

Semi-formal learning communities for professional development in mobile learning

Agnes Kukulska-Hulme · John Pettit

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Abstract A major barrier to the uptake and integration of mobile technologies in teaching and learning is the lack of personal experience of mobile learning on the part of those involved in teaching and in the preparation of materials and methods of learner support. Our project addressed this by introducing 40 academic and support staff to the use of smartphones to support their own learning, within a semi-formal community structure and with a focus on their personal and professional development. The peer-learning community aspects of the project consisted of workshops, clubs, a buddy system, and online environments. A two-stage process gave us the opportunity to reflect on one group's experience before a second group started. We summarize lessons learned and show how fine-tuning a particular professional development opportunity gives insights into the best ways to make use of limited resources.

Keywords Smartphones · Peer learning · Informal learning · Learning community · Professional development · Staff development

Introduction

Many higher education institutions are at a significant turning point in their exploration of mobile learning. Small-scale pilot projects led by enthusiasts have generated considerable interest in how mobile devices can be used to enhance teaching, learning and learner support, both in individual classes and on a larger scale, potentially having an impact on the whole institution. At the same time, the

A. Kukulska-Hulme (✉) · J. Pettit
Institute of Educational Technology, The Open University, Milton Keynes MK7 6AA, UK
e-mail: a.m.kukulska-hulme@open.ac.uk

J. Pettit
e-mail: j.g.pettit@open.ac.uk

widespread ownership of mobile phones and personal listening devices, the advent of ultra-portable computers, and infiltration of digital culture into aspects of traditional education, have been provoking debates around the need to take account of learners who may bring with them a new set of tools and expectations (al-Khamayseh et al. 2007). Educators are faced with trying to understand how to respond to these rapid developments, and many are readily taking up this challenge.

However, a major barrier to the uptake and integration of the mobile technologies in teaching and learning is the fact that those involved in teaching—either directly or through the preparation of materials, resources, and methods of supporting learners—lack personal experience in mobile learning. While at first this may seem no different to the situation than with other new technologies, we would argue that mobile learning is different. The devices are relatively complex tools, due to their multifunctional character and the need for educators to shift into a contextual way of thinking that also embraces the overlap between formal education and everyday uses of personal technologies (Kukulska-Hulme et al. 2007; Pettit and Kukulska-Hulme 2007). Furthermore, the devices are so many and varied that most people's experience is limited to a specific device that they happen to own, which may in any case be outdated or underused.

In this paper, we give an account of our effort to address the lack of hands-on experience at our university by running a project to introduce forty individuals, a mix of academic staff (faculty) and support staff, to the use of mobile devices—specifically, smartphones—to support their own learning. The focus of the project has been on individuals' personal and professional development, with a view to nurturing their growing understanding of the potential and realities of mobile learning, through personal experience. The second key aspect of the project has been their collective learning, since participants went through the experience as part of a group. The project was successful in giving individuals a taste of self-directed mobile learning and helping them reflect on their experiences. It also tested a number of ways of encouraging and sustaining peer support within the community of project participants, bearing in mind that extra resource would be unlikely to be available in higher education for these types of development. The project is unusual in its focus on a physical (as opposed to online) community of users of mobile devices and in its engagement with mobile professional and personal development. We present our research findings and lessons learned from the project.

Background

Learning about new technologies

Practitioner experience with several generations of new technologies means that the issues surrounding the introduction and embedding of new technologies in teaching and learning in post-compulsory education are fairly well understood. In 2001–2002, an evaluation of the introduction of a Web-based learning environment in a UK university showed that a lack of awareness and knowledge of new technologies was a barrier to teacher involvement in Web-based learning tool development and

that those who were not “in the know” were at a disadvantage (Breen 2001). At that time, technological advances were thought to be occurring so rapidly that it was noted: “It is often difficult for lecturers within the academy to adequately assess the pedagogical merits before the technology is rushed into use” (Burnett and Meadmore 2002, n.p.). This is a situation we recognize just as vividly today. Burnett and Meadmore went on to argue in favor of localized professional development, provided by colleagues with whom rapport has already been established, as offering a more sustainable form of support than centrally organized seminars and workshops.

