



# Self-service Education: Smartphones as a Catalyst for Informal Collective and Individual Learning

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## ABSTRACT

A major barrier to the uptake and integration of new 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 addresses this by introducing forty 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. We set out to explore whether the smartphone would act as a catalyst, heightening interest in professional development, encouraging exploitation of relevant resources, and promoting dialogue amongst the staff members involved. The paper considers the idea of 'self-service' education, whereby learners are in charge of what they want to learn but may still require some form of support. The peer learning community aspects of the project are foregrounded, consisting of workshops, clubs, a buddy system and online environment. A two-stage process gave us the opportunity to reflect on one group's experience and rethink arrangements before a second group started. We show how fine-tuning a particular professional development opportunity gives insights into the best ways to make use of limited resources.

## Author Keywords

Informal learning, community of practice, professional and educational development, smartphones.

## INTRODUCTION

Many institutions are at a significant turning point in their exploration of mobile learning. Small-scale pilot projects led by enthusiasts have generated considerable interest. The widespread ownership of mobile phones and personal listening devices, the advent of ultra-portable computers and infiltration of digital culture, have been stirring up debates around the need to take account of learners who may bring with them a new set of tools and expectations. There is growing interest in finding out how mobile devices can be used to enhance teaching, learning and learner support, and to understand how mobile learning can integrate with various aspects of educational provision on an institutional scale rather than in individual classes. However, a major barrier to the uptake and integration of the new technologies in teaching and learning is the lack of personal experience of mobile learning on the part of those involved in teaching, whether dealing with students directly or in the preparation of materials, resources, programmes, courses, and methods of supporting learners. Whilst at first this may seem no different to the situation 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, Traxler & Pettit, 2007; Pettit & 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 attempt 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 this project has been on individuals' personal and professional development, but with a view to nurturing their growing understanding of the potential and realities of mobile learning, through a personal experience. The second vital aspect of the project has been their collective learning,

since participants have been going through the experience as part of a group – although the extent of their involvement with the group has varied.

The irony of running a relatively small scale project to address issues of rolling out mobile learning on a larger scale is not lost on us – we are describing what will seem like yet another small scale pilot project. However we hope to show that we view our project as a way to observe how fine-tuning a particular professional development opportunity might give insights into the best ways to make use of typically limited resources, and to this end, we designed it as a two-stage process to enable that fine-tuning. We also outline how we envisage that the project will have an impact beyond its current participants and how we plan to extend it in the future.

## **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 2001-2, 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 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 & Meadmore, 2002). This is a situation we recognize just as vividly today. Burnett & Meadmore went on to argue in favour 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. A few years on, how has the landscape altered, if at all? 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. What is more, in an unprecedented way, education providers are obliged to take account of electronic resources and tools to which learners already have access, which includes a range of personally chosen web tools and services and personal mobile devices (Conole et al., 2006).

Although our current project does not focus exclusively on teaching staff, the conclusion reached by Fisher, Higgins & Loveless (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, Higgins & Loveless, 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; their conversations were focused on teaching, learning and other organisational matters. 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 & Richlin, 2004), defined as a special kind of community of practice (Wenger, 1998). According to the FLC website (2007), the communities have certain characteristics, e.g. they meet for a period of at least 6 months; have voluntary membership; meet at a designated time and in an environment conducive to learning; operate by consensus; energize and empower participants; have the potential to transform institutions into learning organizations, and so on. 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. The leaders of this initiative comment that over the years, one-third of Miami faculty have participated in FLCs, which indicates that the remainder may not wish to do so, because they do not have the time, they do not want to give up their autonomy, or "there has not been a stage in the development of their academic life that calls for community." 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, big and small, 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 programme. 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.

