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Case Study

Students and Academic reflections of iPhone Audio Feedback Experience

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Abstract

Audio feedback for Engineering and Computing students has been produced for the last five academic years using an iPhone. The feedback has been applied to support their learning about the professional experience and employability. The benefits of audio feedback have been widely reported by the author and other academic practitioners, however its distribution can be problematic. This case study highlights how iPhone audio feedback production and distribution can be simplified to provide improved and effective high quality feedback to benefit both students and their tutors. iPhone audio feedback was provided to 130+ students in the 2010-211, and 200+ in 2011-2012. This study draws upon the reflections of the two student cohorts between 2010 and 2012 and considers the potential of the approach for feeding forward into the ongoing learning of students.

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Introduction

Rotheram (2010) argued that audio feedback is an effective way to provide high quality feedback to students quickly as 500 words of feedback can take 30 minutes to write, but only 5 minutes to audio record. Ice et al. (2007) found that students perceive audio feedback to be more personal, that it enhances the student and academic relationship, and improves student engagement with their feedback. However, distributing audio files from an MP3 recorder can be tedious and time consuming (Nortcliffe & Middleton, 2009). For a large cohort of 200+ students, distributing this amount of files through the institutional virtual learning environment (VLE), Blackboard, during the height of the semester can take more than 10 hours. This study reports how using an audio recorder app with integrated email functionality on the academic's iPhone reduces this to less than 1 ¾ hours to distribute. Using this method 215 personal audio feedback files were distributed directly to student email accounts, thereby removing the need for them to login into another application to access and download the file. Increasingly students can access and play the feedback file on their personal smart devices, enabling them to listen to it anytime and anywhere, providing the device has been configured to access their university email account through the mail app.

The personal nature of the feedback and its rapid turnaround remain as key benefits of audio feedback. In this case study, however, students reported that the audio feedback was more accessible to them and improved their initial understanding of it, which was multiplied by its long term availability and their subsequent reuse of it.

Audio feedback innovative method

The Aims

This study evaluated the innovative practice of using the academic's personal technology, an Apple iPhone, to enhance the experience of making, distributing and using audio feedback given by an academic in response to student assignments. The aim of this feedback method was to:

- Make the administration of the feedback more convenient and of high quality, even for the large cohort;

- Make sure that high quality feedback for the large cohorts could be turned around in a timely fashion, responding to the guidance of Gibbs and Simpson (2004) that timeliness is a key component in supporting student learning;
- Enable the academic to generate high quality individual feedback so that it can be distributed to students without creating a burden for either the academic or the student recipients;
- Provide feedback that is accessible and personal enabling the student to extend their interaction with the feedback to inform their ongoing personal development;
- Support the authentic learning experience designed into the assessment intended to develop student communication;
- Develop digital smart device 'literacy' for both staff and students by harnessing smart technology;
- Provide feedback to students in an accessible format that gives them control of their learning and allows them to apply the feedback to enhance their engagement and attainment.

The role and management of feedback on the student assignment

The assessment is a mock employability application. The assignment is first marked by student peers using an established peer assessment method (Orsmond, 2011), to provide immediate self-reflective feedback and moderated by the module tutor over a 7-9 day period. The tutor essentially finalises the summative feedback and the grade of the work. The short turnaround is required due to the students' need to apply their feedback on their employability assignment to the completion of their current and real placement applications, therefore the students are utilising the feedback formatively. The module leader has the greater number of tutorial groups to support, amounting to 150 students in 2010-2011, and 215 in 2011-2012. The other tutors have only one or two tutorial groups each, providing feedback back to approximately 40 students in each case. As the number of scripts per tutor is smaller, these tutors are able to provide written feedback within the short feedback time framework. This turnaround time was not possible for the module leader and a solution involving the use of learning technology was needed to achieve the same time scales in order to provide high quality feedback.

