Teaching Development Fund 2013/14

Project Title: Mobile eLearning And Technology 2

Project Leader and Deputy Leader Names and Department(s):

Keith Brown – Project Leader and Technical Architect
Hannah Family – Deputy Leader and Principal Evaluator

Department of Pharmacy and Pharmacology

Names and department(s) of any other staff associated with the project:

Roger Jardine - Assistant Director BUCS (Systems & Networking)

Tim Kaner - Director of Marketing & Communications

Paul Mitchell - Director of Studies, Natural Sciences

Ian Robinson - Chief Executive, University of Bath Students' Union

Kate Robinson - University Librarian

Philip Rogers – Director of Undergraduate Studies, Pharmacy and Pharmacology

Andrea Taylor - Director of Postgraduate Studies, Pharmacy and Pharmacology

Andrew Thompson - Lecturer in Medicinal Chemistry, Pharmacy and Pharmacology

Short Summary of the Proposed Project

This project will build-upon the first project (MeLT 1) to extend and enhance the delivery of **mobile** eLearning across the University. The evaluation results of MeLT 1 indicate that 85% of students now possess a smart-phone and around 20% of students have a tablet. The overall intention of this project is to enhance the student learning experience by effective delivery on mobile devices.

It is anticipated that the main outcomes for the project will be:

- App Factory Pilot – an on-line facility for academics to easily create app(s) for students
- A Pilot of a 'Common Document Format' for delivering on-line and off-line eLearning across devices including desktop, tablet and smart-phone hardware
- Pilot two new types of Apps:
    - Past-papers – in collaboration with the Library
    - Maps/Find-a-Room for Freshers - in collaboration with the Students Union
- Initial recommendations for implementation of Moodle Mobile
- An App design and delivery procedure that can be exploited across the University

It is important to note that the project is also a 'proof of concept' for the creation and distribution of apps, and involves working closely with Web-Services and the e-Learning team in order to explore the issues involved.

Rationale

The evaluation results of the first MeLT project [1] indicate that the vast majority of students now possess a smart-phone. Consequently, it can be expected that the delivery of learning and information on mobile devices will increase within the Higher Education community [2]. The existence of a JISC guide to encourage and enable UK universities to implement a 'mobile initiative' [3] is a strong driver for learning on mobile devices.

This project seeks to build-upon the first MeLT project [1] to extend and enhance the delivery of **mobile** eLearning across the University. The intention is to implement techniques and facilities that exploit mobile technology that can be easily leveraged by academic staff, and which will benefit the majority of students.

The project is in accordance with the University Learning and Teaching Strategy: The intention is *to promote inclusive and flexible learning provision* and *to work with our students in building and developing our learning environment to make it as stimulating, relevant and satisfying as possible.* In addition, it is anticipated that a successful project outcome will help *to sustain and advance the strong national and international reputation of the University for the quality of our teaching.*

In terms of the University Strategic Priorities, the project addresses the following areas for *eLearning*:

- *Explore means to enhance the digital environment within the organisation, specifically with regards to student-facing infrastructure, in collaboration with Web Services and Bath University Computing Services*
- *Continue to develop additional e-learning tools that meet both staff and student needs, building upon new technological and pedagogical opportunities*
- *Seek innovative ways to use e-learning in the support of assessment and feedback*

 Curriculum Development is also addressed – *to encourage flexible provision and modes of delivery where appropriate*

Aims

1. An App Factory

Determine the viability of an on-line service for academics to create their own App-Store type apps for end-delivery on students' smart-phones and tablets. The system would comprise of an on-line web-page that the members of staff can use to construct a simple app using an existing collection of Powerpoint presentations, videos and Moodle quizzes.

The main idea is to build a simple back-end system that automatically converts a collection of files (such as Powerpoint, MP4 and Moodle quizzes) into a format that can be gathered together as an app. This is a feasibility study that aims to automate the current manual procedure whereby these files are converted to an app. The aim is to minimise human intervention and automate the process as far as possible, to determine the viability of a university-wide App Factory.

2. A Common Format for on-line and off-line delivery

Investigate a standard HTML 5 format for delivering eLearning across all devices including desktop, tablet and phone hardware, both on-line and off-line.

A quick inspection of the files available on Moodle courses indicates that *the available documents have been intended for on-line desktop delivery and are unsuitable for smaller screen sizes.* Not only do documents carry too much information for a phone or tablet 'screen', the various 'viewers' available on mobile devices often incorrectly display fonts and some of the graphical elements are transposed or are visually corrupted in some way.

By establishing a common document format for eLearning material, such as HTML 5, it will be possible to harmonise on-line and off-line materials: It will enhance on-line delivery in a browser (no need to download external files) and will also enable these materials to be used in standard App-Store Apps. For example, in the future an academic would be able to use a MeLT utility to print or export their PowerPoint/PDF/Word files to the HTML 5 format and use this format directly for Moodle delivery. It could also be used as an ingredient for an App produced using the App-Factory (see 1c above)

It is important to emphasise that existing files (PowerPoint/PDF/Word) will continue to be available for printing from the Moodle course. The main idea is to simply offer these in a harmonised format suitable for delivery on all devices, not just desktops.

