

**OLD HAT IN A BRAVE NEW WORLD
– THE IMPACT OF TECHNOLOGY
AGEING IN MANAGED LEARNING
ENVIRONMENTS**

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Old hat in a brave new world – the impact of technology ageing in managed learning environments

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Abstract

This paper reports on the progress of a project at the University of Glasgow to investigate the benefits of PDAs (Personal Digital Assistant) as teaching, learning and revision tools and the practicalities of deploying PDAs and measuring their use.

A pilot study in 2003, funded by LTSN Engineering, highlighted additional benefits of CAA assessment methods when CAA is combined with PDAs, allowing fully ubiquitous use by students^{1,2}.

Each student was loaned a PDA which contained a logging application to record when the PDA was used along with a quiz application to deliver formative self- assessment questions. Additional applications were pre-installed on each PDA, the applications included chemical tables, a scientific calculator and document readers. The students were encouraged to install their choice of additional applications on the PDA's.

The students used the PDAs during lecture and practical laboratory sessions and were allowed to take the device home.

1 S. Roy, J. Trinder and J. Magill, Portable Learning and Assessment - Towards Ubiquitous Education, European Workshop on Mobile and Contextual Learning , mLearn 2002, Birmingham, UK

2 Times Educational Supplement, 22 Aug 2003

Benefits we have recorded in the study include;

- Ubiquitous access to course material, formative assessment and course information allowed opportunities for learning outside campus environment, under the control of the student.
- Collaborative learning increases, as students are more likely to transfer data between PDAs, and discuss the results of their work one with another. Transferable skills in IT, team work/interpersonal and both written and verbal communication are thus fostered.
- Particular benefits were discovered for students taking part in Widening Participation Programmes, where PDA use engaged students in the course material, built self esteem, and fostered a new attitude towards learning.

With both sets of students, interest in using the PDAs diminished towards the end of the project. As the students were loaned the PDAs for a relatively short time (3months), they had no incentive to buy applications to customise the PDA to their requirements. It appears that the initial reason for the students to carry the PDA at all times were the diary and address book applications built into the PDA.

When we repeated the pilot, one year later, with a similar group of undergraduate students, the students interest in the PDA diminished within a few weeks. The students only carried the PDA when they thought it would be needed for a specific purpose or to play games.

When PDAs were deployed a year ago, the capability of the PDA was much greater than that of the mobile phones owned by the students. The PDA screen was larger than a phone screen and graphics capabilities gave the PDA a "wow" factor. The personal organiser tools made the PDA worth carrying with them, and as a consequence they were also more likely to investigate the educational applications we had supplied.

Interviews with the current students suggest the lack of enthusiasm is because the technology seems old and out of date and some of the applications which made the PDA worth carrying, are now integrated in the mobile phones they have. Many students now own phones with colour screens, built in cameras, and the phones include simple organisation tools such as diaries and ToDo lists, these make the grayscale PDA seem "old hat".

However current PDAs have larger colour screens than phones and the cameras built into PDAs are of much higher resolution, these two factors could restore the wow factor to the PDA.

Apart from the quiz application we supply they have no reason to carry the PDA. As students only have the device on loan, there is little incentive to buy extra applications to tailor the PDA to their requirements. The PDA was a "Loaned", rather than "Personal", Digital Assistant.

We believe that if the students are given, rather than loaned, the PDAs the pattern of use will be different and the students are more likely to purchase both applications and add-ons such as keyboards to make the PDA more useful to them.

Next Steps

In September 2004 we will begin a four year trial of a system for learning and assessment delivery via PDAs, evaluating the benefits of such delivery for a cohort of technology undergraduate students.

In addition to evaluating the PDA's potential as a CAA platform other benefits will also be investigated.

- Evaluate whether a PDA can help student learning.
- Monitor when PDAs are used by students and for what purpose.
- Investigate interface and usability limitations within the educational context
- Identify mechanisms to evaluate the use of PDA's in education
- Identify practical problems of PDA use in education

Students from their initial matriculation, will employ the PDAs as both learning, revision and organisational tools. The benefits of PDA use will be evaluated by summative assessment, questionnaires and interviews at stages during the project. In addition, analysis of PDA journaling will provide unique quantitative insight into student learning, and offers a number of avenues for future research topics: e.g. how best to design a user interface constrained by screen size for optimal learning.

Additional benefits of the project include the introduction of cost effective IT technology to students and building associated transferable skills. The project will prepare the staff skills needed to ease the introduction of other MLE technologies – paperless delivery of lecture notes, timetables, reading lists, storage of essay drafts –in the context of an active research area.