

Enhancing Health and Social Care Placement Learning through Mobile Technology

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ABSTRACT

Health and social care students spend up to 50% of their course in practice. Placements are distributed across a wide geographical area and have varying degrees of IT access and support. Consequently, students may feel isolated from peers, academic staff, and resources required for effective learning. Mobile technology has considerable potential to enhance the learning of these students. This paper presents the development and implementation of the Centre for Excellence in Professional Placement Learning's mobile learning project and the principles that both drove and emerged from this work. Handheld devices were matched to students' pedagogic need. Principles covered areas such as pedagogy, partnership working, technology, inclusivity, evaluation, and research. Collaboration across sectors and institutions and an understanding of professional cultures and contexts were seen as key in instigating and embedding mobile learning to support students on placement.

Keywords

Mobile learning, Placement, Pedagogy, Students

Background

Mobile learning (m-learning) refers to the use of emerging technologies to enhance students' learning experiences. The m-learning literature continues to debate the pervasiveness and ubiquity of mobile devices and their potential use for learning (Alsaadat, 2009; Moore, Hu, & Wan, 2008). Supporting technological structures enabling wireless connectivity are now embedded (Sharma & Kitchens, 2004), such as General Packet Radio System (GPRS), Universal Mobile Telecommunications System (UMTS). In addition, other 3D-derived technologies, such as High-Speed Downlink Packet Access (HSDPA) and the attributes of mobile technology, have the ability to attract young people in particular to learning (e.g., Attewell, 2005).

Despite the potential freedom afforded by the paradigm shift from e-learning to m-learning, researchers and developers of this technology must address the diversity of applications, relevance, users' needs, roles, and contexts in order for the use of mobile technology to become truly pervasive (Moore et al., 2008). However, although in 2004 there were estimated to be 1.5 billion mobile phones in use across the globe in comparison to less than half a billion personal computers (Prensky, 2004), the use of these devices for learning cannot be assumed (Kennedy, Judd, Churchward, Gray, & Krause, 2008).

The most recent UK Office for National Statistics (2008) survey reported an increase of one million households (16 million) having Internet access between 2007 and 2008. However, of the adults surveyed, only 32% consulted the Internet for learning compared to sending/receiving emails (87%). Despite the high use of the Internet in both the 16–24 and 25–44 age groups (77% and 72%, respectively, reported daily use) only five percent of adults surveyed had accessed the Internet in the last three months via wireless hotspots (although this was double the number for the previous year). Further, recent adult Internet users reported accessing the Internet via the following mobile devices: laptop (23%); mobile phone (GPRS) (15%); palmtop/PDA (4%); mobile phone (UMTS) (4%). Therefore, although the general population's access to the Internet and broadband in the UK is rising sharply, there is still some way to go in terms of equalising this figure, first with accessing the Internet via mobile devices and second in terms of using the Internet for learning activities.

As with e-learning, there is a danger that discussion regarding technology may eclipse discussion in relation to pedagogy (cf. Orrill, 2002; Dalsgaard, 2005). Nationally and internationally, higher education establishments have engaged with m-learning. For example, Duke University in the USA (2005) has provided freshman students with iPods preloaded with orientation information to use for downloading course content and recorded lectures. In New Zealand, nursing students have been supported on placement through the use of Short Message Service (SMS) via

mobile phones (Mackay, 2007). In the UK, Centres for Excellence in Teaching in Learning (CETLs) have used personal digital assistants (ALPS CETL) and location-based global positioning systems (GPS) (SPLINT CETL) to meet the needs of students at a distance from the university campus. However, the Higher Education Academy Subject Centre for Education (Escalate) observes regarding Becta's recent report, ". . . in spite of the evidence, 'technology is fully exploited by only 20 percent of schools and colleges' and it might be difficult to argue the figure for higher education is very different" (Gulc, 2008, p.2).

McNeely (2004) proposes that higher education needs to meet four challenges in order to maximise the potential utility of m-learning. These include: funding for devices and associated costs, access and skills to use facilities, the ability to interact using devices, and relevance of use, that is, "using technology for some practical purpose, and not just for the sake of technology" (McNeely, 2004, p. 49). Higher education establishments will need to shift resources and skills in order to fully exploit the potential benefits of mobile technology for learning.

