
VISION FOR THE FUTURE: MOBILE LEARNING, ASSESSMENT & FEEDBACK

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Introduction

In this paper we will share the experiences of a wide scale five year innovation to introduce mobile learning and assessment processes into health and social care education. We will address three of the conference themes and questions:

- How can we use existing and emerging technologies to create added value for learning?
- Digital pedagogy and success factors in the new technology environment
- What are the new learning strategies and methodology/pedagogy changes provided by the new learning tools?

Background

The Assessment & Learning in Practice Settings (ALPS) Centre for Excellence in Teaching & Learning (CETL) is based in the north of England. The Centre is a collaboration of five Higher Education Institutions (HEI), each with reputations for excellence in practice (work) based learning and assessment, for students in the health and social care professions.

The Centre's mission is to improve competence and confidence of graduates at the point of their professional registration, so that they enter the work place as qualified practitioners who are 'practice ready.' To this end, we have worked closely during the last five years to develop generic learning and assessment processes that are transferable across professions and so provide a standardised professional preparation, across a range of Health and social care professions and HEIs, in common areas of competence; these are Communication, Team Working and Ethical Practice. The assessment processes developed are delivered in electronic, mobile format.

The Centre has developed ALPS Common Competency Maps and a range of innovative assessment tools that facilitate a 360 degree type of feedback from the range the stakeholders with whom students interact whilst in practice (work) based settings. For the purpose of this paper, we will discuss the mobile technologies that were used and developed to enhance these assessment processes, the student perspectives on these developments and our own reflections on the development and implementation processes.

Intervention: Using existing & emerging technologies to create added value for learning

ALPS initially developed Common Competency Maps on the topics of Communication, Team Working and Ethical Practice. These define the skills and standards that students must reach to be assessed as competent in these areas (Holt et al, in press). The Maps have been used to generate an assessment toolkit of five assessment tools, which incorporate a 360 degree type of assessment that generates feedback to students from a number of potential participants in the assessment scenario. These include the practice educator (from their own or a different profession), peers (from their own or a different profession), service users (and carers) and self. Feed forward is a key outcome of the process and there is provision in the tool for students to reflect on the feedback they have been given and to develop an action plan which can be signed off by a practice educator.

Koeniger-Donohue (2008) has identified that mobile devices can enhance learning outside the university and reduce mistakes for nursing students. ALPS decided to develop a supported m-learning solution to provide "any time, any place" access to the assessment tools, learning materials and tutor support to ensure students gained maximum benefit from the learning opportunities on offer to them whilst on placement. A number of technical and logistical issues helped to define the specification of the system and were pertinent to this decision to "go mobile". There was no guarantee that students had access to PCs, laptops or even had a login to a wireless network in the setting. It was considered high risk (at the time) to rely on using students' own mobile phones, as

whilst most students had these, the functionality varied greatly (Sandars and Pellow, 2006). Another consideration was that some ALPS students worked in locations with limited or no connectivity (for example social work students working in certain remote rural areas or radiography students working in lead-lined rooms). This meant any solution adopted would need to work offline, or at least in a sometimes disconnected environment. Healthcare Trusts were concerned about data security so there needed to be a fit with their IT and security policies. Malicious attacks on their networks needed to be prevented and patient confidentiality needed to be secured by preventing any loss of data. Tutors and students also needed to feel confident about data security and tutors required that any feedback gathered from practice assessors by students was genuine and trustworthy.

Each ALPS partner initially completed a mobile learning (m-learning) pilot project with the objective of identifying the readiness of the institutions to adopt mobile technologies for practice placement learning and assessment (Dearnley et al, 2009). In addition ALPS commissioned work with its partner, the University of Bradford, to undertake the Mobile Enabled Disabled Students (MEDS) project to study the specific needs of disabled students and mentors when using mobile technologies for learning and assessment in practice settings (Dearnley et al, in press). Outcomes of the pilots and the MEDS project were used by ALPS and its commercial partners, ecommnet Ltd and MyKnowledgeMap (MKM), to inform the development of its award winning Mobile Services Platform (MSP). ALPS is a large scale implementation with a 1000+ users across the five HEIs. The ALPS MSP implementation is supported by a shared ALPS Helpdesk based in Learner Support Services at the University of Bradford, which provides support to the five HEIs for device roll out and gives advice to users across the whole of the ALPS programme. Cohorts of students from the partner sites have been supplied with HTC Vario smartphone PDAs and unlimited free data connectivity using the T-Mobile network.