### **Self-service Education: Individual or Collective?**

In his keynote address to the Educause 2006 conference, the 'chief internet evangelist' at Google, Vint Cerf (2006), drew attention to the new user-oriented paradigms and the emergence of a great deal of 'self-service' provision such as Amazon and Tivo, noting how this is extending to the way people are thinking about education. There is something compelling about the idea of self-service - it is cheaper and faster, more in tune with the way we live today. Subscribing to various online services and to selected types of content has become an integral part of many peoples' lifestyles and working lives. As might be expected, already some have come to realise that they prefer a more traditional, leisurely, or personal form of service – the antithesis of the self-service mindset – but these individuals may be swimming against the current.

The concept of 'self-service' relates well to individuals on-the-go, short of time but generally clear about what products or services they require. The downsides of self-service include a lack of support when a service does not perform as expected and the lack of explicit opportunity to expand one's knowledge or horizons by reference to other learners and their experience. Self-service education may also rely on self-motivation, and some imagination or vision – perhaps a personal development plan. The project we report on in this paper combines some elements of individual learning with the support, ideas and encouragement that a collective enterprise may be able to provide. It is unusual in its focus on a physical (as opposed to online) community of users of mobile devices and our interest in mobile professional and personal development. Clough (2006) has researched online communities of mobile device enthusiasts; and Petersen & Divitini (2005) have written about the relationship of physical and online communities to mobile learning, but there is a lack of research in the intersection of personal, professional development and learning about mobile technology.

## **AIMS OF THE PROJECT**

### **Hands-on Experience**

The key aim of our project has been to give members of staff in our Institute the opportunity to experience handheld learning for themselves, so as to gain a proper understanding of the potential of mobile learning and how it can be realised. In our context, 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, informal interviews with line managers within our academic unit revealed that there was real interest in handheld learning among administrative staff supporting courses and also a general need for all categories of staff to become more aware of how handheld devices may be used in education. Staff could use mobile devices to support their own learning, and it would help them to feel more confident to contribute ideas and follow conversations in various meetings. 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.

Our Institute has extensive experience of introducing colleagues in the university to pedagogical uses of new technologies, recently through award-winning programmes such as 'Introduction to Teaching and Learning Online' and 'Teaching and Learning with Media'. The Institute's Centre for Educational Development has a programme of educational and professional development for colleagues across the university. Staff development (a term that in the UK covers the development of both academic and support staff) became a priority area for the Institute when a senior member of staff was appointed with specific responsibility for staff development. One of the objectives was to promote the understanding and hands-on experience of cutting-edge new technologies, so that the Institute could continue to be effective in supporting the university in this area.

### **Professional Development**

Funding for the project came from one of the university's four 'centres for excellence in teaching and learning'. The centre for excellence in Practice-Based Professional Learning issued a set of funding criteria, including how learning would be captured, the cost-effectiveness of the project and how it would cross faculty boundaries. We were aiming 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 to 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 via workshops and learning partnerships. Our preliminary contacts in the Business School and in the Department of Languages indicated that colleagues were very interested in mobile learning.

The starting point for participants would be the identification of their own personal/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:

- a) Capture their own development needs as they arise in context, for example during the execution of a work task, at the end of a meeting, or in conversations with a mentor;
- b) Take advantage of another way of accessing existing staff development resources;
- c) Share some of their identified needs with others, where there may be benefits from forming learning sets or similar arrangements to address common development issues.

In the initial workshop with participants, we explained what we meant by ‘recording or capturing professional and personal development needs’, and gave some examples, e.g. needing to improve one’s presentation skills, planning which conferences to attend, arranging a secondment, finding a mentor. A number of possible activities were presented, e.g.

- Over time, make a list of options to pursue, then maybe email the list to a friend or mentor for comment, or prior to a chat
- When you are in a wifi 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 note-taking in a meeting where you aren’t 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
- Use mobile device capabilities to solve a work-related problem

The capabilities of the selected mobile device (detailed in the next section under ‘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 5-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 others at the workshop.

We set out to explore whether the mobile device would act as a catalyst, heightening interest in professional development, encouraging exploitation of relevant resources, and promoting dialogue amongst the staff members involved. Through the project we were interested in exploring the following questions:

1. Does using a mobile device actually enable staff to capture their development needs as they arise and what are the benefits of doing so?
2. Do the affordances of the PDA correspond to the specific requirements of capturing development needs, sharing with others, and having convenient access to relevant resources?