Mobile technologies do not offer just another way of doing what is already done, but open up new possibilities in terms of learning and teaching. The m-learning literature focuses on changes in the learning environment, characterised by the pervasiveness and ubiquity of the technology, and on the changing characteristics of higher education students in relation to their use of mobile devices for learning. Further, there is the issue of educators, who are likely to be "digital immigrants" (Prensky, 2001), and their ability to facilitate the enhancement of learning with these technologies.

It is widely recognised that students born within the net generation (Tapscott, 1998) are digital natives (Prensky, 2001); they have incorporated the use of the Internet, and more recently handheld devices, into their everyday lives. However, studies have shown that it cannot be assumed that digital natives will transfer their use of emerging technology to their learning. Caruso and Kvavik (2005) found that while most of the 18,000 students in their sample were at ease in the use of a defined set of technologies for learning, technologies outside this set, which enable social networking for example, were constrained to use outside the classroom (although the authors posit that this may be due to lack of uptake of this provision by staff). Similarly, Kennedy et al. (2008) found that students were reluctant to use technologies beyond those that were considered entrenched in their usual learning activities. Although the above studies recognise the positive relationship between past experience with technology and increasing use of new technology for learning, there are issues that need to be addressed so that use for learning becomes routine.

M-learning in practice: The case of health and social-care students

There is an increasing focus on the significance of placement or work-based learning as part of higher education and further education programmes of study, the assumption being that this will better prepare students for the world of work. Practice environments are vital in enabling students to gain valuable experience, building both confidence and competence (Benner, 1984; Schön, 1987). Further, early practice experience and contact with service users is essential in enabling students to understand the application of academic theory (DoH, 2001).

Although the potential benefits of work-based learning environments are well documented, they can be limited by challenges such as access to learning resources. Additionally, many authors report increasing pressures in placement environments: staff shortages, increased numbers of placement students, and the competing demands of being both a learning and service environment. Such pressures can compromise the quality of the placement learning experience (Harrison, 2004; Orton, Prowse & Millen, 1993). Shortcomings in placement support for learners have also been repeatedly highlighted (e.g., White, Davies, Twinn, & Riley, 1993; Phillips, Schostak, Tyler, & Allen, 2000). Orton et al. (1993) found that placement managers felt unable to cope with the number and diversity of students when staffing levels were perceived to be barely adequate to provide care to service users. In more recent research, Hutchings, Williamson, & Humphreys (2005) found that those supporting learners in practice felt anxious about their ability to support learners when the placement environment was busy.

The professional bodies that govern health professions and their respective professional training programmes emphasise the importance of research in underpinning evidence-based professional practice (Health Professions Council, 2007; Nursing and Midwifery Council, 2008). Therefore, it is crucial that students are able to access appropriate resources whilst on placement in order that their practice is supported by current evidence. Barriers to achieving this can range from a lack of access to networked PCs (Mailer, 2006; Walton, Smith, Gannon-Leary, &

Middleton, 2005) to the strictness of mentors who are supporting students in practice (Callaghan, Doherty, Lea, & Webster, 2008a). At the most basic level, the introduction of mobile devices specifically for learning has the potential to meet students' needs by reducing the physical and hierarchical barriers to resource access (Callaghan, Lea, Charlton, & Whittlesea, 2008b). Further, mobile devices offer a potential solution as they are portable, enable any time/any place connectivity, offer flexible and timely access to resources, provide immediacy of communication, may empower and engage learners, and provide active learning experiences (JISC, 2005).

This paper reports on the Centre for Excellence in Professional Placement Learning's (Cepl) exploration of this potential through a programme of research using a number of devices with a range of functionality to meet the diverse needs of students on placement. In particular, this paper focuses on the processes involved in developing and delivering m-learning to placement students.

Method

Following the award of a significant research grant, a three-year programme of research into mobile learning was initiated. The programme encompassed thirteen fully evaluated mobile learning trials involving students on different health and social care programmes and in different placement contexts (e.g. hospital, community settings, and service users' homes).