The MSP links together software to create the assessments which are mapped to the competency frameworks and provides for them to be packaged with learning materials to underpin the assessment process. Intellisync software is used to push out the packages to the students' devices. It integrates with existing university directory systems, LDAP and Active Directory, to allow students to sign on using their standard university login details. The ALPS Mobile Assessment Client on the device enables students to view, complete, and save assessments regardless of whether they have a connection or not. The system synchronises every few hours or whenever it is turned on. If the system fails because no connection is available at the time, then it will persist until a connection is made, or try again at the next timed interval. This, combined with advice to the students to leave their devices turned on and charged up, in practice ensures that assessments are delivered promptly to the students' devices even when they have been out of mobile coverage range for a few hours. Feedback from multiple sources can be captured in both text and audio formats and the completed assessments can then be uploaded, from the device, into a password protected web based e-portfolio where they are securely stored. Tutors can review the assessments and add additional feedback which can be instantly viewed by the student to get an overview of how well they're doing against the overall competency structure. The student can respond to any feedback and open up a continuing dialogue with their tutor. The e-portfolio also has the facility for the student to keep a blog of their experiences and students can also upload photographic images, when permitted, captured using the camera function to supplement this.

Data is encrypted on the device and storage card by SafeGuard PDA and during transit by Intellisync. The combination of Intellisync and Safeguard enabled ALPS to address the security concerns raised by most Healthcare Trusts. Besides supporting the Assessment Cycle the Intellisync software also provides the potential for device management enabling the ALPS Helpdesk to take control of devices, audit the software/files on a device, and wipe or disable a device if it is lost or stolen. In practice this functionally works well with 3G devices but is impracticable where 2G devices are employed due to insufficient upload bandwidth.

To implement the ALPS MSP, student cohorts were selected across the five partner sites with a view to ensuring that all professions were included. Standard training packages were developed and delivered on site with support from the ALPS core team. Practice placement areas were prepared in various ways; we aimed for a multidimensional approach by ensuring that all managers were informed about the work of the CETL, all assessor training and update programmes included information about the process, posters were prepared and sent to appropriate National Health Service (NHS) Trusts and students were prepared to train their assessors in the use of the device where necessary. ID type cards were issued for students to carry confirming that their

device was issued as a learning and assessment tool by their university. Confidentiality and security was ensured both technologically, as previously described, and by requiring students to sign contracts of use so that they were used at all times in an appropriate and professional manner. A particular concern within the practice areas was the camera function of the device in conjunction with immediate access to the internet. In reality, many health and social care workers carry their own devices with such capabilities and in some cases this issue had not been addressed. The work of the ALPS CETL acted as a catalyst in these instances for Trust mobile device policies to be developed.

Evaluation: Digital pedagogy and success factors in the new technology environment that we created

In July 2009, we undertook the first stage evaluation of the mobile assessment tools, from the student perspective. Following ethical approval from all ALPS HEIs, we undertook cohort specific focus groups on each site with groups of students who had used the mobile devices and assessment processes. In all, seven professions were included and seventy nine students. The ALPS Research Officer attended most of the focus groups to ensure consistency across sites. The discussions were digitally recorded and transcribed prior to thematic analysis. In addition to the focus groups, students were invited to complete on-line diaries/blogs. It was anticipated that they could do this on their mobile devices and then upload to the e-portfolio or email directly to the researchers. Few students engaged in this activity, despite financial rewards (book tokens) being offered. This is interesting in itself and perhaps reflects the students heavy workloads. However, a few students did send diary notes to us and these were informative and contributed to the thematic analysis.

