



***mInteract*: Online tool for sustainable active experiential mobile learning**

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The rapid evolution and ubiquitous use of mobile devices is an historical opportunity to improve experiential interactivity in education practices to support 'deep' learning. A major barrier to the widespread adoption of mobile learning in higher education is that of cost. Opportunities to overcome this barrier include the high rate of ownership of mobile phones by university students and technological solutions such as packet transmission technologies. *mInteract*TM is an online system which uses packet technology to build no-to-low cost interactivity into learning spaces. *mInteract* supports sustainable active experiential learning transactions for both student and teacher.

Keywords: Low cost mobile learning, interactive classroom, experiential learning, transactional learning model

Introduction to the *mInteract* online tool

The extraordinary growth of ownership of mobile devices presents a unique opportunity to enhance students' learning. Mobile devices are increasingly internet-enabled and are changing contemporary definitions of what is the 'workplace' and what is a 'learning space' (Kukulka-Hulme & Traxler 2005). The rapid evolution towards 3G mobile devices provides a way to improve experiential interactivity in educational practices to support 'deep' learning (Ramsden 1992, Prosser & Trigwell 1999).

We learn by doing, yet much of our current teaching is lacking in interactivity. Traditional lectures are a major problem due to students' limited attention span (Smith, 2001). Attempts to engage our multicultural student cohorts using traditional participatory techniques, such as a show of hands, are difficult.

Assuming that lectures, especially for large classes, are here to stay for some time, mobile learning (mLearning) offers the opportunity to address this urgent need for more interactive, experiential learning. Clickers, PDAs, laptops and tablet PCs have been used to enhance classroom interactivity in lectures over recent years (Fies and Marshall, 2006). Lecturers can test students' knowledge, ascertain levels of satisfaction with the teaching materials and methods, and conduct experiential learning using game-like sessions (Goh and Hooper, 2007).

A software system and online tool – *mInteract* – has been developed by the authors to support experiential learning, particularly in large lecture-halls, but also in tutorial rooms, laboratories and classrooms. The tool is a WAP/WML online application designed for students to use principally with their smart-phones, but can also be used with wireless-laptops, PDAs, iPods or in fact any internet-enabled wireless device. As the student ownership of these devices is increasing, *mInteract* becomes a viable alternative to university-supplied hardware (Litchfield, Raban, Dyson, Leigh and Tyler 2009).

The tool has been designed to minimize costs to all parties. For universities, the cost of hardware in the form of clickers is eliminated completely. For students, data transmission costs are minimized and so any impediment to students' use of the system is removed. At most, when using a mobile phone, there is a small data-packet charge of 1-3c per interaction, depending on the activity. If the student does not

normally use all the data-transfer allowance on their phone's monthly plan, the cost will be zero. Likewise, if they instead use their laptop and connect to the university wireless network, they will be able to participate for no cost.

The web interface of *mInteract* allows teachers to set-up activities from their computer. The system has more functionality and versatility than the existing clicker tools, offering a greater range of activity types: it supports multiple-choice quizzes, short text or number answers, peer evaluations, surveys, and single or multiple selection of answers from a list. Other uses are in development. During class, the teacher activates an activity, to which students respond. *mInteract* instantly collates responses from students to the teacher. The teacher can then give feedback to the students via big-screen displays of results as written answers, bar graphs, lists, etc.

Instant feedback allows the teacher to immediately respond and adapt their teaching to their students' understandings, resulting in learning gains:

- Interaction enhances the engagement of students, leading to improved learning outcomes,
- Interaction via students' mobile devices is anonymous and can remove inhibitions, thus eliminating the problem of students who are reluctant to volunteer answers or raise their hands in lectures.

Especially for lectures *mInteract* introduces innovative approaches to support interactive experiential education. Using the tool allows students to engage with activities while remaining anonymous and provides the teacher with an opportunity to improve their practice by identifying and addressing learning issues. Most importantly using *mInteract* has a no-to-low cost making sustainable widespread adoption of this mLearning approach possible.

Case-studies of using *mInteract*

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