Audio feedback for students

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Abstract

Three engineering modules at Staffordshire University in the Faculty of Computing, Engineering and Technology were chosen to run this audio pilot project. Students were given formative and summative audio feedback using MP3 files instead of receiving traditional written feedback. This case study reports on the conduct of the project and the conclusions drawn from it.

1. Background

After attending a Subject Centre presentation by Bob Rotherham (Leeds Metropolitan University) about his ‘Sounds Good’ project at Cardiff University in 2008 (http://www.engsc.ac.uk/nef/events/e-assessment.asp), I applied to the Engineering Subject Centre to take part in a pilot project. This followed on from Bob’s project and another based at Bradford University called ‘Audio Supported Enhanced Learning’ (ASEL). We were interested in discovering if there were efficiency benefits to using audio feedback and what the student reaction to it might be. We also wished to gain an insight into which modules might be most appropriate vehicles for its use.

The students concerned had never experienced this type of feedback before. They had received aural feedback for presentations but had only had written feedback for formal summative assignments in the past. The Engineering Subject Centre arranged a workshop/lecture at Staffordshire University run by Will Stewart, Project Manager of ASEL, to initiate the project.

The project was conducted by two lecturers in the Engineering part of the faculty, Peter Barnes and Martin Fiddler.

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Martin Fiddler, Senior Lecturer Faculty of Computing, Engineering and Technology, reported:

2. Methodology

Two modules (one at level 2 and one at level 1) were selected and both ran in Semester 2. Both involved the students undertaking a single individual written piece of coursework for assessment. The modules had 15 students registered on Crash Investigation and Measurement and eight students registered on Transport Propulsion Systems.

A Sony mini MP3 dictaphone was used. On receipt, the assignments were quickly looked through. They were then marked and the feedback given via the dictaphone. Given the fact that audio feedback

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1 The Sounds Good project is based at Leeds Metropolitan University and led by Bob Rotheram, National Teaching Fellow. So far, sixteen teachers have used digital audio to give formative and summative feedback on students’ coursework. www.soundsgood.org.uk

2 The ASEL project is being led by Will Stewart at the Universities of Bradford and project partners at the University of Hertfordshire. The ASEL project has developed, implemented and evaluated the use of audio within next generation technologies to support, enhance, and personalise the learner experience. http://aselproject.wordpress.com/
was being given, no annotations were made on the paper assignment other than the front 'feedback' sheet, which would normally have brief feedback written on it, plus the serial number of the audio file.

The audio comments were made as the assignment was assessed in real time (i.e. as each page was turned, comments on any issues on that page were made). This only led to one problem, where I commented on the lack of diagrams. These had been placed at the end in an appendix, so after coming across them, I was then able to state that these had been seen and that they should have been in the main part of the assignment. At the end, I summarised the work, its good points, any points for improvement, the marks for each section and the overall mark.

After all the assignments had been marked, the audio files were copied to my pc, renamed with the student's name and pushed into their Blackboard Dropbox. They were also stored on CD for the external examiner to see and as a permanent record.

3. Issues

No real problems were found. Audio quality varied, the microphone was very sensitive to the distance from the mouth. A headset with microphone would help here in the future. The batteries lasted a very short time in the dictaphone, expiring after about two hours use.

4. Benefits

I estimate that marking the assignments in this way probably took about 25-40% longer than normal. However, I found it a relaxing way to mark, making verbal comments was much easier than having to write legibly on the feedback sheet.

For a good student, who wouldn’t have needed much feedback normally, the time taken was about 50% longer. For a poor student, who would have needed much more written feedback, I estimate the marking took about 25% longer. This doesn't include the time to copy and rename the files onto the pc and the time needed to send the files to the students in Blackboard, which was about 3 minutes per student.

I transcribed a couple of the audio comments I made. Each one filled half a page of A4. This is considerably more feedback than the student would have got normally, probably by a factor of ten. It was also possible to use voice tone to praise or chastise as appropriate, giving added depth.

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Peter Barnes, Award Programme Manager in the Faculty of Computing, Engineering and Technology, reported:

2. Methodology

A module CE00587-2 Materials for Technologists was chosen. This is currently core at level 2 for approximately 30 students and in the academic year 2007/08 suffered major problems with completion, with poor performance in coursework being one of the major concerns. The coursework required a written individual submission for 75% of the work and a group presentation for the other 25%. I felt that one way of keeping on top of student progress towards completion of the coursework would be to require students to submit a coursework proposal after week 4/12 to allow me to advise on the feasibility and to suggest alternative strategies/information sources in my feedback. This had previously been performed on an ad hoc basis in tutorials with little time available and no means of formally capturing my advice. The module comprised 32 students: 31 male and one female. Two students had statemented special needs. For one student English was not their first language.