Findings

We found that students fell into two overall extreme categories; those who used the mobile device a lot and those who didn't use it at all. All students reported that there was a considerable time element in becoming familiar with the devices and if students could not see that it offered an added value to what they already had, they would not persevere with learning how to use them. There were two notable scenarios where students found the devices particularly valuable to their learning; one was when they were working in community settings where they had no computer access; for example social work students working in sheltered accommodation or occupational therapy students who were on work placement away from home and university and living in rented accommodation. In these cases the devices could provide a valuable link to social or academic networks. The second group of students to identify an added value to their learning using the device were students with dyslexia. For these students the inherent benefit of pocket spell check facilities and audio recording, recognised as key benefits for learning for this group of students, (Dearnley & Walker 2009) were sufficient to motivate them to learn how to use the technology.

The mobile assessment processes designed by ALPS have been designed to encourage reflection both 'in' and 'on' action (Schon 1983); this is largely through the self assessment processes that are central to the ALPS tools. Reflection is well recognised for its importance in the learning process (Johns 2000, Dearnley & Matthew 2007) as is the role of self assessment in effective learning, for future professional development and lifelong learning (Boud, 1995; Taras, 2000). Mobile devices enable reflection anywhere, any time by allowing the student to make quick written notes or to use the audio facility to capture thoughts, or even to take a photograph that can be revisited at a later time to evoke memories and more thorough consideration. Self assessment is an extension of reflective practice and this too can be undertaken using a more informal, but in the moment, approach, using the ALPS mobile assessment process. Students recognised these benefits and reported using the devices for reflecting on the bus journey home or in their lunch breaks.

Students liked the *idea* of having something where they could look up information any time anywhere, even when working in isolated settings. For this ideal to be realised, it became clear from our work that a number of things were important to the student. They didn't like our devices – they liked their own. They didn't want to carry two devices and they wanted the device they did carry to be a phone as well as having internet access.

A logical conclusion from this is that we need to be working towards learning systems that students can access from their own mobile phones/devices. However, this is problematic in health care settings; ALPS processes allow a lost or stolen device to be remotely wiped clean/disabled, thereby ensuring safe storage of data. If

students use their own device, we will be unable to do this. Our assurance to, and work with, the NHS Trusts were an important factor in getting acceptance for the devices in practice settings. In addition, it became clear that considerable and sustained effort would also be required to change the culture from paper based assessment documents to electronic/mobile formats in an environment where mobile devices were often met with uncertainty and students presumed to be 'texting' rather than 'working.' Moving to the more sustainable student preference of using students own devices will require further work across the HEI's and with the NHS. To do this we need to grapple with cost implications – who pays for the internet access to their learning and/or assessment materials, especially if it's from their own mobile phone?

Conclusion: What are the new learning strategies and methodology/pedagogy changes provided by the new learning tools?

The introduction of technology has expanded the options students have for accessing learning and assessment material; i.e. paper, mobile or PC and we know that student choice is a crucial element in good curriculum design. Mobile devices allow for in the moment reflections, captured in written, audio, or pictorial medium, which can be returned to at a later, convenient time to stimulate memory and engage the learner in deeper reflective processes. In this wide scale study, delivering mobile assessment and feedback processes, ALPS has "pushed the boundaries" of innovative curriculum design and influenced practice across HEIs in the region.

There is still much to learn about the impact of mobile enabled learning. For example, there appears to be a clear difference across the professions due to culture, client group and context in which they are used; e.g. audiologists as clear technicians as opposed to social workers and mental health nurses who are more process and care orientated than technical, and medics being both technical, diagnostic and cure-focused. Although this might appear as a generalisation, it is true that many mental health nurses use very few gadgets (if any) in their day to day work although they do own mobile phones that are something more personal with a specific purpose and function. It is likely therefore that in professional education, early users will be those professions that already use technology as part of their work. The extent to which students engage with mobile technology for learning activities, where they choose to do this and the format that learning takes are strategies that we continue to explore and further outcomes of our work related to these issues will be discussed in the presentation.

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