The project has been led by two academic members of staff and a Senior Learning and Teaching Technologies Manager. It began in October 2006 and is due to finish in September 2007.

## **METHODOLOGY**

### **A Two-stage Process**

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. Participation was on an entirely voluntary basis; an open call invitation by email resulted in forty people coming forward, from all categories of staff. 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 5-month stint using the devices: Group A between November 2006 and March 2007, and Group B between April and August 2007. This two-stage solution meant that we could review what had been learnt from the experience of Group A, and make some changes to the design before Group B began their involvement.

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 are 74 females and 41 males, but we did not aim at a precise ratio. There were 16 females and 4 males in Group A; 12 females and 8 males in Group B.

### **Choice of Device**

The original funding call specified the projects would use PDAs, as these were thought to be the most appropriate device to support reflective learning in practice-based settings. Our experience with various PDAs on other research projects meant that we could not immediately identify a suitable device – all were known to have considerable limitations in terms of ease of use and flexibility. On the advice of our senior technologist, we considered and eventually selected the

Qtek smartphone. On inspection, 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 in the form of video clips could be more easily stored and accessed.

### **Structure and Data Collection**

As the funding award covered the costs of mobile devices only, we have a low-resource project which is making the most of local expertise and is heavily constrained by available staff resource within our unit. This is reflected in the project's design, which must have due regard to these limitations. The research instruments are by necessity fairly simple, but the design has benefited from our experience in educational development, a flexible and responsive approach, and a firm focus on peer learning and participant engagement.

The project has been 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 stint. In-house instructions on how to set up the Qtek, synchronize it with the PC and connect to the Internet via wifi were developed and tested by the project team as the Qtek manuals are both too detailed and not specific enough in relation to the local context of use. We developed three paper-based questionnaires, to be completed by participants at the start of each workshop. Attendance at the workshops was mandatory, although not all participants have been able to take part, due to competing work priorities and inevitable absences. In those cases, questionnaires have been sent to them individually. The questionnaires contain a mix of multiple-choice responses and open questions requiring written comments. Participants all agreed to include their names on the questionnaires, to enable us to analyse their evolving experience over time.

The workshops include short presentations (e.g. examples of personal and professional development), discussions, problem-sharing, individuals describing how they have used their Qtek, and structured activities to elicit opinions about the advantages and drawbacks of using the device. A technical specialist is available to answer queries. The two workshop leaders take it in turn to make notes and observations during the workshops. The project also includes more informal mechanisms for enabling participants to keep in touch with one another (described below under "Creating a community"), including 'Qtek Clubs'; in cases where the project leaders have attended the club meetings, issues raised there have also been noted. Out of each group of participants, we are also selecting 10 people to interview at the end of their 5-month stint with the Qtek. Interviewees are selected on the basis of a review of their questionnaire responses and any notable contributions in the workshops, with a view to:

- (a) choosing those who have made use of the Qtek in definite or interesting ways, where eliciting more information will help us to document these uses, to share with others as project outcomes;
- (b) ensuring a spread of interviewees across the various categories of staff (academic and support staff) participating in the project.

The two-stage process (described above), our knowledge of the participants, and the diversity of sources of data mean that the project is being carried out in the spirit of 'grounded theory' (Glaser, 1992). One of the outcomes we are aiming at is a model of how the various components of this initiative – participants' personal agendas, device affordances, the community, locations of use, the support structures created, and so on, interact with one another to influence participants' perceptions of what they personally have gained from the experience and how adjusting the components can influence both individual and collective learning. Our point of reference is Kukulska-Hulme's description of the factors impacting on the usability of mobile devices in education (Kukulska-Hulme, 2006).

