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HANDHELD LEARNING CONFERENCE 2009

'Mobilising The Open University'

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Abstract: This paper follows the moves by The Open University (OU) to build on a number of internal and external research and development projects, by initiating an institution-wide programme of activities to better support our mobile learners in our teaching and learning provision. Working at a distance and delivering a supported open learning model brings different challenges in supporting mobile learners than for campus institutions able to mediate by face-to-face interaction. The OU also needs to address technologies and devices that students already have, so while there may be a large degree of appropriation, there may not be a corresponding awareness of device capabilities and methods to support learning while mobile or away from familiar study environments.

At a top level, work has begun in providing a 'Mobile VLE' through Moodle, tailoring services in response to student surveys, the details of which will be shared in the associated presentation. Subsidiary projects include research into formative audio eAssessment as part of DVD-ROM adaptation, particularly leading to structured conversation via a voice response system, to inform further work in incorporating user-generated content. Development in open educational resources and electronic formats now include eBooks allowing student annotation in addition to conversion to synthetic voice implementations. Related work is also underway in exploring, prototyping and evaluating mobile applications, initially for touch-based devices, but aiming to be device-agnostic in future.

Underpinning the research and development work is an ongoing educational and professional development programme to promote mobile learning methodologies and familiarise staff with current and aspirational technologies. The OU now has a plan of activities which also include more in-depth consideration as how to best leverage mobile learning methodologies in courses, practice-based areas, fieldwork and residential as well as for peer support.

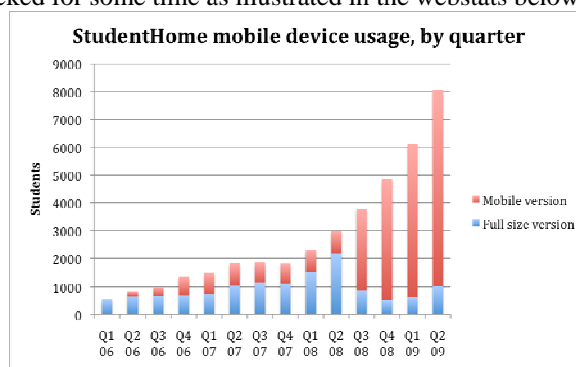
Keywords: MobileVLE, webstats, eAssessment, eBooks, applications

Introduction

This paper presents an overview of many activities undertaken in the Mobile Learner Support project area in The Open University. Please note that while many of the project strands involve strategic development that is embedded in the OU's institution-wide teaching and learning systems, some of the data and findings we hope will be of use to others undertaking work in related areas. In addition to the core work in implementing a Mobile VLE and associated resources, an overview of a related mobile audio eAssessment project is given, leading to development of a blend of web application software and native or client applications.

Background

The Open University has been involved for some time in Mobile Learning projects at different scales, disciplines and sectors, in some cases as part of UK, European or international partnerships and initiatives¹. Colleagues at the university have gained expertise in research and evaluation², and also in creating learning objects and content relevant for use to support our own students, particularly in practice-based areas. However, it is the increasing level of student activity and usage of course materials while mobile that has enabled the latest institution-wide activity to further improve teaching and learning provision. The vast majority of OU courses have an online element, many providing much more than a set of resources through embedding collaborative activities. The entry point for many students is via the main 'StudentHome' portal – and the usage of this, particularly by mobile devices, has been tracked for some time as illustrated in the webstats below:



Reinforcing the increasing trend shown in these webstats is the anecdotal student feedback from face-to-face sessions, including residential schools as well as more formal end-of-course reporting, indicating that students are using online or electronic course materials in unanticipated ways. Many of these uses include the intention to support learning while mobile, or where students are away from their 'normal' or regular studying environment.

Focus

In order to implement an approach that will not only deliver content and resources that students can access and browse while mobile, but also continue to support interactivity and collaborative activity, a number of project strands have been initiated. The role of the OU Learning Innovation Office is to investigate and commission, where necessary, project work that lies between research and development conducted in other areas, and in order to mainstream successful deliverables.

With this underlying principle, two main investigative strands are currently underway. The first is to optimise relevant web-based content for a mobile audience, both by enabling better access to online activities and to implement a targeted design for devices. This work is informed by student surveys into current mobile behaviours and expectations for study. Following an initial build, onsite mobile usability reviews and interviews where students are asked to complete educational tasks and interact with the Mobile VLE will also take place.