The researchers adopted participatory evaluation (PE) to engage and empower stakeholders in the evaluation process. Two factors are crucial in promoting empowerment: first that the evaluation directly meets the needs of stakeholders, and second that actions developing from the evaluation are utilised (Papineau & Kiely, 1996). In engaging with stakeholders throughout the three years of the study, we assumed Burke's (1998) PE principles, which have power sharing, utilisation of findings, sensitivity of context, and reflexivity at their core. Although a proportion of groups and/or individuals will choose not to engage (Lennie, Simpson, & Hearn, 2002), methods and initiatives undertaken should promote choice in terms of depth and method of participation in order that the methods themselves do not induce barriers to participation.

Participants

The disciplines involved were: podiatry ($n = 80$), social work ($n = 20$), clinical psychology ($n = 25$), post-registration cognitive behavioural therapy ($n = 6$), post-registration consulting skills ($n = 8$), and learning disability nursing ($n = 5$). Undergraduate (all levels) and post-registration students (i.e., those who have acquired a first degree leading to professional registration and are embarking on further graduate or post-graduate study) participated. The length of placement varied depending on discipline and year of study (from four weeks to three months). Students used loaned devices for the length of their practice placement.

Procedure

Initially it was anticipated that all students would complete questionnaires to evaluate their experience of using mobile devices for learning. Questionnaires were devised and piloted. Unfortunately, this method of collecting data proved unsuccessful; few students completed the questionnaires. Follow-up investigation revealed that students' busy professional programmes disinclined them to complete questionnaires. Additionally, in order to be sensitive to placement contexts and mindful of the ethos of PE (discussed above), qualitative methodology was then selected as the most appropriate method of data collection.

Individual interviews were selected to achieve detailed feedback from students. An interview schedule was devised and piloted. Sixty interviews were conducted across a range of disciplines and levels of student. Participation was voluntary, in line with research ethics approval. However, this process yielded a diverse range of interviewees, both technophobe and technophile, with both positive and negative experiences. In addition to the formerly gathered research data, researchers and staff collected and collated all anecdotal feedback throughout every trial. For example,

when students returned their device or asked for assistance, staff would engage them in discussion about their experiences.

The fundamentally participatory nature of the research meant that academic and practice staff worked in partnership with the researchers on the trials. Consequently, the ethos of the research did not lend itself to the traditional “researcher-researched” relationship when it came to evaluating staff experiences of mobile learning. Therefore, in collaboration with staff, their experiences were documented throughout the project in written emails, meetings, and conversations with the researchers.

In total, the programme of research yielded a vast quantity of qualitative data, which was analysed using thematic content analysis (Smith, 1992). This analysis informed the generation of ten principles for the implementation of effective mobile learning.

Trials: Setting up the Ceapl’s m-learning project

The following section provides details of the development and implementation stage of the Ceapl’s m-learning project and introduces the principles that emerged and guided this process.

From the outset it was important that the use of mobile devices in placement areas was driven by student need as opposed to a desire to use technology for its own sake. Therefore, the first principle that guided the project was as follows:

1. The use of mobile devices for learning should be driven by pedagogy (student need) rather than technology (the device).

While it would appear obvious that pedagogy should drive the use of technology for learning, unfortunately, this is not always the case (Laurillard, 2007). Consequently, a workshop was held to explore the use of mobile technology to support placement learning to which all health and social work staff members at the university were invited. The aims of the workshop were to identify academic staff who were keen to explore the use of mobile technology to meet their students’ needs; to map out those needs; and to begin to consider how mobile technology could be harnessed to meet those needs.

The workshop was attended by Ceapl staff, academic staff from a range of disciplines, staff from the university’s computing services and education and learning technology unit, and employees from TwoFour (a television company with an interest in training educators and using mobile technology to support education). This active engagement of staff across university divisions and experts from beyond the university ensured that the necessary skills and knowledge to implement m-learning were available and that, in the longer term, the use of mobile technology to support learning could be sustained. It also allowed all aspects of implementing m-learning to be evaluated.