There is no attempt to make a direct comparison between the experiences of the two groups of participants; the fact that they are not using the devices at the same time, yet they are in the same academic unit, is in itself an important factor that would rule out such a comparison. However, the aims of the project and basic structuring of the two cohorts provide enough continuity to be able to make some statements based on the experience of the project as a whole.

## **CREATING A LEARNING COMMUNITY**

### **Assumptions about Community**

At the start of the project, as project leaders we considered our expectations and assumptions about the project and its participants. Based on our knowledge of colleagues in our unit, where we have worked for a good number of years, we thought that volunteers would tend to be self-motivated and fairly autonomous people, i.e. they would not be too dependent on project leaders and would be willing to experiment. We saw all staff in our unit as capable of innovating, and of using the Qteks in unexpected yet imaginative and effective ways.

At the same time, we thought that participants would want to share their personal and professional development needs with others, perhaps arriving at common issues. A number of assumptions were articulated, specifically in relation to community aspects of the project, including the following:

- The volunteers would see themselves as like-minded people who are interested in new technology and are positively disposed towards helping one another;
- They would already share the unit's ethos of 'knowledge brokering', i.e. they would be willing to share their growing expertise with other people, especially colleagues outside the unit;
- Those who had previously used PDAs or smartphones (and maybe had their own device) would be willing to share relevant expertise with those who were less experienced, which might entail giving some of their time;
- A community of users would make it easier for staff to engage with the project initially and also to keep going longer term;
- The provision of an online environment is nowadays expected as a means towards community building, therefore this would need to be provided - but participants would expect face-to-face contact as well.

These assumptions were not discussed with project participants. However, two key points were made at the first workshop: 'The Qtek device is a tool that can help you think about, record, share and act on your personal and professional development needs, as and when they arise', and 'Being part of a group of volunteers may help.'

Reflecting on our assumptions during the course of this project, two issues have gained prominence: first, work-related time pressures that stand in the way of people giving their time freely to others, and second, the issue of whether providing an online environment for sharing is the right thing to do. The latter issue arose as the environment we provided – a wiki – failed to be used, and in line with a developing debate in the field of learning technology where it is being suggested that learners might prefer to use whatever tools they know and use already. The wiki is further discussed in the next section.

We were also aware that as project leaders we valued learner autonomy and self-motivation, as well as knowledge sharing, learning by doing, reflective practice and peer support - values and approaches originating in our long-term involvement in teaching and course development on the unit's online Masters programme. These values would be held in common with some of the project participants, but the extent of it could not be known. We tried to make these values explicit to all participants in a short presentation in the first workshop, and reinforce them in the way we conducted the project, recognizing however that accepting or internalizing values may be a relatively long and complex process. There would also be an unknown relationship with other existing individual and collective values. Internalizing and acting on certain chosen values is one of the fundamental aims of *education*, but how much of it is attainable in the space of a 5-month semi-formal group experience with technology? We considered this an interesting question which we would not attempt to answer in this project.

### **Means of Sustaining Community**

In addition to the three workshops per group, and knowing that some, but perhaps not all, participants would be able to talk with others about their Qtek (e.g. because they shared offices with colleagues), two other semi-formal means of staying in touch were offered to the participants. 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 have taken place every few weeks at lunchtimes, in a quiet coffee lounge within the unit, and have been attended by between 5 and 8 people (out of 20) on each occasion. There is no specified programme for these short club meetings, only a suggestion that chatting about topics of common interest and self-help with technical issues might be appropriate. With Group B, more encouragement was given to the club activity by making sure that meeting dates were properly arranged and communicated by email, and suggesting some topics that had surfaced among participants and could be a useful focal point for the meeting.

The second semi-formal means of maintaining community was the provision of an online environment; for Group A, we considered using the university's Knowledge Network, but in 2006 this still had limited facilities for collaboration. Wikis were talked about in the unit but only used by a minority of staff for specific purposes. It seemed a good moment to try this method of collaborating. The idea behind the project wiki was that it would enable participants to communicate conveniently between workshops, and it would be a place to share ideas and resources. Use of the wiki was presented as optional, but to get things started, one of the project leaders put up a message in the wiki, accompanied by a photograph taken with the Qtek. Due to unforeseen circumstances, the wiki was not made available until a few weeks into the project; this, along with other factors, may have contributed to it not being used.

