

# **Widening access to distance education using mobile technologies – A Pilot Project**

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## **Introduction**

Distance learners are typically adults who struggle to find sufficient time for their studies amongst diverse domestic and work commitments. Any technology that allows them to make more effective use of available time would be welcome. Mobile devices – such as mobile phones, digital personal audio devices (mp3 players) and Personal Digital Assistants – hold the promise of extending the time available for study, by allowing learners to access programme materials during miscellaneous commuting time and waiting time.

This project represents an initial attempt to explore these possibilities in Oscail. The project consists of two-phases. In the first phase, participants on selected online distance postgraduate programmes offered by Oscail were surveyed to assess their current usage of mobile devices and also to gauge interest in using mobile devices to support learning on these programmes. For the second phase sample educational resources were developed and deployed, which students were invited to access and evaluate.

## **Background and Context**

Oscail offers distance learning programmes at undergraduate and postgraduate level. All of its postgraduate programmes have been offered in an online-only format since 2003, initially using the WebCT Virtual Learning Environment, and more recently using the open source VLE, Moodle. This project involves students from two programmes: an MSc in Management of Operations and an MSc in Information Systems for Managers. Since these students are already participating in an e-learning programme, they may be assumed to have reasonable technical competence. Mobile devices are now ubiquitous, and by facilitating access using mobile devices and providing content suitable for viewing or listening to on mobile devices, students may be able to take advantage of commuting time and other spare time that could not previously have been used for study. Already in 2001, Keegan could list a large number of projects dealing with various aspects of mobile learning, and this has been moving into the mainstream in recent years. Many projects in the area of m-learning are focused on the mobile phone and wireless delivery of course content, though Adobe suggests a broader view, that m-learning is “learning on the go” using portable devices such as video or audio players which need not necessarily have wireless capabilities.

The aim is to enhance the current online offering, rather than develop a special m-learning programme. This is to be done through the development of supplementary course materials suitable for mobile devices, and by encouraging interaction with the programme from mobile devices.

## Baseline Survey

A baseline survey was conducted to investigate the extent of mobile device use among students and to establish attitudes towards mobile educational resources. The students surveyed are studying the MSc in Information Systems for Managers or the MSc in Management of Operations through distance education. Both of these postgraduate programmes are presented entirely online, with no face-to-face tutorials or lectures.

The survey was conducted online and the response rate was 44%, or 26 out of 60 enrolled students. The median age of the respondents was 36 years of age and 92% of respondents were male.

Over 80% of respondents reported their level of computer expertise as average or above average. It is to be expected that their competence would be above the average of the population since they are currently participants in an online postgraduate programme delivered entirely using through e-learning methods.

Overall, there was a positive attitude towards the introduction of mobile technology to support and complement existing materials. The majority of students reported that already utilising personal digital devices in their day-to-day life. Approximately 80% used mp3 players, and almost 80% had downloaded mp3 music files from the Internet. Virtually all used mobile phones and the vast majority of phones (84%) were smart phones with Internet access. A much smaller number of respondents, fewer than 20%, used PDAs. Some students expressed interest in purchasing further devices if these were required to take advantage of mobile learning.

No. of Hours Commuting	No. of Students
10 or more hours	15%
5-10	38%
1-5	27%
Less than 1	19%

The use of mobile devices would be especially valuable for students who spend a substantial portion of their time travelling and away from a home base. Our respondents generally spend significant amounts of time commuting, with over 50% commuting for more than five hours a week. Most of this time is spent in private cars, and respondents expressed the view that their study time would be enhanced if they had resources that could be accessed while commuting. In fact, all of the students who commute by private car communicated that they would access course texts and course related material while commuting if these were made available as portable audio files. There was also a strong interest in receiving mobile phone alerts as reminders of course schedules and deadlines. Many respondents expressed enthusiasm for the project, with the following statement typical:

*I think this would be a great enhancement in terms of flexibility and an effective use of available technology.*

Indeed, some respondents were impatient, wanting to the immediate podcasting of entire lecture series, rather than sample resources. However, this is not an option since Oscail delivers its programmes entirely through distance learning and there are no lectures for any of its modules.

## **Preparing and deploying resources**

A standard Moodle site was created for the project, which students from the selected programmes were invited to access. It was decided not to create a mobile-specific site, as this would have cost and logistic implications for programmes, which would need to maintain two sites for each programme rather than one as at present. Rather, mobile devices will need to access the standard site. Students were directed to services such as the Opera Mini and Skweezer browsers which render standard sites for mobile viewing. Several learning resources were prepared, including audio and video files, and these were deployed through the Moodle site. In addition, a project forum was created on the site in which students were invited to discuss their experiences.