Anticipated Outcomes

It is anticipated that the main outcomes for the project will be:

- App Factory Pilot – an on-line facility for academics to easily create a 'Student Workbook' type of App
- A Pilot of a 'Common Document Format' for delivering on-line and off-line eLearning across devices including desktop, tablet and smart-phone hardware
- Pilot two new types of Apps:
  - Past-papers – in collaboration with the Library
  - Maps/Find-a-Room for Freshers - in collaboration with the Students Union
- Initial recommendations for implementation of Moodle Mobile
- A process for App design and delivery that can be exploited across the University

Project Outline

This project will re-use the existing MeLT templates that have been developed for mobile delivery of lectures, quizzes and videos. The overall intention is to enhance student learning experience by effective delivery on mobile devices.

The following is a brief summary of the stages of the project. Please note that student evaluation is an integral aspect and will be on-going throughout the lifetime of the project.

- Survey all students to determine student usage & expectations of mobile devices, and the types of apps required
- Continue the development of apps according to students' needs. This includes both existing apps for lectures and quizzes, and other apps identified by the MeLT project
- Pilot an App-Factory for eventual use by all departments
- Pilot a Common Document Format for on-line and off-line eLearning on phone/tablet/desktop
- Evaluate the effectiveness of the apps, tools and methodologies (on-going at all-stages)
- Preliminary exploration to provide recommendations to how Moodle Mobile can be best integrated and exploited
- Disseminate findings, publications and Final Report

Dissemination

The hub of dissemination will be the MeLT web-site. At each key-stage the web-site will be updated and a hands-on lunchtime event hosted by the MeLT team to disseminate the latest developments to staff and students. The plasma and LED screens across campus will be exploited for publicity, as required. Further dissemination will be through events hosted on campus by LTEO such as Exchange! and also posters and publications for conferences and journals.

Evaluation

Student Evaluation is key to the success of the project. Not only has student evaluation and feedback been the core evidence upon which this project is based, it will continue to under-pin all of the project activities. Tools include both questionnaires and focus groups, and will be under the direction of the Principal Evaluator. Although Student Evaluation is continuous, the surveys and focus groups will be designed and timed in a way that minimises survey fatigue for the students, and which conforms to LTEO best practice and protocol.

Timescale

Activity	A	S	O	N	D	J	F	M	A	M	J
Delivery and Promotion of on-line survey of all undergraduate students		X	X								
Development of Common Format and HTML 5 templates for on-line and off-line use			X	X	X						
Development/Pilot of Past Paper and Find-A-Room type Apps	X	X	X								
Trial of Common Format using an on-line Moodle course					X	X					
Development of a model app and prototype App-Factory for off-line apps						X	X	X	X	X	
Student Evaluation		X	X	X	X	X	X	X	X	X	
Final Report											X

Potential for Future Development

The most fundamental aspect of the project is scalability. The potential scope for on-line and off-line mobile delivery within the University is huge and scalable to all students in all departments. By using a combination of private and public App-Stores, the project could also hold potential for delivery of MOOCs. Looking into the future, there could be further demand for other applications. For example

- Reading Lists
- Augmented Reality
- Apps for use in Lectures
- Visualisation of Medical Processes
- Specific educational activities only possible by using mobile-specific features

Evidence for Viability

- According to the MeLT Student Survey [1], 85% of undergraduates already have a smart-phone and 20% have a tablet
- Ownership of mobile devices is set to increase, with tablet sales predicted to overtake desktops and laptops by 2015 [4]
- Although evaluation of MeLT is at an early stage, informal feedback from students and responses from student surveys [1] [5] indicate that:
  - Apps are desired by undergraduates and rated highly
  - A common format for eLearning on mobiles and phones is desired by most students

Value for Money

The project represents an opportunity for the University of Bath to gain traction in the area of mobile delivery of eLearning, and establish a lead in a field which other universities are now beginning to explore. For a small initial outlay, the potential of the project is huge and is expected to influence eLearning across the institution. The outcomes are generally long-term: For example, the establishment of a common format and Past-Paper/Find-A-Room Apps will resonate way beyond the lifetime of the project. However, although the App-Factory will most likely require some additional funding after the project is completed, the decision can be based on App-Factory *viability*, which is one of the intended aims of this project.

Other Resource Implications

The project will make use of the Public and Private App Stores for iOS and Android that it is anticipated will be implemented at the University by Web-Services[6]. Consideration will need to be given to:

- Corporate identity/branding (Marketing & Communications)
- Intellectual Property Rights (Intellectual Property and Legal Services)
- Quality Control, provisioning and technical procedures for publishing apps (Web-Services)
- Technical checks for robustness and efficiency (Web-Services)
- Pedagogically appropriate design for a mobile environment (e-Learning)

The project involves a close collaboration with Web-Services and the e-Learning team to develop the procedures required for App roll-out by the University to both Private and Public App-Stores. Contact has been made with the relevant departments and no additional costs are expected.

References

1. MeLT – Mobile eLearning and Technology. (https://wiki.bath.ac.uk/display/melt) updated March 2013
2. The Impact of Mobilization in Higher Education The Global eLearning Journal Volume 1, Number 4, 2012
3. JISC Mobile learning infoKit (September 2011)
4. Quarterly Mobile PC Shipment and Forecast Report (NPD) January 2013
5. MeLT Timetable App Survey April 2013 – student evaluation data taken 12/4/13
6. A Mobile Strategy for the University of Bath (May 2013)