Stakeholder involvement in setting up the project had a number of benefits, including the identification of champions to take forward a new teaching and learning initiative. Champions have been shown to be powerful ambassadors of organisational change and “transformational leaders” (Thompson, Estabrooks, & Degner, 2006, p. 695). Although initially it was not possible to include students as a stakeholder group (due to the required purchasing time limitations on the funding within the summer vacation), their placement learning needs were articulated by staff that supported them directly in practice. Consequently, the identified needs were based on both formal and informal student feedback about their placement learning experiences. The success of this initial workshop and the subsequent partnership that drove the project led to the development of a second principle:

2. All stakeholders involved in the education of the learner must be involved at all stages when developing, implementing, and embedding mobile learning initiatives: dialogue, dialogue, dialogue.

Although it was relatively easy to achieve commitment from academic staff because they volunteered for the project, it was considerably more difficult for practice staff who voiced a number of concerns, including the ethical issues of using mobile technology in sensitive contexts, their level of confidence in using the device if a student asked them about it, and a concern that m-learning was another thing to take on in an already pressured environment where teaching and practice often represented competing priorities. It was considered vital, therefore, that opportunities were facilitated for ongoing open dialogue between *all* stakeholders.

Finally, the workshop enabled the identification of an appropriate multidisciplinary project team. Each trial was developed and implemented by an academic subject-specific team supported by the multidisciplinary team. A core team of learning technologists and staff from the university's Computing and Information Services provided the appropriate expertise and worked collaboratively with academic staff to develop m-learning resources and support and to ensure that such resources were consonant with the university IT systems. The team also included research psychologists, who carried out the evaluation and subsequent research. This partnership was deemed necessary for the optimal implementation of all trials and provided the basis for the third principle:

3. A multidisciplinary team of academic and support staff is optimal for developing and supporting mobile learning.

Following the identification of students' learning needs on placement and of teams who would take the work forward, a critical appraisal of currently available mobile technology was undertaken to ascertain how devices might meet needs. This led to the formulation of the following three principles that framed the subsequent work and were evaluated throughout it:

4. Mobile devices for learning should be user-friendly and easy to operate.
5. As far as possible, notwithstanding the rapid advancement of technology, mobile devices should be future-proof to maximise their sustainability.
6. The software used to create content should be free, accessible, easy for academics to use with some guidance (thereby avoiding a heavy and expensive reliance on learning technologists), and work across a range of devices.

Taking these principles into account and after considerable research into available options, a range of devices was selected and purchased. These included: iPods, digital camcorders, PDAs, and WAP mobile phones. As shown in Table 1, each device was explicitly linked to each cohort's learning needs, as identified via the methodology outlined above (refer principle 1).

Table 1. Examples of mobile learning trials

Discipline/Context	Need	Device
Podiatry (training clinic, community)	Reflection; evidencing learning outcomes; peer mentoring	Camcorder
Post-registration cognitive behavioural therapy (community)	Reflection; supervision of practice	Camcorder
Post-registration consulting skills (community)	Reflection; supervision of practice; evidencing learning outcomes; peer and tutor feedback	Camcorder
Podiatry (hospital, community)	Access to lectures and video podcasts on clinical skills	iPod
Podiatry, clinical psychology & learning disability nursing (hospital, community)	Tutor and peer support; access to email; access to library resources; access to practical placement information	Mobile telephone
Social work (community)	Access to podcasts of lecture material	iPod

Feedback from students and staff was collected throughout the project period and changes were made in response to the feedback. Thus, the technical strand of the project was explicitly developmental and iterative rather than waiting until the end to discover difficulties or problems. For example, some students had difficulty downloading files onto iPods; therefore appropriate and timely support was provided to ensure that all students were able to benefit from their participation in a trial.

Having identified pedagogic need and potential technological solutions, one of the challenges that arose was meeting this need in an equitable and inclusive way. This led us to formulate a seventh principle:

7. The use of mobile devices to support learning must be inclusive; no student should be disadvantaged by not being able to afford or access the required mobile resource.