The second strand is in recognition that not all study can be supported online, where there are cases of intermittent or limited connectivity, and as a result initial work is underway to explore and prototype ways of integrating the use of mobile applications in delivering teaching and learning material. Some of this strand has been conducted by means of a research study into adapting use of current DVD-ROM materials to a mobile framework, and some, concerning packaging of content, has been initiated with a technical review of eBook formatting and usability. These sit alongside other work in the university to create mobile applications³.

Methods

Some of the project work to date has not required consultation beyond stakeholder briefings, as they remain as technical investigations or implementations. These include improving text entry to collaborative tools so that the rich text HTML editors degrade gracefully for mobile users on a variety of devices and browsers; also the eBook format(s) that are most flexible in delivering complex text and asset layouts while still utilising popular and more commonly available client applications.

The implementation of a mobile-optimised VLE through Moodle is the largest strand by far, not only involving stakeholder consultation from course design perspectives and drawing up wireframes, but also in obtaining feedback from students as well as system reports on the areas of course websites that are used most heavily and are most appropriate for accessing while mobile. We have taken the approach to tailor the interface for access by various mobile browsers, not trying to serve all modules⁴ or content, not trying to push all content down the mobile 'channel' nor limiting to specific clients e.g. Java or text-only⁵. A quantitative student survey was drawn

up, accessed by the 'StudentHome *mobile*' portal and by a mobile-optimised survey engine (SurveyGizmo) to maintain usability from devices. The survey questions covered current usage of devices, StudentHome *mobile*, preferences for display of content on mobiles and the order of priority given to aspects of mobile service provision in the future. This initial student survey to a self-selecting group of current mobile users will then be followed by a set of optimised designs, which will then be made available for wider input and comment before a staged implementation from Spring 2010.

To inform reuse of course materials, application development and innovation in eAssessment methods currently employed by the OU, a dedicated research study was also undertaken⁶ – initially at a small scale to evaluate efficacy. The opportunity arose to work with Learnosity, specifically to adapt some 'Voice Response' solutions to providing (initially formative) assessment activities via audio to improve speaking and listening in a foreign language. By adapting some French DVD-ROM content, it was possible to provide a phone call-based system (akin to phone banking menu-based systems) that gives students instructions and a stimulus in the target language, a prompt for the student response and then an opportunity to record, compare response with model answer and review the activity. In some cases, it was also possible to effectively create a structured conversation, where students could hear their response interleaved with the pre-recorded samples. To gauge the efficacy of this model, a small sample group from a current intermediate-level course were recruited and expected to carry out these activities that ran parallel to relevant course material, also allowing comparison with DVD-ROM content. Weekly questionnaires were provided and qualitative feedback was also sought via in-built systems in the 'voice response' phone call and by individual contact towards the end of the initial study period.

Contribution

Implementation of an HTML text-entry toolset that switches between rich and plain text methods depending on device has been released on course websites from September 2009. Technical evaluation of the eBook formats indicating Mobipocket as a suitable format and entry point to Open eBook or ePub format development have been redeployed to more fully support the open standard in response to recent uncertainty over the viability of Mobipocket on future devices as a result of Amazon Kindle development. Work is now underway in providing signposting within structured content available online where the narrative includes complex or collaborative exercises that would need to be completed separately from the offline material.

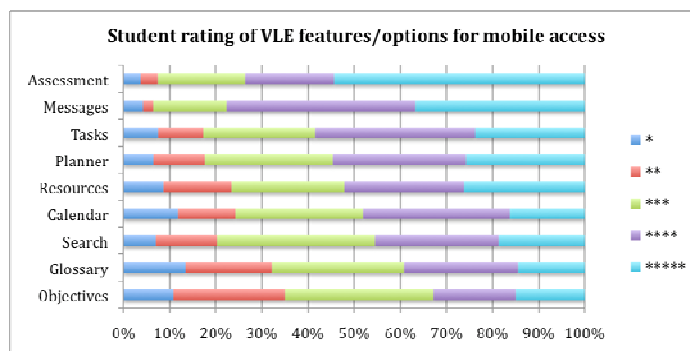
The self-selecting student survey ran for just over a month until 1st Sept 2009, with 196 complete responses from current student users of StudentHome *mobile*. For device usage, the following were reported: 66% on 3G or '3G+' connections, 85% on Smartphones or 'Touch phones', 66% typically changing device within 2yrs. For mobile usability 41% preferred top-level navigation, 38% included inline with content, and 52% preferred indicators against every link to inform whether further resources were mobile-optimised or not. 47% of mobile users currently visit the websites once a week or more, with a regular focus on messages (80%) or the study planner (58%). The main common qualitative comment was to improve the immediacy on reporting of assignment scores (rather than needing to go to the assignment handler system). This has now been addressed in a separate integration and redesign project, which should be available to students in the near future.