The pressure to keep up with developments in new technologies is often perceived as relentless, not only due to their continuous evolution but also the diversification of available tools and media. Although our current project does not focus exclusively on teaching staff, the conclusion reached by Fisher et al. (2006) is confirmed by our investigations of relevant background literature:

We have found that, though there is research-based literature that deals with teacher learning, and a literature base for thinking about learning with digital technologies, there is little that deals directly with our specific focus of “teachers as learners with digital technologies.” There is very little fundamental research that investigates how teachers might learn with digital technologies. Rather, there seems to be a pervasive assumption that teachers will learn with digital technologies. (Fisher et al. 2006, p. 2).

Professional learning communities

There have been some well-considered responses to the new challenges, harnessing the readiness of many academic and support staff to learn together. Anderson (2002) relates the experiences of a group of staff in tertiary education who participated in informal professional practice groups in order to foster their own professional learning and reduce isolation. Each group, comprising both academic and allied staff, usually met in an informal setting, with the aim of learning by sharing ideas and experience. Anderson found that people were willing to give their time voluntarily to collaborate with colleagues with whom they would not normally work, providing that they were learning and felt that they had something to contribute.

Miami University took this approach to a more elaborate level by developing a model of a “faculty and professional learning community” or FLC (Cox and Richlin 2004). Faculty learning communities differ from “action learning sets” (a more established form of professional development) in that the communities are less formal, and they include more focus on the social and fun aspects. A similar type of learning community at Wright State University (2007) was established to help faculty effectively implement mobile-learning strategies in their learning environments; the community has concentrated on the use of podcasts in teaching and learning.

Initiatives like these illustrate an acceptance of informal and voluntary learning, with a degree of structure provided by participation in a community, involving some expectations regarding how the community will operate. The community may be a means to sustain a professional development over a longer period of time than would be typical when completing a specific training module or program. The

professional learning community is also a way of supporting self-development, and it connects with visions for lifelong learning that include forms of peer support and the opportunity to access learning as and when required.

The project we describe combines some elements of self-development with the support, ideas, and encouragement that a collective enterprise may be able to provide. Lefoe and Olney (2007) have explored scenarios as part of an action learning process to assist academics in thinking about how mobile devices could support student learning, but there is still a lack of research in the intersection of personal or professional development and learning about mobile technology.

Aims of the project

Hands-on experience

In our distance learning university, academic authors writing distance course materials are the people who most clearly need to benefit from hands-on experience to enable them to design materials for mobile learning. However, we found that in our unit there was also real interest in handheld learning among administrative staff supporting courses and a general need for all categories of staff to become more aware of how handheld devices may be used in education. Although it was known that a few individuals owned PDAs and other devices, and several types of device were available for long-term loan, there had been little opportunity to have shared learning experiences that could be the basis for informed discussion.

Professional development

Funding for the project came from one of the university's four "centres for excellence in teaching and learning" with a focus on practice-based professional learning. The funding enabled us to purchase sufficient mobile devices to allow a group of 20 people to participate in the project; in the event, we had 40 participants. As the number of volunteers greatly exceeded device availability, we decided to stage the project so that two groups of 20 would each have a five-month period using the devices.

We aimed to build the evidence base for good practice and to provide opportunities for reflection and for engagement in a community of practice. Our unit would also act as a knowledge broker, enabling others to gain knowledge of existing resources and problems, and find out who has relevant knowledge. The mobile devices offered an opportunity to capture learning on the go; this was to be complemented by enabling participants to share their learning with others through workshops and learning partnerships. The starting point for participants would be the identification of their own personal or professional development needs. Currently members of staff are only really required to think about this at their annual appraisal, i.e., once a year, or in some cases even less often. We felt that those moments at work when individuals identify a real gap or need are missed opportunities that get forgotten. There is also no easy way of knowing whether other

colleagues have similar needs or issues. By carrying a mobile device dedicated to their personal and professional development, participants would be able to:

1. capture their own development needs as they arose in context,
2. take advantage of another way of accessing staff development resources, and
3. share some of their identified needs with others, where there might be benefits from forming learning sets or similar arrangements to address common development issues.