Finally, we made some tentative suggestions 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. This was taken up by only a few participants. We are aware that 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 experience of the first group, concentrating on (a) community, interaction and support aspects of their experience, and (b) the Qtek’s role in personal and professional development.

**Community, interaction and support**

Participants were asked to rank their preferred method of ‘getting to know a new IT device initially’ and gave the following responses: (‘1’ = method liked most, down to ‘5’ for the least liked method).

Method	Participant’s ranking
Try it and see	11111 222 3333 4444 5555
Follow an instruction sheet	1111111111 22 33333 4444
Read the manual ***	1 22 3333333 444 5555555
Have friends/colleagues help you or do it with you	1 22222 333 4444444 555 *
Have someone experienced show you exactly what to do	111 2222222 3 44 555555 *

\* one respondent could not decide how to rank these methods.

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 supports our assumption that volunteers would tend to be self-motivated and fairly autonomous people. Responses in the second and third questionnaires (second and third workshops) confirmed that participants were following their stated preference by using primarily a ‘try it and see’ approach, although up to 10 participants 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?”, half of the participants did not see themselves in this way:

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
8	10	2

\* one respondent added, ‘YES if I could be of help & have the time’.

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
6	12*	2

\*One respondent commented: “Depending on how communication between all of us is supported – is there an email list, online forum?”

In the second questionnaire, when asked how much if anything they had learned about the Qtek from other members of the group, only one person had learnt ‘a great deal’, 7 considered they had learnt ‘a certain amount’, and the remainder very little or nothing. At this stage, a comment from one participant showed that this person was reflecting on their need for support: “I tried to buddy up with someone but failed to schedule in regular meetings. Buddying up would have helped me get much more out of the experience – providing a sharing of information but also a ‘protected’ space for me to learn and put this kind of learning in my schedule.”

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/professional development, participants mentioned the workshops, Qtek club sessions, and speaking to the project team. Comments included ‘Comparing the ways different people are using it and what each person has learnt – this presents information about the Qtek in a more digestible way than reading the manual’; ‘Using text (and keyboard!) to get messages to colleagues’; and ‘initial chats and enthusiasm’.

### Personal and professional development with the Qtek

Responses in the questionnaires indicate that for all participants, wanting to interact more with other members of the academic unit was one of the reasons for having volunteered to take part in the project, although for most this was not the strongest reason. Other reasons for joining the project included wanting to:

- make their work practices more efficient
- communicate with their work PC from wherever they are
- see if the Qtek is useful in terms of orientation (new member of staff)
- improve on an unsatisfactory previous experience of using a PDA
- upgrade their device - the Qtek being a better device than one owned currently

One participant had a wider ambition expressed as “hoping to encourage wider use of such devices in the Open University”.

When asked about their current personal and professional development, all except one participant 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 they were positively disposed towards personal and professional development. Participants listed many ideas of how the Qtek would fit into their existing work patterns and habits, and how it might help their development, for example:

- making time management activities easier, ‘mobile access to help me use time best’
- instant searching, instant jotting, quick emails or calls
- accessing email and internet when not in the office
- greater integration of off-site and on-site notes, diary entries and to-dos
- an alerting/reminding system (‘as long as I remember to charge it on a daily basis and take it along with me everywhere’)
- in meetings, for meeting records, reminders for meetings
- ‘a mobile, interactive journal’
- multi-media while travelling
- improving IT skills and confidence
- to support writing up of PhD
- editing documents on the move
- making greater use of workgroup programmes (e.g. outlook shared diary, task group features), as colleagues become more connected

A large proportion 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’. Just over half agreed that they already had a way of doing this (although only one person *strongly* agreed with this statement). Therefore for over half of the participants, the Qtek might compete with existing methods of recording, whilst for the others it would represent a new opportunity in this respect. Three-quarters agreed that they ‘rarely have time to follow up their ideas for work-related or personal development’. We concluded that lack of time could therefore be a factor in whether they realized their plans, despite good intentions and what the device could offer.