In the past the module tutor has used a method involving MP3 audio recording devices (Nortcliffe & Middleton, 2009), however the process of distributing 200 audio files from a MP3 recorder into Blackboard is time-consuming and a painful process for someone like the author who suffers with RSI (Repetitive Strain Injury). Though

distributing the audio feedback files via the VLE has simplified the process, it still takes 1.5 minutes on the University network or 2.5 minutes on a home network to locate and upload each audio file. To distribute 215 audio files would therefore take ~10hrs on a home network; time that could be spent on giving feedback.

Using the method outlined below, producing iPhone audio feedback takes 10 minutes for each student submission including reading the submission, recording feedback on it and sending the feedback directly to the student. The average duration of the feedback was four minutes and the distribution of the feedback took half a minute per student. In all, it took a total of 1 3/4 hrs to distribute all 215 audio files.

The feedback is output as an electronic feedback file that can be stored easily. It is designed to be used by the students, not just for their placement applications, but also for their final year graduate applications and beyond in the future.

Audio feedback approach

The iPhone audio feedback approach adopted a Bring Your Own Device (BYOD) philosophy and made use of my personal iPhone and with the Recorder Pro app (Perception System website). The app has been identified as the most suitable audio recording app for giving audio feedback in previous work (Nortcliffe *et al.*, 2011). Its advantage is that it can be linked to the tutor's university email account allowing each audio file to be directly emailed to each student as it is recorded.

A standard message was pasted into each email explaining how to access and use the attached audio feedback file. With the aid of the timetable class list for each tutorial group available via the timetable system, which supplies the student name and the student number, it is possible to easily construct each student's email address from their student number. For example, if the student number is 26005471, the student email address is b6005471@my.student.shu.ac.uk.

Evaluation Method

The audio feedback approach was evaluated by surveying the students who had received either the tutor moderated written feedback or the tutor moderated audio feedback. A paper copy of the survey was distributed to all 250 level 5 students each

year during 2010-2011 three months after receiving their feedback. 198 students responded to the survey of which 106 were recipients of the audio feedback.

The survey was used again in 2011-2012, but this time was distributed electronically and deployed to all level 5, placement and level 6 students, ~1176 in total, via the VLE. The second survey aimed to find out if the feedback continued to be useful beyond the initial purpose of supporting the students' placement applications. Only 97 students responded, of which 43 had received audio feedback. Each survey was followed up with semi-structured interviews (Cohen et al., 2000) involving the voluntary co-operation of participants (Hague, 1993). The interview arrangements and types of interviews, volunteers study details and the length of time since they had received the employability audio feedback at the point of the interview is shown in Table 1.

Table 1: Interview details

Year of Research	Interview Communication	Interview Arrangement	No. of Students	Study Level	Period since receipt of feedback
2010-2011	Face to Face	Group	6	5	Month
2011-2012	Face to Face	Pairs	8	4	Month
2011-2012	Face to Face	Pairs	1	5	4 Months
2011-2012	Face to Face	Pairs	1	6 (not been on placement)	16 Months
2011-2012	Email	Individually	4	6 (been on placement)	28 Months

Results

Academic Perspective

From the tutor perspective, the iPhone audio feedback approach enabled the provision of constructive, qualitative, and timely feedback in a 9 day turnaround to a large number of students. The average length of the feedback was 4 minutes, with a minimum of 2.5

minutes and a maximum 8.5 minutes. By using the auto-pause function on the Recorder Pro app which responds to silence, it typically took 10 minutes to read the student submission and give feedback on it.

The distribution of feedback was speeded up considerably, reducing the time it had taken to give written feedback from 9 hours to less than 2 hours using the audio method.

By significantly reducing the time it takes to produce the feedback the academic was able to stay attentive and engaged in the task of producing personal feedback for longer.

Only one or two students did not receive their feedback due to their email accounts being full or temporarily withdrawn by the University.

Student Perspective

Analysis of the student survey responses on the usefulness of the moderated feedback (Figure 1) revealed that the recipients of the audio feedback found it was more useful than the written feedback. The further analysis and codification of the student survey responses to the open questions on the clarification of the usefulness of personal audio and written feedback (Figure 2) indicated that student's perception of written feedback is much narrower than audio feedback. Audio feedback is perceived to be more useful in terms of content, accessibility and applicability, as well as being more personal, whereas the written feedback was perceived to only be useful in terms of content and was considered to be insufficient in detail to support their learning.