In initial workshops with participants, we explained what we meant by recording or capturing one's professional and personal development needs, and gave some examples, such as needing to improve presentation skills, planning which conferences to attend, arranging a secondment, finding a mentor. A number of possible activities were presented as follows:

- Over time, make a list of development options to pursue, then e-mail the list to a friend or mentor.
- When you are in a Wi-Fi hotspot on campus and have some spare time, use Google to research a topic of personal interest.
- During a meeting or seminar, make a note of, or look up, a couple of terms or concepts that are new to you.
- Experiment with a new method of notetaking in a meeting where you are not required to take notes.
- Over time, build up a list of Websites, papers and books recommended by colleagues, just for yourself or to share with others.
- Record circumstances that make you upset at work and make time to reflect on them once a week and find solutions.

The capabilities of the selected mobile device (see subsection "Choice of device") were also listed in the session. Apart from giving this general guidance, we did not ask participants to complete any specific tasks during their five-month period of use. Our intention was to stimulate them by giving them some ideas at the start, and then leave them to make up their own minds about how they would use their device for personal and professional development. They could also share their ideas with other participants.

The project was led by two academic members of staff and a Senior Learning and Teaching Technologies Manager whose technical team supported the project. Building on lessons learned from this experience, a follow-on staff development project involving staff from our unit and colleagues in the Health and Social Care faculty was started in 2008.

Methodology

Participants

Participation was on an entirely voluntary basis; an open invitation by e-mail resulted in forty people coming forward, from all categories of staff. The names of

volunteers were allocated to the two groups on a random basis but having first been sorted by staff category, so as to ensure a similar distribution between the two groups. We checked that there would be both female and male participants in each group, bearing in mind that in the unit as a whole there were 74 females and 41 males, but we did not aim at a precise ratio. There were 16 females and four males in Group A; 12 females and eight males in Group B.

Group A participated between November 2006 and March 2007, and Group B between April and August 2007, with final interviews taking place in September 2007. Having two groups meant that we could review what had been learned from the experience of Group A and make some changes before Group B began their involvement.

Choice of device

The original funding call specified that the projects would use PDAs, as these were thought to be the most appropriate device to support reflective learning in practice-based settings. On the advice of our senior technologist, we considered and eventually selected the Qtek smartphone. This device had good visual appeal, it was relatively small and light, and offered several user input options, including an integral slide-out keyboard. The fact that participants could use it as their phone, if they chose to do so, was attractive (although the project did not require them to use the phone function). The cost of this device was not prohibitive; we had ruled out buying a smaller number of very expensive devices that would normally be beyond the reach of staff working in academia and therefore representing an untypical experience for our context. Finally, we were inclined to opt for a device that our technical support specialists had confidence in, since for them, supporting a mobile project of this kind was also a new departure. To increase the flexibility of the device, it was decided to purchase additional memory cards so that resources such as video clips could be more easily stored and accessed.

Structure and data collection

The project was structured around a number of workshops, three per group: a workshop to introduce the project and the device to participants; one half-way through; and one at the end of their five-month period. In-house instructions on how to set up the Qtek, synchronize it with the PC, and connect to the Internet via Wi-Fi were developed and tested by the project team, as the Qtek manuals were both too detailed and not specific enough in relation to the local context of use. We developed three paper-based questionnaires, which were to be completed by participants at the start of each workshop. The questionnaires contained a mix of multiple choice options and open questions requiring written comments.