In order to create an accessible but confidential environment for lodging feedback files, a social networking site was created using Ning (http://ce00587-2.ning.com). Each student was assigned to two “groups”. One group contained only me and the student in order to allow confidential access to the individual feedback. The other group contained all of the students involved in group presentation plus me. This amounted to 42 Ning groups (32 students, ten presentations).

Feedback was recorded direct to mp3 using a Sony ICD-UX70 IC recorder at 128kB/s. This produced files at approx 1MB/minute. Each file was recorded in a single take. Use of Audacity audio processing software (to splice header messages etc) was experimented with but discarded. Files were mounted in each of the groups in week 5/12 for the summative comments and in week 12+3 for final comments,
including a provisional coursework mark. This amounted to 300 minutes of audio with a typical student receiving approximately three minutes of formative and five minutes of summative feedback and a presentation group receiving two minutes and three minutes respectively. The range of file lengths was 3.5-7 minutes for individual feedback and 1.5-3 minutes for group feedback. Copies of files on CDR were also provided for the external examiner along with the sample of coursework to which they referred.

Evaluation of the effectiveness was based on:
1. informal discussion with students
2. student comment captured in the Ning site after the initial formative feedback
3. student comment captured in the Ning site after the final summative feedback
4. student comment via module evaluation questionnaire through Blackboard
5. student comment via audio trial evaluation questionnaire through Blackboard
6. external examiner comment.

3. Issues

There were no major or insurmountable technical or organisational issues, although the use of the external site involved significant set-up time and “moves”. The hardware was robust and reliable with no battery life concerns. A major concern was poor student response rate in obtaining evaluation.

4. Benefits

It was clearly easier to provide depth and quantity of feedback way beyond what I would have been able to write on coursework coversheets. Each student received, on estimate, the equivalent of two pages of A4. The medium provided the ability to express some emotion - pleasure or disappointment - via intonation in the feedback.

5. Evidence of success

Students were asked to complete an online survey via Blackboard which asked about their experiences and the quality of the feedback.

On balance, the students liked the format of this feedback. Of those students completing a survey of the experience, 94% said that the audio feedback was a better experience than previous written feedback received. Most considered the quality of feedback to be higher and that it related better to the assessment criteria, and the majority felt the feedback was quicker than it would have been in written format. No responses stated that they would definitely not want this to be repeated in other modules and some students expressed that they wished that all feedback was in audio format. Some of the student comments are:
- “It was simple and straight to the point.”
- “You could listen to it over and over to get a better idea of what to do. I think it should be compulsory in every subject very helpful.”
- “I would like the audio feedback to be repeated in the future.”

Both lecturers concerned were enthusiastic and will be using the audio feedback in the future, but only with modules that they feel lend themselves to this mode of media. The external examiner also commented favourably on this pilot.

6. How can other academics reproduce this?

Some modules, such as those where equations need to be corrected, wouldn't be suitable for this technique. The more discursive modules are very suitable. However, the lecturer needs to be eloquent and comfortable with talking into a dictaphone. The Faculty will hold staff development workshops and will promote the outcomes of this project to other interested staff. Within the University this will be presented to a TSL workshop to raise awareness outside the Faculty.
7. Reflections

Martin Fiddler

I was very pleased with the system. I will use the technique again extensively for most of my modules in the future. The additional time taken was not excessive compared to the increase of information given to the students.

Peter Barnes

Given that much of the time taken was associated with start-up issues and my learning the hardware and software systems, I feel that I gained a lot from the trial for little, if any, extra time taken for the module. It forced me to look a lot harder at the coursework I set and nature of the advice that I give to students. It also revealed a certain amount about how students prefer to communicate. The Ning site became a forum for chit-chat about any topic other than the audio feedback. Notwithstanding any of this, I would certainly like to try it again on a module where stronger formative feedback on an early piece or proposal could provide a better final submission and higher levels of achievement. With the knowledge gained, I feel that providing audio feedback will enhance the student experience of some modules with little or no extra time burden.

Overall the students, staff and external examiner found this to be a very positive and worthwhile experience. The enthusiasm of the academic staff in talking about this experience to other staff, both within and outside of the Faculty, and the positive feedback from students attests its value.