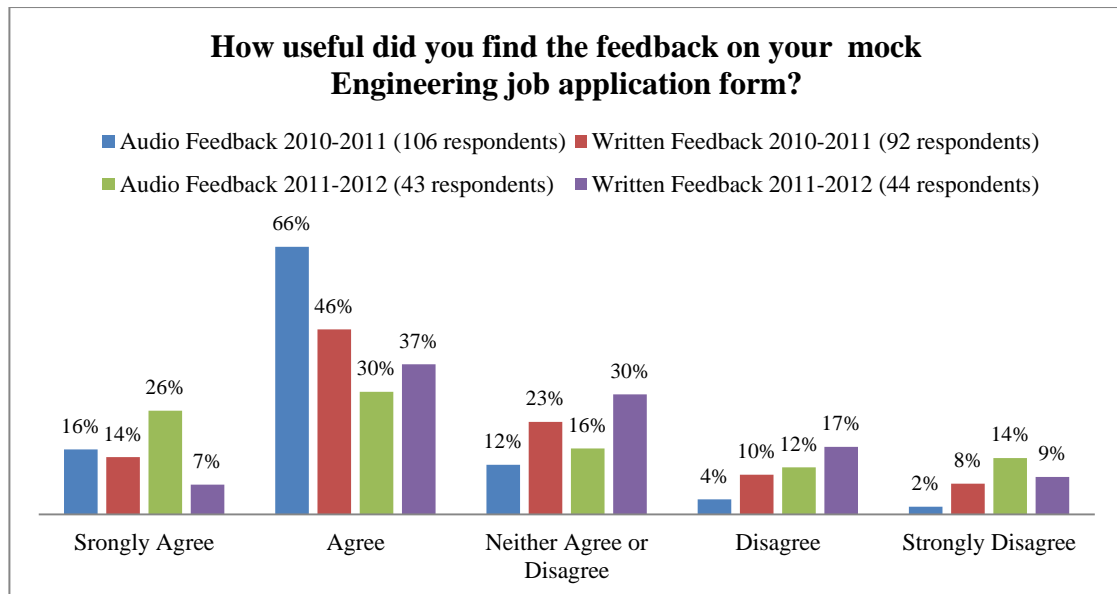


Figure 1: Student response to how useful they found the feedback they received

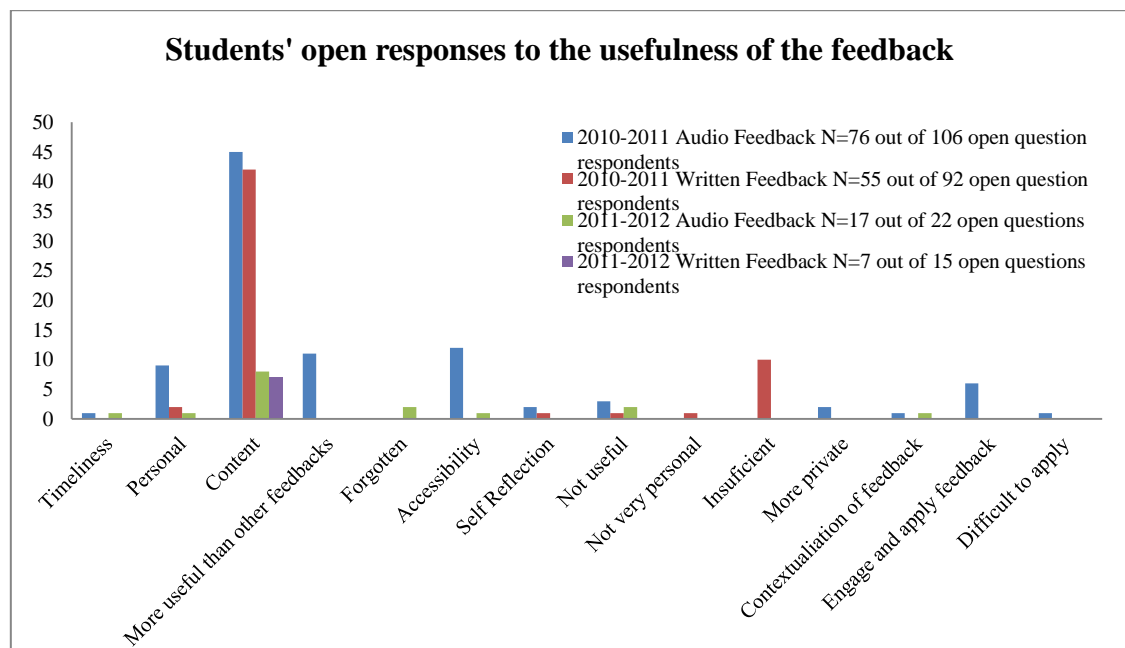


Figure 2: Categorisation of student open responses to how useful the students perceive the feedback was to them

The student data also revealed that the students who received audio feedback re-used the feedback more than those who received written feedback (Table 2).

Table 2: Number of times students accessed the moderated personal tutor feedback

Feedback Type	No. Times Accessed	
	2010-2011	2011-2012
Audio Feedback	2.7	3.5
Written Feedback	1.8	2.3

However, the 2011-2012 survey results indicate that neither type of feedback is accessed again to any significant extent after its initial use to support placement preparation (Figure 3).

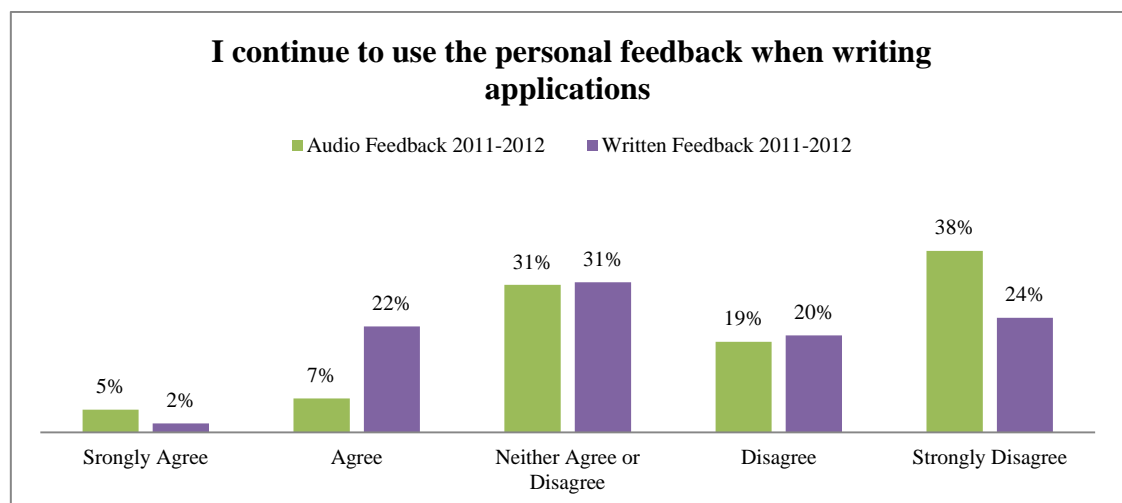


Figure 3: Re-access the feedback post placement preparation assessment

Analysis of semi-structured interviews in 2010-2011 revealed that the students accessed the audio feedback more often than written feedback and stated that audio feedback was more useful and understandable in terms of content, as it felt more personal, easier to access, use, and store. For example:

“I found it more useful than written feedback ...read through what you've written down without... crazy red markings... from some tutors” Student A

"It's there and it's clear. And you know exactly what is trying to be said." Student B

“...when [my tutor] is speaking it out loud they're communicating it a lot clearer.”
Student C

"It's readily available as well... [When] you're doing application forms and you become stuck or something you can click it on in the background instead.” Student D

“It's easier to save audio feedback in a file, whereas a bit of paper - you might file it away and not ...find it again.” Student E

The student interviews from 2011-2012 contradicted the survey results. The respondents indicated that the audio feedback was useful beyond its initial purpose of supporting placement preparation.