The 2-h workshops consisted of short presentations (e.g., examples of personal and professional development), discussions, problem-sharing, description of how individuals had used their Qtek, and structured activities to elicit opinions about the advantages and drawbacks of using the device. A technical specialist was available to answer queries. From each group of participants, we also selected 10 people to

interview at the end of the five-month period with the Qtek. Interviewees were selected on the basis of a review of their questionnaire responses and any notable contributions in the workshops, with a view to choosing those who had made use of the Qtek in definite or interesting ways, where eliciting more information would help us to document these uses. We also wanted to ensure a spread of interviewees across the various categories of staff participating in the project.

Creating a learning community

In addition to the three workshops per group, several other semi-formal means of staying in touch were offered to the participants. We have characterized them as “semi-formal” because they were set up by the project team; however, participants were free to decide how they wanted them to be run. The main one was an encouragement to take part in “Qtek Clubs,” which would be run by, and for the benefit of, project participants. These took place every few weeks at lunchtimes, in a quiet coffee lounge within the unit, and were attended by between two and eight people (out of 20) on each occasion. There was no specified program for these short club meetings, only a suggestion that chatting about topics of common interest and self-help with technical issues might be appropriate (Fig. 1).

The second semi-formal means of maintaining community was the provision of online environments (a wiki and a photosharing site) for sharing ideas and resources. The photosharing site was mainly of interest to those who used their Qtek to take photos. Finally, we suggested that participants could pair up with a “buddy,” another person from their group, as this would be someone they could turn to if they had problems or wanted to share ideas. Pairing up participants with potential buddies was done more systematically with Group B, but not everyone wanted to



Fig. 1 Qtek Clubs: community learning

take part in the buddy system. One particularly effective pair consisted of someone who had previous experience with PDAs and was an enthusiastic user, and someone who was a keen beginner.

Participant experiences

In this section, we report selected findings from the experiences of the two groups, concentrating on:

- (a) community, interaction, and support aspects of their experience and
- (b) how participants used the Qtek.

Community, interaction, and support

We wanted to establish whether participants were dependent on others for getting to know a new device such as the Qtek. Participants were asked to rank their preferred method of “getting to know a new IT device initially,” from a list of five methods: try it and see, follow an instruction sheet, read the manual, have friends or colleagues help you or do it with you, and have someone experienced show you exactly what to do. “Follow an instruction sheet” and “try it and see” received the highest rankings.

A subsequent question asking about the preferred ways of getting to know the IT device *over a longer period of time*, showed that participants would prefer even more strongly to keep trying things out to see how they work. Very few gave a high ranking to preferring friends, colleagues, or someone experienced to help them or show them what to do. This supported our assumption that volunteers would tend to be self-motivated and fairly autonomous people. Responses in the second and third questionnaires confirmed that participants were mostly following their stated preferences, although at least half of the participants in each group had asked a friend or colleague for help.

When asked in the first questionnaire, “Do you imagine yourself being involved in helping other staff in the project”? responses in the two groups were considerably different. In Group A, half of the participants did not see themselves helping others, whereas those in Group B were much more positively disposed towards helping others:

	Yes I'd like to do that if I have time	I don't really see myself doing that but you never know	No, I wouldn't want to, or I don't have time
Group A	8	10	2
Group B*	14	4	

Note: N = 20 in each group

* One participant did not choose a response but wrote instead: “I'd be happy to help people in the context of doing work, but not give lesson”; one participant did not respond

We cannot account for this difference but considered it would have had an impact on participants' subsequent experience, particularly how much they would be able to learn from others in the group.

The first questionnaire also had a section on "learning as a group of volunteers." Participants were asked how much they would expect to learn about the Qtek device from other members of the group, and to indicate the response closest to their position. Most were reasonably hopeful about how much they would learn:

	A great deal	A certain amount	Probably very little
Group A	6	12	2
Group B	6	11	2

Note: $n = 20$ in each group

In the second questionnaire, when asked how much if anything they had learned about the Qtek from other members of the group, more members of Group B felt they had learned a certain amount or a great deal from others (12 from Group B; 8 from Group A). Those who attended the Qtek Clubs were positive about their usefulness: comments included mention of fun, confidence building, encouragement, problem sharing, and improving understanding. Lack of time and conflicts with other commitments were the main stated reasons for not attending.