An issue that faced the project team was whether devices should be loaned or given to students. While giving devices to students would no doubt constitute a reward for them (in line with the funding body's concern to reward students with funding), loaning devices would provide more students with access. For this reason, the decision was taken to loan devices to full cohorts of students for time periods related to their learning need. This approach enabled the flexible use of devices to meet specific student need. For example, a cohort might borrow an iPod preloaded with

clinical-skill videos for one placement and a digital video recorder to film their performance of a clinical skill for another. Moreover, it represented an inclusive approach because students did not have to purchase the equipment to facilitate their learning, which might have disadvantaged students on lower incomes.

Careful consideration was given to the best way to loan devices to students. The decision was made to use the same system that the university employed for loaning library books. The advantages of the system were that it was familiar to staff and students; it enabled reports to be pulled across individuals, devices, or trials; and it was linked to the generation of fines in line with university policy.

A further facet of an inclusive approach is that students and staff do not just have equal opportunity to access the device, but are also able to use it effectively. Clearly, there are differences in terms of the skills that students and staff have in relation to using mobile devices. While some users can be considered digital natives (Prensky, 2001) and are tech-savvy, a substantial proportion of our students are not affiliates of the net generation (Tapscott, 1998) and even regard themselves as technophobes. This led to the formulation of our eighth principle:

8. All students engaged in mobile learning and all staff supporting such learning should receive appropriate training in the use of devices as well as ongoing support.

Training students to use the devices effectively for learning was seen as crucial to the success of the initiative. Workshops were held with every student cohort prior to their departure to placement areas. This had a number of aims: to issue the devices, demonstrate the device functions, enable students to become familiar with the device, provide students with the opportunity to ask questions and voice anxieties, introduce the evaluation team and begin the evaluation, and provide details of ongoing support. Further support entailed email and telephone access to a learning technologist or face-to-face appointments.

The project was framed by an integrated approach to evaluation, which was utilisation focussed in order to situate the operational use of the findings as the vanguard of the evaluation's purpose (Patton, 1986). Thus, evaluation was embedded at all stages and levels of the project, rather than included only at the end. This enabled the team supporting the students to gain up-to-date, relevant information in order to provide timely and optimal support. This upheld Rutman and Mowbray's (1983) assertion that the role of evaluation is to engage in "evaluation for improving programme delivery and making it more responsive to client needs" (p. 23), and led to the development of the ninth principle below:

9. Systematic evaluation should be integrated into the mobile learning and teaching experience.

The final principle originated from the researchers' desire to ensure that the project both enhanced placement learning and teaching through the PE process and contributed to knowledge within the field of m-learning and educational technology.

10. Existing theory and research should inform an understanding of how students might use mobile devices for learning.

Existing theory and research, in particular social cognition theory, was used, therefore, to understand the determinants of m-learning behaviour and student motivation to engage in this form of learning.

Tribulations and triumphs! Application of the principles in practice

As noted, pedagogic need was initially defined by staff. However, through ongoing evaluation, students confirmed that they faced a range of challenges on placement. The potential of mobile devices to meet these needs was perceived as a positive and exciting development by students, offering them access to information and support where previously unavailable or where access to IT was limited. Students also felt that certain mobile devices would enable them to share with and learn from other students on placement, and that this would enhance their learning experience overall.

Students and staff generally reported positively on the use of devices in different learning contexts. In all of the trials, the selected device met the identified student need, and in some cases exceeded it. For example, the majority of students felt that the camcorders were easy to use and offered a large number of benefits to learning as the following quotation illustrates:

“...it’s quite good for reflection purposes, because some things . . . um . . . you may not realise you do in clinic, but you look back and think, ‘oh, I shouldn’t have done that,’ or ‘this part was good; I’ll do it again.’”

Preloaded and downloadable video and audio information was seen as useful for quick reference and revision. Typical student comments included the following comment from the podiatry cohort:

“I think, like I said, it’s easy to go to it to re-cap on something. Um, it’s another reinforcement of your learning isn’t it?” and “It’s concise, condensed, and it’s appropriate and um relevant to what we learn.”

