iPhone supervision and feedback: a case study

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Published version

NORTCLIFFE, Anne (2011). iPhone supervision and feedback: a case study. In: MIDDLETON, Andrew, (ed.) Media-enhanced feedback: case studies and methods. ASSET and MELSIG, 14-18.

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Aims and objectives

The aims of the case study discussed here were to revolutionise project supervision by audio recording student project meetings using an *iPhone* smartphone and the Recorder Pro app to provide both parties with a record of the meeting. The rationale for this study came through recognition that student's written notes from supervision meeting do not necessarily reflect what was discussed or do not always contain enough detail. Equally, written notes do not provide the means to clarify information that has been misheard or misunderstood during the supervision meeting. By recording the meetings, a student can review the conversation, thereby reducing their need to seek meetings in addition to those that are scheduled. The recent proliferation of *iPhones*, and other smartphones, amongst staff and students suggests that their use for recording meetings is increasingly viable. This study therefore reports on how well iPhone audio recording and distribution encourages learner autonomy and the extent to which students listen back to the audio files and apply what they hear to their learning.

Background

The *iPhone* feedback approach was run as a pilot during the 2009-2010 academic year to support 12 undergraduate final year Engineering and Computing 30 credit projects and eight MSc Computer and Network Engineering 60 credit project students. This pilot activity was resourced as a personal initiative by the academic, both financially (a personal *iPhone* contract) and in time. The work builds upon an earlier approach used by the author and intended to identify further working improvements to this earlier model. This complements other personal research strands into how students can utilise *iPhone* audio recording to enhance their learning.

In previous academic years, students have reported how they have valued a similar method in which a *Creative Zen* MP3 audio recording device was used by the author to record formal and semi-formal project meetings; an approach that was shown to benefit student learning (Nortcliffe & Middleton, 2007). However, this approach required that the device was regularly connected to a PC so that files could be named and transferred to it. Once on the PC, the files could then be distributed to the student(s) in question by email; a process that introduced a delay in the student receiving the feedback. In contrast to this, the *Recorder Pro* app on the *iPhone* can be configured to receive and send emails over 3G or wireless networks and this enables the user to record a conversation and, with the stroke of a button, send the file as an email attachment to the student from wherever the conversation has taken place: office, lab, corridor, or beyond the university.

This method enabled the author to provide better quality feedback when supervising MSc students over the summer in situations when it was not possible to meet with them in person. The *iPhone* allowed the academic to access and assess the student work (photographs, documents, diagrams,

etc), which had been sent to her by email. She was able to use the audio *Recorder Pro* app to comment in detail on their progress and to provide appropriate personal project feedback in an accessible format; one that is able to convey "more than mere words" (Middleton & Nortcliffe, 2009a). All of the MSc students are international students and so the audio recording of conversations was particularly important to them: one student was from Sri Lanka and had studied in English for several years; whilst the remaining seven were from India, and had only been in the UK for nine months and were studying in English for the first time.

This case study evaluates the extent to which these smartphone feedback methods enable students to progress autonomously and the associated benefits to their learning. Specifically, the study reports on the extent to which the approach enabled the students to effectively progress in their project work.

Evaluation

The MSc students' response to the approach was evaluated using a short survey of the cohort, followed by unstructured interviews with a sample of the students. The degree of success in using the *iPhone* feedback method can be determined by the value placed upon the approach by the students, their reported use of the audio files to develop their learning, the impact the approach has had upon their learning, and the students' ability to apply the feedback to their work autonomously.

Survey results

Four of the eight MSc students completed the survey within 3 days of the survey request. The survey was designed as a qualitative tool to collate their various perceptions of the method.

All of the students who responded to survey reported that they listened back to the audio files, with three noting that they used their PC to do this. They reported that the quality of the audio recordings was sufficient for their learning needs. Two students said that they listened to the files the same day as receiving them, which was usually the day of the project meetings. The remaining two listened at some point prior to their next study meeting. The student responses indicated that their reason for listening to the recordings was to clarify their understanding of the project meeting, and to resolve any associated issues prior to the next meeting. It is noted again, as in previous audio feedback projects (Nortcliffe & Middleton, 2009), that a student in this study refers to "reading" the audio files as opposed to "listening" to them. On closer examination this appears to be an indication of the different listening style needed for academic work. It suggests that some students understand that they have to engage with the recordings more deeply than the audio scanning methods (i.e. tuning in and out) that they may use with other audio media such as music, television or radio. This student explained,

> I used to read them two times or sometimes three times, till I clearly understand what exactly my supervisor wants me to do.

In the survey, three students reported making notes whilst listening to the files, and two out of the four reported making notes on the key factors arising from the meeting. Another student explained how he noted the corrections that needed to be made to his project. Two respondents said they used the information to help them plan their further research. The more able student in this respondent group applied all three approaches, as shown in the following response,

> The actions when I used to listen to the audio file include
> 1) Making notes
> 2) List out the corrections as directed by my supervisor
> 3) Researching / planning the further steps

The survey responses indicate how the audio files encouraged greater learner autonomy,

> I am very much depend[ent] on the recordings, beyond doing my project straight away I can concentrate on what key factors I must go through and specifically completing the project in a professional manner. All my work resembles the instructions from the recordings.