“It sinks in more if it is said to you... can't skim through it you have to listen to it.”
Student F

“I thought it was good getting audio feedback because if it is wrote down people just scan it, then you don't read through it.” Student G

“I bore it mind [audio feedback] when I changed my covering letters.” Student H

“I listened to it a couple of times to improve my CV for the Bentley placement application.” Student I

“It was nice to have the [audio] feedback. The peer feedback was quite harsh...constructively it pointed out the flaws... the audio feedback did talk you through a little bit what you did wrong and how you could improve it.” Student J.

However, the 2011-2012 level 6 student email reflections indicate how their reuse of the feedback over time was mixed with many students having forgot that they could revisit feedback from earlier years.

"I did use it recently as it helped with a recent application form.” Student K

"No, I haven't used the audio feedback from the mock application. I'm afraid that I had simply forgotten about it.” Student L.

Some practical issues were evident in comments:

"[I] prefer written feedback over audio as it's just easier and saves getting out headphones etc. whilst at university" Student M.

However, overall the student surveys and interviews confirmed the value of the audio

approach.

Conclusion

In conclusion, students value the audio feedback in terms of its content. They also find it easier to access and more personal which is consistent with previous audio feedback research (Blackburn *et al.*, 2013). In this application of the audio feedback it not only supported the student learning, but also their current personal development needs. The iPhone method of audio feedback generation and distribution, incorporating the integrated to the email application, sped up the process considerably. It reduced the time needed from 9 hours to less than 2 hours which freed up more time to give the higher quality feedback associated with using audio (Rotheram, 2010).

Audio feedback is more efficient in comparison to other methods, for example; written feedback (Lunt and Curran (2010) and the smartphone audio feedback approach has further simplified the production and distribution of audio feedback to students (Nortcliffe & Middleton, 2011). In the case described in this study the method has enabled the academic the return high quality assessment feedback quickly and efficiently to large number of students.

However, iPhone audio feedback is not for all academics and not valued by all students. The approach has potential for promoting long term access, but reuse of the audio feedback by the students in the long term, as with any feedback, is dependent on the students remembering they have the feedback and where they have filed it.

Future Developments

The method will be improved in the future by reminding students to create logical filing systems for storing their e-feedback so that feedback can be found easily in the future. Final year students need to be reminded about the relevant feedback they have received in earlier years to support their employability and should be encouraged to re-use it by applying it to their graduate applications.

Currently the tutor, a module leader, is working with those immediate colleagues who possess a smart device or have been provided with an iPad Mini to adopt and apply and evaluate this approach. As module leader, she continues to encourage students who

have smart devices to store and access their recordings on their devices and to access the recordings again later to support their development. The potential of the approach is confirmed by the following unsolicited message from a Level 6 student:

“I still have [the audio feedback] on my computer and my iPhone. I listen to it now again... last week when I was preparing for an interview I actually played it...[at the interview].” Student N.

The audio feedback supplied to the student during the previous academic year and stored on his phone enabled him to prepare for the interview, demonstrating the ubiquitous and pervasive nature of the iPhone audio feedback approach.

Recommendations

Recommendations for others who may be considering a similar approach:

- Ensure that when students submit their work they provide their email address for its return;
- Find a working space where you will not be disturbed when producing the audio feedback;
- State at the beginning of the recording who the feedback is intended for;
- Provide constructive feedback by referring to evidence in their submission to highlight how they can improve as well as noting what they got right;
- Summarise your final thoughts, ideally keeping within five minutes per recording;
- Provide guidance to students on how they can use the feedback they receive to improve future work;
- Provide guidance on which software applications on a PC will play the audio file format (e.g. aifc format will typically play in QuickTime, latest RealPlayer, iTunes, iPhones, and some Android phones);
- If emailing the feedback use a standard message to indicate that there is an attachment and the name of the assessment to which the feedback relates;
- Grades still need to be communicated via the VLE so that they can be found reliably by students, tutors and external examiners.

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