Generally, students enjoyed engaging with the additional method of learning that mobile devices offered them. Typical comments included the following:

“I think it was good to have a different sort of source of learning rather than just the books or . . . just like a bit of variety keeps your interest a bit more” and “It was easier to access other than like trawling through a book.”

Ensuring that pedagogy drives the use of technology in educational settings resulted in successful outcomes for students and staff in terms of enhancing students’ learning and meeting their learning needs.

The relationship between academic and practice staff became a key issue in the trials. In those disciplines where this relationship was characterised by regular dialogue and mutual support, the introduction of this new initiative generally went smoothly. However, in one trial, practice staff felt that the use of mobile technology to support learning had “been imposed by the university” and there was considerable resistance to it. In fact, this situation led to a closer working relationship as resolution was achieved and to substantial and growing support from the practice area for the use of mobile technology to support learning.

Ongoing dialogue and partnership between academic and practice staff and students were key to the successful implementation of m-learning. This was maintained through regular planned and ad hoc communication via email, telephone, and meetings, as well as through training sessions. Through dialogue significant obstacles were overcome. One of the most challenging of those obstacles was the use of mobile devices in sensitive settings and the host of concerns that this generated, including patient confidentiality, consent, data protection, and infection control. These concerns were systematically resolved through close and collegial working across higher education institution and practice environments, resulting in the production of documentation that governed the issues and enabled devices to be used ethically in practice for student learning.

While dialogue within each discipline was crucial, the overall success of implementing m-learning was dependent on a multidisciplinary team that included learning technologists, psychologists, and library and computing staff. A number of unexpected outcomes accrued from this approach, most notable being the benefits of working across academic and support boundaries. While it is obvious that academic and support staff represent two halves of a coin in delivering high-quality education to students, the divide between academic and support staff within universities is rarely crossed. Yet joint working resulted in enhanced provision for students, fostered collegial working relations, and enabled the reciprocal transfer of knowledge and skills. For example, the researchers ran workshops for library staff on focus-group facilitation to evaluate their services, and library staff provided training in the use of the library system to book out devices. Evaluation showed that the most successful trials in terms of students’ positive experience of learning with a mobile device were those where a closer working relationship was apparent between academic and support staff, enabling the development of academically sound and technically efficient resources.

In line with our principle that the mobile devices chosen should be user-friendly and easy to operate, students reported that trialled devices had been beneficial because they were “portable,” “great to use when travelling” (e.g. from one clinic to another), “useful to listen to in the car while driving,” “saved space rather than carrying books and lecture material,” and were “easy to use.” A few students were so taken with the iPod that they stated their intent to buy their own when the trial ended. Students also reported using their devices beyond the intended remit of the trial, either using functions available on the device that were not explicit in the trial (e.g., the production of a health and safety video) or extending the use of the selected function beyond that which was required of them (e.g., downloading additional reusable learning objects that students had found themselves).

A number of students did report issues with the devices that were not easily solved. Some found small screens difficult to get used to and the text too small to read, especially when they were tired. One student explained that one of their resources involved “lots of different columns” so she “couldn’t find where things were quickly.” A number of students found the device “another piece of equipment to drag around on placement,” when they already had their own mobile devices. A couple of students reported that listening to audio files while driving from one placement context to another was too distracting while a number of others wished for more detailed content within podcasts. Attempts to future-proof the technology were always going to be limited given the rapid rate at which mobile technology is advancing. However, the majority of students were excited to be given mobile devices and these were generally either of a higher specification than devices they owned themselves or the students did not own the device at all. Thus, over the three-year period attempts to future-proof the devices were successful and this equipment continues to function well in supporting learning.

The third principle relating to technology concerned the use of free, readily available software that was relatively easy to use and would work across a range of devices. This principle, however, was possibly the most difficult to achieve for two main reasons. First, technical staff have their own preferences regarding software, which can cause confusion to academics, particularly as the project had a high turnover of technicians for reasons beyond its control. For example, an academic would work with a learning technologist to develop a trial. However, if that technologist left their employment, the new technologist might be unfavourably disposed to the software used and the way in which the technology had been developed, suggesting that the trial and resources should be redeveloped with an alternative package. As academics often do not have the technical expertise to know what is or is not really necessary, this process could be very disempowering and potentially detrimental to the trial. A second issue was that some academic staff struggled to find the time to develop mobile content and manage mobile systems of support in addition to their workload. Thus, like e-learning, the development of m-learning also requires the frontloading of resources and can occasionally tax even the most committed academics. Therefore, while this principle was achieved in practice, the implementation thereof was challenging.