When asked at the end of the project to describe the most valuable communication they had had with colleagues about using the Qtek for personal or professional development, participants mentioned the workshops, Qtek club sessions, buddy sessions, and speaking to the project team. Comments included "Comparing the ways different people are using it and what each person has learned—this presents information about the Qtek in a more digestible way than reading the manual"; and "initial chats and enthusiasm."

How participants used the Qtek

When asked, in the first questionnaire, about their current personal and professional development, all except three participants agreed with the statement: "I often get an idea for something work-related I'd like to learn, or some personal development I'd like to do." This indicated to us that participants across both groups were positively disposed toward personal and professional development. They listed many ideas of how the Qtek would fit into their existing work patterns and habits, and how it might help their development:

- instant searching, instant jotting, quick e-mails or calls;
- accessing e-mail and Internet when not in the office;
- greater integration of off- and on-site notes, diary entries and to-dos;
- an alerting or reminding system;
- in seminars and meetings;

- “a mobile, interactive journal”;
- multimedia while traveling;
- editing documents on the move; and
- making greater use of workgroup programs (e.g., outlook shared diary, task group features), as colleagues become more connected.

A large number of participants also mentioned that they were not sure about how they would use the Qtek. Most had some ideas but not firm plans for use.

Since the Qtek was to serve as an informal means of capturing development needs, we asked participants whether they already had “a reliable method for recording and retrieving ideas related to work and/or their personal development.” Around half of each group agreed that they already had a way of doing this (We did not ask about their method.). Therefore, for half of the participants, the Qtek might compete with existing methods of recording, while for the others it would represent a new opportunity in this respect.

At the half way point (second workshop and questionnaire), it became evident that the calendar function was being used a great deal and was appreciated. Several participants mentioned using the camera, making notes, and lists. Previous habits were sometimes being extended, for example, carrying documents more regularly than on a previous PDA, extending an existing habit of making lists, sending more text messages than before (“because the transcribe function really suits me”). At this point, a couple of people said they had given up using the Qtek, as being mainly office based they could not see any real advantages over their desktop PC.

A few participants continued to explore new uses right to the end of their five-month period, for example, connecting to wireless networks to pick up e-mail on the move, experimenting with different means of text entry, creating a PhD thesis narrative outline, taking photos in a “do-it-yourself” store to record measurements for projects, and using RSS feeds to read on the move (after installation of Plusmo software). Reflecting on their overall experience, about half of the participants in each group agreed that there were times when they had wanted more support in the form of structured learning activities (e.g., weekly tasks).

In both groups, many did not like the “look and feel” of the device; various usability issues were mentioned, such as preferring a smaller device and finding the device cumbersome for phone calls. Participants mostly agreed that they had improved their awareness of an important emerging technology. They were divided in their thinking about whether they were now more aware of opportunities to record and reflect on personal and professional development on an ongoing basis.

Reflecting on their experiences, participants commented on positive and negative aspects:

For this project to work effectively we needed full functionality (funded mobile phone, Internet access, etc.) and for it to work anywhere with Wi-Fi.

I think, in future, the project should be run with a number of specific tasks to carry out and achieve by the end of the trial. That way people are encouraged

to use all the different functions and feel like they achieved something at the end of it.

I will take away with me an understanding of what a smart phone is, but I haven't yet found a "killer application" or a perfect use for it—it adds to existing IT services that I use.

I have really enjoyed the experience; I'm going to switch to this type of machine. A bigger resolution camera will do much better... (and) the machine will do better with more memory to run more programs.

Lessons learned

We were able to review how Group A had progressed and made some changes to the design of Group B's experience. Connecting to the Internet would now be more feasible for participants, given that Wi-Fi infrastructure had improved in the building since the first cohort started. In-house documentation was amended to:

- encourage users to keep trying if initially they had problems connecting to the Internet;
- give advice on connecting to their e-mail account;
- give tips on battery life and Wi-Fi (checking the battery; shutting down programs running in the background, identifying whether a Wi-Fi connection had been made, selecting the network for Wi-Fi); and
- give tips on re-aligning the screen and on photosharing.