All students reported listening to the files more than once until they were clear about the tasks that needed to be completed, the errors that needed to be corrected and the direction the project should take. As one student explained,

> Benefits(of re-listening) include
> 1) you will know where exactly the supervisor is pointing out mistakes
> 2) Listening to audio feedback is more inspiring than the written feedback.
> 3) It shows how much the supervisor cares and guides you regarding the project
> 4) Looks [like] advanced technical support.

The results concur with the academic's own observations: none of the students requested additional meetings. The students appeared to be operating more autonomously with each project meeting following on from the previous meeting; removing the need to cover what had been dealt with previously.

All students reported listening to the files alone; however, two students described how they had accidentally let their peers listen to their feedback. Their peers commented on how useful the supervision recordings were and how the approach improved upon more traditional methods of project supervision. One student explained how this helped him to elicit information from his peers to aid him in making a decision process related to his project work.

Until now most of these students had only ever received written feedback; an approach which they liked as it allows them to re-read it. Responses to this survey indicated that these students only value verbal feedback when it is recorded. However, all of the students recognised that feedback is an important part of an ongoing learning process. Three students perceived feedback as something that is only relevant to a specific module, not appreciating how it can be used to feed forward, or sideways, into other pieces of work or other modules or to their professional lives in the future.

Interview results.

Three students were interviewed. Each student reported that they listened back to the audio files when they return to their student accommodation after the project meeting, sometimes several times, and how they made written notes whilst listening to the files or checked their project progress and actions, as shown by the following comments,

> I note all the keywords, go through these in my documents... [listening] two or three times... While working [on the project] I am listening to it...

> Once I have completed the work [I listen] again. [I] go back to them and see whether [I] have completed it or not.

> When I am doing editing, ...two or three days later, I have to go back to them again, because I can't remember everything we have discussed.

The students also reported how they played the audio files back, pausing it to make notes, before continuing. This requires that the students listen to the files in stages, therefore, as the files last about half an hour and contain a wealth of information. The students agreed this approach enabled and encouraged them to be more autonomous, as highlighted by these two students,

> In India we don't have this facility. We are always trying to have appointments with the lecturer and it takes too long. With this [audio recording approach] we can have a quick progress [report] on our project.

> It is helpful, because without this audio, once we have had a meeting with you, we may forget also... [it helps us remember more].

The students agreed that without this approach they would not have made sufficient progress on their project and would have required additional support time with the academic; time that academics struggle to find. Audio recording the conversation enables the academic to provide additional learning support, but in a way that doesn't impact upon their workload. Both the survey and interviews indicate how the approach was valued by the students in this study and how it facilitated them in being more autonomous in their project work. The results from this small study are consistent with previous research where *students* were encouraged to audio record conversations that they identified as being valuable in formal, semi-formal, and informal learning situations (Middleton & Nortcliffe, 2009b)

Lessons learnt

From the academic perspective the *iPhone* and *Recorder Pro* app is simpler than using a separate MP3 recording device, especially given its capacity to email the audio files. It was important to use the *Recorder Pro* app; when other apps were tested, the files were too big to be emailed. However, recordings made with the *Recorder Pro* app from meetings lasting more than half an hour would also be too big to be emailed. The battery life of the *iPhone*, configured so that the screen brightness was reduced, was more than sufficient to support the recording and email transmission for the eight half hour project meetings that were held each Monday during the project period.

Students also reported how it was important to place the *iPhone* so that it picked up both voices in the conversation. A distance of 60 cm or less from each participant worked well, and quality was further enhanced when participants were careful to speak clearly. All of the students reported how it was necessary for them to turn up the playback volume on their PC so that they could clearly hear all of the conversation. This highlights the need to pick a quiet space for the recording and to ensure that people are sitting close enough to each other. The *Recorder Pro* app produces audio files in Aiff format, which are playable on Apple devices and PCs installed with the free *Quicktime* player.

Good practice and transferability

The *iPhone* feedback approach, as described here, requires each academic to invest in an *iPhone* and the *Recorder Pro* app; something that many academics are not willing to do at their own expense. However, it is also quite an adaptable approach and many of the benefits can be achieved by using similar devices or by asking students to take responsibility for recording meetings. Also, each institution needs to enable their email system so that it syncs with *iPhones*; something that some institutions are reluctant to do due to their concerns about the lack *iPhone* security.

The approach is applicable to any academic scenario involving one-to-one or group supervision. In the case of project and dissertation supervision, the importance of the conversation in the meeting

is particularly valued as it provides often critical and timely feedback that enables the student to progress on their own between meetings. MacDonald (2005, p.88), for example, says, "Too often students receive feedback either too late to help them improve their learning in the future or in a format which does not help them to make the improvements." Staged engagement is also a characteristic of projects and Starkings (1997, p.4) notes how this provides many opportunities for formal and informal input,

> The purpose of staged assessment... is to provide feedback for students at various points throughout the project. This enables students to attain the maximum benefit and guidance throughout the project period.

The *iPhone* feedback approach can be widely adopted, especially as student projects or dissertations are common to most undergraduate and postgraduate degree programmes. It provides academics with a smarter, effective mechanism for enhancing existing supervision and is likely to be valued by their students.

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