In the Intermediate French research study, a variety of activity types were assembled, some additional prompts needed recording and some audio segments from the DVD-ROMs required editing. The activity types include: Grammar drill; Dialogue; Oral presentation; Pronunciation-intonation; Listening. 34 examples were provided for students to work through optionally, with a crib sheet detailing links to course materials and code numbers required by the voice response system. A lo-call (i.e. cheap tariff) 0330 phone number was used, and students could re-record answers and attempt the same activity multiple times, if desired. In addition to using the phone to interact, students could also subsequently log on to an online system to review their input, including the ability to use an audio player (with visualisation) to playback and pause. Since the initial study, the exercises have also been opened up for all students on the course to use as revision material, indicating a 'top 10' as a starting point.

Evaluation

With regard to prospective use of a mobile-optimised course website on the VLE, the students surveyed reported that they would actually like to access full online text (59%) and so the challenge is how in to best display this. A design with the current block or week of the study planner at its heart seems the best approach, aiming for a single-column layout that will work on the variety of devices we know students are using to access OU content. In addition, students prefer to link between mobile and desktop use by a series of flags (58%) or 'to do' items that can be ticked off - particularly for activities that can only be completed through complex online interaction.

The course website features on the VLE that could be made available for use while mobile are star-rated below:



In response, the design and development team will then need to prioritise optimising the Assessment and Messaging (including Forums) modules, using the study planner 'tick box' and including relevant resources.

To inform application development, taking some related research by the OU Library⁷ further, the situation with respect to downloading apps has changed recently, not least through a growing number of multiple platform App Stores⁸, Markets and similar during 2008/2009. Our mobile users chose as many as applied to them from the following: 74% know that downloading apps are possible on their device and know how to do it. 68% are happy to download 'over-the-air'; 60% happy to download via a computer. Most importantly for the OU however are that 89% would be happy to download an OU app and 77% would be happy to download 'helper apps'.

Despite less activity on the Intermediate French research study than expected, somewhat due to timing, the potential for the voice response system is being considered particularly for use in audio recording and further trials in an upcoming course later in 2009. Some student feedback that has been taken forward is the need to support pausing and replaying audio and a concern over call costs. This is also being addressed in web and client application development, allowing synchronisation of audio files for review, and potentially later recording via VOIP or local device recording and subsequent upload. Integration with Skype has also been added and initial work is ready for trial in enabling student review of progress via iPhone app as well as (desktop) web browsers.

Reflection

The move to provide an optimised mobile access point to online course material is in some cases a natural extension of the process undertaken to redesign the OU implementation of Moodle as its VLE, the feedback gained from students has enabled wireframes to be created and designs explored both with students and staff. Development work is now underway incorporating the student feedback, aiding prioritisation over two phases.

A wider exercise begins from September 2009 to work across faculties to explore and identify aspects of course delivery that can best be adapted for mobile learners – either in adding to existing learning objects in modular apps, or in 'microchunking' course materials that suit some disciplines better, including practice-based areas. A key part of this will be to further explore Mobile Usability^{9,10} in higher education and to work with focus groups.

To better monitor Mobile VLE activity, a related VLE Reporting project is also underway, comparing platform and device statistics. Device detection for more complex features is an issue we hope will be addressed through use of common header files that can be used by other online and course websites, including VLE tool modules.

The work initiated in eBook formats parallels that of DAISY talking books as part of a separate Digital Audio Project, now followed by device and eBook Reader trials at the OU. Audio eAssessment is an early stage in moving beyond use of audiovisual material as a stimulus for text-based analysis and comment, which is giving rise to knowledge-sharing¹¹ in how rich media and participatory video can be used with our (mobile) learners.

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