For the first workshop, we increased the amount of hands-on practice and included practice in accessing the Internet and the wiki space. We emphasized the importance of buddies and made sure everyone who wanted a buddy had one; it was suggested that an advantage of having a buddy was that one of the buddy pair could attend Qtek Club and share with the other later. We showed sound recording and shared photos via OpenStudio, an online environment for photosharing. Social issues, such as the acceptability of Qtek use in meetings, were raised and discussed. The co-location of mobile learners raised interesting issues around the best means of communication between participants and of promoting community. The Qteks were not used for direct communication between participants. Cost implications of doing so were the primary reason for not designing the project around communication by smartphone. However, the use of instant messaging is being considered for the next project. The online elements (wiki, photosharing facility, and mail list) were used very little. Overall, participants found semi-formal support in the shape of workshops, Qtek Clubs, and a buddy system helpful and motivating; however, these activities took time and were not part of their daily roles or routines. Greater integration of the smartphone in specific work activities would be preferable, but this would be difficult to achieve with a diverse group of staff. It would have necessitated making changes to our unit's objectives and the ways in which work and teaching are organized, which cannot be achieved as quickly or easily as the introduction of a new technology.

Conclusions

This project had a broad remit encompassing professional development in the use and understanding of new technology, as well as an exploration of how a specific mobile device can enable staff to consider their development needs on a continuous basis and share them with others. In this paper, we have considered the design of the project as a whole, particularly how its various support elements contributed in different ways. We presented some findings related to participants' experiences and uses of the device, and explained how we reviewed the design of our project and its progress. We believe this will be helpful to all those who are designing opportunities for staff to experience learning with mobile devices.

Over the five-month period, our participants extended existing habits and used familiar facilities such as calendar, e-mail, notes, and camera. Participants did not, on the whole, venture into more unfamiliar territory such as voice recording, listening to downloaded recordings, or seeking out and viewing video clips. Lack of ownership of the device may have played a part, as noted by other researchers in mobile learning (Chan et al. 2005). It became clear that collaborative activities such as a shared diary would only take off if enough colleagues who normally work together were using the same device. The "look and feel" of the device, often perceived negatively by the participants, continued to present a barrier to successful use. For our academic unit, the smartphones have promoted dialog about the potential of mobile learning among the staff members involved, in the unit more widely and beyond. We are continuing to share our knowledge and experience with the rest of the university. Learning partnerships with individuals in another faculty are being offered. This will involve our unit staff acting as mentors, so that expertise may be shared directly and more widely.

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Author Biographies

Agnes Kukulka-Hulme is Professor of Learning Technology and Communication in The Open University's Institute of Educational Technology, where she has chaired the production of the postgraduate course *Innovations in eLearning*. Prof. Kukulka-Hulme has been working in mobile learning since 2001 and is the co-editor of *Mobile Learning: A Handbook for Educators and Trainers*. She has led two JISC funded projects: case studies of wireless and mobile learning in the post-16 sector, and a landscape study on the use of mobile and wireless technologies for learning and teaching. She also led the literature review for a project on the use of Tablet PCs in schools. Prof. Kukulka-Hulme's background is in foreign language learning, and from this perspective, she has a long standing research interest in usability and user interface design for effective communication.

John Pettit is a lecturer at The Open University's Institute of Educational Technology. He is chair of *Technology-Enhanced Learning: Practices and Debates* and has written on innovation and on audiographics for *Innovations in eLearning*—another module within The Open University's MA in Online and Distance Education. He is currently researching the emergent uses of mobile devices among the alumni of that program and has a particular interest in what these reveal about Web 2.0 practices. Mr. Pettit also chaired a blended-delivery program supporting The Open University's learning and teaching strategy, and he continues to develop university teaching in the area of audiographics and asynchronous conferencing.