Similar to Gregson (2007), we put more of an emphasis on audio files than text based files. We recorded five audio resources based on additional information to supplement the module text and using live voices. We also prepared sample text-to-speech files of a portion of module text, and we prepared one video of additional material.

The educational resources consisted of mainly of general multi-disciplinary material, such as guidelines on writing skills, referencing, plagiarism, and reflective learning. There were also some module specific materials, such as assignment guidance and guidance on the production of a research proposal. The live audio material was produced using m-Audio podcasting studio and the open source editing software Audacity. In addition, some sample materials were produced using Natural Voice text to speech software. The site also contained links to existing podcast sources on the Web that complement the content of these two MSc programmes. Video resources consisted of narrated PowerPoint presentations, converted to video (.3gp) for presentation on mobile devices.

Students were invited to sample the resources and comment on their experiences in the forum. They were also urged to access the forum at least once from a mobile device.

## **Outcomes**

With the resources deployed, the site was opened to students for three weeks, during which time they were invited to sample the resources and also to access the forum to discuss their experience. Though over twenty students accessed the site, only three made useful comments on the experience. This outcome was unexpected, since respondents to the baseline study had been overwhelmingly supportive of the project and had especially indicated that they would like materials to be available in portable audio format.

Those who did sample the audio resources were positive. One said:

*“My work involves continuous use of a PC or reading matter. Sometimes my eyes water just from overuse. Having the option to listen to your podcast on the Dissertation Proposal was wonderful. Just to close your eyes and let them relax, while still being effectively able to study was fantastic”.*

Another participant who has a visual disability found it much easier to listen to the podcasts than to read either online or from printed materials.

*“I find it very tiring to read black on white, the contrast is too stark”*

The video resources were not well received, as we were unable to overcome technical difficulties. The narrated PowerPoint presentations were useful in native form, but rendering them for mobile video made the PowerPoint text hard to read. As one student said:

*It sounded very promising, but the visual quality of the PowerPoint presentation on my laptop screen was blurred and difficult to read*

These difficulties proved intractable within the timescale for this initial exploration, and we abandoned plans to prepare additional resources in this format.

Generally, students complained about the small screen size of their mobile phones or PDAs for any serious work, not just for accessing video. For example, one student commented in relation to accessing the website:

*“Personally, I find the PDA screen 5 x 5 cm squared fiddly to use. You have to pan back and forth, up and down to find what you are looking for”.*

Another participant commented in relation to reading documents on a mobile phone:

*“The phone comes with Picstel File Viewer, which allows me to read Word, Excel, Powerpoint and PDF files. It does a good job, and I can zoom in on fine detail if necessary. However, I would like to have a Reflow function, which it doesn't have. This means that I have to scoll (sic) horizontally as well as vertically when reading a document, which seriously compromises its usability”.*

### ***Accessing the resources from mobiles***

We had intended that the audio resources would be either downloaded onto PCs and transferred to portable media players, or downloaded directly to mobile devices such as a PDA or a mobile phone. Instead, the majority of participants used their laptops or PCs to listen to the podcasts rather than transfer them to their mobile devices.

Some students did take up the invitation to access the discussion forums from their mobile devices. It had been suggested that they use a mobile browser such as Opera Mini, Opera Mobile or Skweezer, though none of them reported doing so. These browsers format material for mobile access and render images in reduced size, which facilitates browsing and can reduce costs.

Participants were concerned at the cost of accessing the programme directly from their mobiles. This was the experience of one student:

*“This evening I tried to write to the discussion forum using a HP iPAQ HW 6915 PDA. If this costs 1 cent per KB (going by my mobile phone charge, then just to get as far as the Discussion Board cost me approximately €15.00.*

However, another participant did not find that accessing the site on their mobile phone was expensive:

*“I checked credit before and after, and it only cost 72c to access, login, read messages in the forum and reply”.*

One student suggested that mobile access would be easier if fixed cost access were available, noting the following experience:

*“my fiance's brother came home from America recently and it was cheaper for hi(sic), to browse the net on his American number than use dial up in Ireland”*

With data prices on most mobile services currently at 1c or 2c per kb, access to forums and to text resources is not excessively costly, but the price for downloading a 1Mb resource would be 10 to 20 Euro, and costs would mount very rapidly. As long as students have to worry about incurring such significant costs when accessing resources, it cannot be anticipated that they will enthusiastically embrace mobile access.

## **Conclusion**

This project sought to explore how the use of mobile devices could enhance the learning experience for students on online postgraduate programmes. A range of audio and video resources were deployed, and users were invited to access the project website from mobile devices. Mobile video was not found to be a success in this case, and student access from mobile devices was limited. However, there was greater support for the use of audio files to support the learning. As we gain greater experience in developing for mobile technologies, they offer the promise of allowing students to make more effective use of time and thus improving the student's learning experience.

## **Bibliography**

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