Rationale

1. Although most students will already have a mobile device, such as a phone or tablet, the full potential of these devices has yet to be exploited. A review of JISC case-studies [1] indicates that many projects include a connected on-line component. However, **off-line** apps on mobile phones and tablets represent an area that has not been fully explored. This is surprising given (i) the general popularity of these devices, (ii) the prevalence of off-line apps on the major app-stores, and (iii) the exceptional experience of immediacy and availability that off-line apps provide.

   **The main purpose of this project is to explore using simple off-line apps to deliver specific activities which support learning and teaching on campus.**

2. The recent JISC Mobile learning infoKit [2] indicates that with regards mobile learning, the learner is the primary ingredient, and that feedback from learners enables institutions to plan for situations where learning happens.

3. A quick moodle-based survey of MPharm students conducted to inform the development of this bid indicated that the following items are in most demand by pharmacy and pharmacology students for mobile phone delivery:
   - Timetables for lectures and labs
   - Learning materials - Lecture slides
   - Assessments

4. By using an established app development methodology ‘Cordova’ (also known as PhoneGap), it is possible to deliver off-line apps that run on the vast majority of current mobile devices including phones, tablets and laptops. These programs can also be delivered on Mac/PC/Linux desktop systems.

Outline

This project is a feasibility study. Although initially limited to two undergraduate programmes, the ultimate aim is a much wider roll-out of the most effective applications. The following is a brief summary:

- Determine the requirements for mobile phone applications to support learning and teaching, by undertaking a comprehensive survey of Pharmacy and Natural Sciences undergraduates
- Develop proof-of-concept phone apps to best meet these requirements using Cordova
- Conduct a series of small-scale pilots of these apps with students to evaluate effectiveness, with a view to expanding the pilot across the department, faculty and university.
- Evaluate the effectiveness of the tools and methodologies
- Disseminate findings
  - HEA - Higher Education Academy
  - ALT - Association for Learning Technology

According to the JISC Mobile learning infoKit [2]: ‘relatively simple uses of mobile technologies can help in reducing frustration and in student retention’. With this in mind, this project aims to exploit the simplest of eLearning apps, and to restrict the scope to off-line apps. In this way, the educational or timetable content are to be available anywhere, irrespective of whether an internet connection is available or not: The simplicity, immediacy and availability of off-line apps is at the heart of this bid.
It is important to note that this project does not affect any existing web-sites and web-services: All current on-line services such as Moodle and the Timetable will continue to be available to students using browsers on their mobile devices. In other words, this project provides alternatives and enhancements to the existing range of on-line services and practices.

Although the primary mode is off-line, this is a scoping restriction of the project. Once the viability of off-line apps has been established, the experiences from this project can be drawn on to provide a future platform that can be extended to include the integration of on-line ‘live’ data.

**Aims and Anticipated Outcomes**

This project aims: To enhance and extend teaching and learning opportunities to students and staff by providing apps on mobile devices that meets their requirements.

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

- To determine the technology and administration required to design, develop and deliver off-line apps to students
- To determine ways for re-using existing resources (timetable, lecture slides and assessments) for mobile phone delivery, that are most valued by students
- To pilot mobile eLearning apps and a timetable app for Pharmacy and Natural Science undergraduates
- To estimate the financial implications when scaled across the university
- To raise awareness of mobile device delivery in teaching and learning at Bath
- To provide a scalable methodology for app development and wider roll-out within the university

**Evidence to Support Viability**

In May 2012, all pharmacy undergraduates were asked to identify mobile phone apps that they would find useful to support their learning. The response indicates that quick access to their timetable and to key learning resources would be in most demand.

*It is important to note that the intended prototypes will re-use existing resources: A lecture slide app can be repurposed from PowerPoint slides, and MCQs can use Moodle XML format exported from existing Moodle quizzes.*

An important part of this proposal is the technology: Cordova is an established mobile phone development technique, to deliver apps that will run on mobile smart-phone platforms such as iOS (iPhone and iPad), Android, Blackberry, Windows Phone, WebOS and Symbian/S40. In addition, because Cordova is essentially HTML5, all apps built using this technology will also work perfectly on Windows, Mac and Linux desktop computers.

**Evaluation and Dissemination**

The intention is to deliver small-scale pilots of at least three types of apps to enhance learning - Lecture Slides, Assessments and Timetable. Depending on the initial survey, more or alternative types could be identified. However, an important aspect of the pilot evaluation is to identify which of these types of apps, and therefore which information sources are of most use to students in a mobile format. Both questionnaires and focus groups will be used to evaluate student responses to the apps developed

The evaluation results will be published on the project web-site. It is also intended to promote the project within the university and to disseminate successful outcomes across departments. This will be through events hosted on campus as part of the Learning and Teaching Innovations day, and also publications written up for contribution to relevant journals and conferences.
Potential for Future Development
A major aspect of the project is scalability. It is envisaged that the potential scope for mobile phone apps for learning or learning support within the University is huge and scalable to all students in all departments. Looking into the future, there could be further demand for all sorts of other functionality. For example

- Interactive eLearning objects
- Unit handbooks
- The integration of live data
- Maps/Room locations for students
- Guides for prospective students
- Fresher information pack

Resource Implications
One aspect of this project is to determine the likely impact on students and staff, and the corresponding resource implications for the university (which will be published in the Final Report). Given the potential scope, scalability and gains for students, the project represents exceptional value for money.

Additional Staff – Steering Group
Andrea Taylor - Director of Postgraduate Studies, Pharmacy and Pharmacology
Paul Mitchell - Director of Studies, Natural Sciences
Caroline Turell/Rachel Harvey - Assistant Registrars, Timetabling & Space Management
Marie Salter - e-Developments Manager, Learning & Teaching Enhancement Office
Andrew Thompson - Lecturer in Medicinal Chemistry, Pharmacy and Pharmacology

References:
1. JISC HEAT Technology Projects (2006 – 2009)
2. JISC Mobile learning infoKit (September 2011)