Loaning devices via the library system proved to be an effective way of ensuring that the devices were accessible and returned appropriately. Despite initial concerns raised about loaning students expensive devices, students were responsible and accountable in looking after and returning them. They did not abuse the cost ceiling, set in terms of texts, talk, or downloading, and returned devices in a timely manner. Interestingly, the few problems that were encountered were with staff members who did not return devices or ran up bills for talking and texting.

Ongoing evaluation led to the continuous improvement of the training offered. It became apparent that more was better — for both students and staff. Furthermore, it was discovered that the link between the identified learning need and the way in which the device could be used to meet that need had to be made explicit during training, even if they were familiar with the device. The specificity required for this training was made clear in an early trial involving podiatry students’ use of digital camcorders. Students were encouraged to use the device to meet their learning needs however they wished. Yet, while a minority of students produced outstanding creative work, the majority were unsure how to use it for learning and subsequently did not engage. The evaluation data from this and other trials resulted in modification of the training package to include making the link explicit between the device and learning. This led students to engage more fully with trials and, hence, become more confident in their exploration of the device for other learning-related uses.

The evaluation also revealed that the enthusiasm and commitment of staff to m-learning contributed to the engagement of students with the initiative and ongoing use of the devices. Therefore, wherever possible, training included all of the stakeholders including academic and clinical staff, who would support students in practice, thereby ensuring all educators and learners understood how mobile devices were being used to facilitate learning.

The evaluation and research elements of the project were conducted by the Cepl’s research team and included interviews with students at appropriate points. The utilisation-focussed evaluation was constructive in enabling timely response to any issues that presented themselves in the course of trials to ensure that the potential benefits to learning were realised. Further, the research programme provided understanding of the characteristics and beliefs of students and the effect that these can have on engagement with m-learning.

Conclusions and moving forward . . .

Student involvement in new learning and teaching initiatives is crucial, and it was hoped that the project team would include a student voice. Although a digital arts placement student provided some of the technical support, unfortunately, and not unusually, it was not possible to fully achieve this objective because the health and social care students who were the focus of this project were unable to devote the time required for such involvement. Thus, while students were involved in the evaluation at all stages of the project, they were not directly involved in developing and designing learning resources. In the future, this could be overcome through linking student involvement to their programme of study; for example, through enabling students to achieve their learning outcomes through membership of the project team.

The role of champions in promoting a new learning and teaching initiative remains crucial. Without that passion, determination, and commitment effecting change and engaging stakeholders would be virtually unachievable. As Hall (2006) noted, it is vital to ensure that academic staff are engaged in developments or they may become disengaged and “lost.” Facilitating change through frontline subject specialist teachers (i.e., from the grass roots up) and an organic process ensured the sustainability of mobile learning initiatives.

Understanding departmental and university culture and context has been seen to be essential in embedding m-learning initiatives (Traxler, 2005). In the case of placement learning of health and social care students, further account needs to be taken of the ethical and safety issues impacting on learning within a diverse range of environments, and the cultural issues concomitant with these. It has become clear during the course of this project that a combination of communication and an understanding of placement area needs within the multiple contexts of the higher education and the health and social care sector are vital in ensuring the acceptance of m-learning across placement settings.

In conclusion, our experience has highlighted the value of working within an interprofessional team committed to enhancing learning. Our findings are based on a large three-year programme of research that was unique in both the diversity and scope of trials. On this basis we believe that success in mobile learning needs to be based on a clear set of principles to ensure effective pedagogy for both staff and students.

Acknowledgements

This work was funded by the Higher Education Funding Council for England’s Centres for Excellence in Teaching and Learning initiative.

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