for these computer-based sessions. The audio only approach has now been superseded by the provision of short online videos containing both audio and visual information from screen recordings.

Audio podcasts were used without student voices for the remainder of the course – see sample material for an example (week 2 podcast)



Figure 1: recording student questions during a help session using mp3 recorder for use in a feedback podcast

Recorded lectures (postgraduates)

The School of Biological Sciences runs four one year taught postgraduate MSc courses which have a high proportion of international students. A trial of providing a copy of a live lecture given to the Molecular Genetics postgraduate students was carried out in October. The lecture was recorded using the portable digital recorder and relatively good quality sound was obtained. This was then edited and synchronised to a powerpoint file using Macromedia Breeze (now called Adobe presenter <http://www.adobe.com/products/presenter/>) which converts the files to a flash presentation which can be hosted online. The recorded lecture can be viewed at: <https://breeze.le.ac.uk/p43913344/>

An online evaluation of student views on this format was carried out. A response rate of 29% gave only a small sample to gather data, but some of the general comments were informative. Students all listened to the presentation on their PC using Breeze, although mp3 files were also made available for downloading. Half of the students reported that they took notes whilst listening to the presentation (in addition to those already taken in the live lecture). All of the students said they would use the resource as a revision aid in the future.

- Sometimes when lectures are reviewed – even with the Powerpoint stuff – it can seem a little too detached; with the Breeze effects there is a stronger connection with the material.

- User-friendly interface.[the lecturer's] enthusiasm for the topic is almost tangible!
- The visuals are very well presented
- The audio description coincides very well with the content and scheme of each slide
- It's easier to remember the concepts, when they are explained, like having a personal tutor
- Occasionally the sound quality made it difficult to pick up the odd sentence, though this was more as a result of it being recorded in a lecture situation, rather than in an office.
- Sometimes the audio is more interesting than reading the actual words on the slide
- I'd like to be able to come up with some further constructive criticism, but I thought both the idea and the execution were laudable
- The fact that the slides from our lectures are presented on Blackboard is already a great help; with the addition of an audio record they are available in their entirety at our own leisure. However, this does not make the lectures redundant at all; rather it means that full concentration can be paid to the lecture itself, and there is a stronger connection to the material when the time comes for revision
- I think this is an excellent idea for remembering concepts that are not clearly depicted on some slides and explained verbally

Another lecturer is already planning to employ a similar technique to provide recorded lectures for third year undergraduate students.

Replacement of face to face lecture with online lecture

A second year undergraduate course with 42 students studying Bioinformatics employed a new strategy to replace a live lecture with an online one. The same macromedia breeze product was used to produce the online lecture as in example 2 above, however this time, the lecture was scripted and recorded in a quiet room and not captured from a live delivery. This gave the advantage of being able to display the script as written text as well as provide the audio track. The lecture was hosted on an open server and can be viewed at: <https://breeze.le.ac.uk/bs2064one/>

Students completed an online questionnaire to provide their feedback on the online lecture following the second lecture in the series, which was a traditional live lecture. Many students reported that being in control of the pace of the presentation aided their understanding of the topic:

- The pod cast lecture was very easy to use and did not pressurize me to stay focused onto the topic being talked about, it was very easy to pause it and read the side notes and replay the lecture till I understood. Most of the questions that came up in my mind were either answered in the voice file or by the notes. And being up close and in control of the presentation really helps.
- Could pause it while taking notes, and rewind to get bits that I had missed. Found it very useful, and I think my understanding was better than if I had been in a face-to-face lecture.

- I liked the fact that you could stop the slide presentation to enable you to write notes without falling behind and missing vital information.
- I liked the idea that the audio was written up too so that I could refer to it again.

Online software demonstration

Another one year taught postgraduate course in the School of Biological Sciences is the MSc in Molecular Genetics. Students were required to use a particular software package (Staden) to perform analysis to discover the evolutionary relationship between different organisms. This software was demonstrated in class and a written help guide produced to assist students. However, in previous years students had commented that this was still a difficult exercise so an audio guide was produced with screen movie demonstrating the use of the software. With a large proportion of international students on the course, these animated tutorials were very popular. An online survey was conducted to gain feedback on the tutorial. The survey was completed by all 21 students on the course. Over 70% of the students agreed or strongly agreed that that the animated tutorials were helpful to their studies and a quarter used the tutorial for more than 20 minutes. Students liked the fact that they could access the tutorial at their convenience and listen to it more than once if they did not understand a particular element. Students were asked to comment on what they liked about the tutorial:

- [I liked] the fact that the message was recorded and so we could play it back and listen to it again.
- It got us acquainted with the programme, was well described and was easy to understand.
- It helped with recognising the icons.

Recorded discussions on the ethics of science

Discussion from a two day workshop 'Genetics, Science and Society – A Multi-faith Perspective' was recorded in October 2006. The workshop, organised by the GENIE CETL (Genetics Education Networking for Innovation and Excellence) addressed social, legal and ethical issues of genetics. These recordings will be made available for student use online and will serve as primers on various ethical discussion topics.

Individual audio feedback to undergraduates

Providing timely, individualised feedback to our large first year cohort is challenging. We will trial a system of using the microphones for staff to record individual audio comments for each student to be returned to them as a file embedded in their original word document (to take place towards then end of semester two 2007).

Undergraduate use of microphones

First year undergraduate medical students will be using the microphones to record the audio to a short PowerPoint presentation within the Membranes and Receptors module. In previous years, students have made oral presentations live to study groups of 40 students. Feedback from these sessions over several years indicated that many students felt that they were unable to obtain the complete information set they required during the student presentation sessions. To respond to this feedback, the use of student podcasts of

presentations uploaded to the module pages of the Medical School VLE is being explored in a pilot project this year. This will permit presentations to be revisited and information to be re-accessed at a latter date. It is proposed to carry out this pilot with a minimum of four student study groups, resulting in a minimum of eight podcasts. All students (~320) will be encouraged to take part in this pilot and it is hoped that take-up will be much greater. If this pilot is successful, one of two required presentations for all students will be made via a podcast in future years. To ensure that all students have access to appropriate software, student podcasts will be recorded as narrated PowerPoint presentations in 2007. These will be uploaded on module pages within the Medical School VLE. The possible future use of Audacity (<http://audacity.sourceforge.net/>), which allows more interactive editing, will be explored with keen students. All ten microphones from the ACCESS project will be used for this activity (to take place in March 2007).

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