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, e.g. 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’). For some, use of the Qtek proved to be a chance to reflect on how they could be helped by technology and on barriers to technology adoption. 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.

By the end of the 5-month stint, only a few participants had continued to explore new uses, for example connecting to wireless networks to pick up email on the move, experimenting with different means of text entry, creating a PhD thesis narrative outline, and taking photos in a ‘do-it-yourself’ store to record measurements for projects. Reflecting on their overall experience, just over half of the participants agreed that there were times when they had wanted more support in

the form of structured learning activities. A similar proportion could not see the Qtek's relevance to their personal and professional development. A slightly higher proportion found the Qtek to be relevant to their work and their leisure or entertainment. Almost half 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 phonecalls. Participants mostly agreed that they had improved their awareness of an important emerging technology. They were divided in their thinking as to whether they were now more aware of opportunities to record and reflect on personal and professional development on an ongoing basis, and similarly divided with regard to whether the Qtek had encouraged them to think imaginatively about applications of new technologies. There were many very positive comments about how pleased people were to have been given the opportunity to use the Qtek.

### **STARTING AGAIN: THE SECOND COHORT**

The second group of participants began their use of the Qtek in April 2007. During March, we reviewed how the first group had progressed and made some changes to the design of Group B's experience. We knew that connecting to the internet would now be more feasible for participants, given that wifi infrastructure had improved in the building since the first cohort started. In-house documentation was amended in order to:

- encourage users to keep trying if initially they have problems connecting to the internet
- give advice on connecting to their email account
- give tips on battery life and wifi (checking the battery; shutting down programs running in the background; identifying whether a wifi connection has been made; selecting the network for wifi)
- give tips on re-aligning the screen and photo sharing.

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 sharing photos via OpenStudio, an online environment for photo sharing. Social issues, such as the acceptability of Qtek use in meetings, were raised and discussed.

However, we realized there were still some gaps in our knowledge, e.g. participants asked some questions that could not be answered about multimedia messaging. It also emerged in the session that a couple of Qteks still contained data from previous users, a situation we had sought to avoid by resetting all the Qteks. After the first workshop, we offered an early troubleshooting session in the form of the first Qtek Club two weeks after the first workshop, and created a mail-list for the group to see if this would be used in addition to, or even instead of, the wiki.

### **CONCLUSIONS**

The project has 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 capture 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 contribute in different ways, our underlying assumptions about the community of participants involved, some findings related to their group experiences and personal/professional development, and the way we have been reviewing the design of our project and its progress.

Smartphones are a tool for communication, but in this project they have not been used for direct communication between participants. Cost implications of doing so were the primary reason for not designing the project around communication by smartphone. Instead, the rich capabilities of the device in terms of data capture are being explored. The availability of (free) wifi on site, and the fact that nearly all participants work in the same building, also had a bearing on our choices. The co-location of mobile learners raises interesting issues around the best means of communication between participants, what can be done to promote community and whether people prefer to learn from one another or to try things out on their own. At this stage we can say that a certain amount of peer learning has taken place, and that participants have found the semi-formal support in the shape of workshops, Qtek Clubs and a buddy system helpful and motivating. Perhaps unsurprisingly, the online element (wiki) has not been used to date, although we have yet to see whether the photosharing facility and mail-list fare better.

On the basis of the first group's experience, we expect that the second group of volunteers will benefit from using the Qtek in similar ways. They are likely to use the calendar function to organize their work and try to be more efficient, and they will probably use the camera. We anticipate that wifi connectivity may still present some problems. Over the five month period our participants did not move much beyond extending existing habits and using familiar facilities such as calendar, email, 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. It was interesting to see that possibilities such as reminders and alerts were constrained by human factors ('as long as I remember to charge it on a daily basis and take it along with me everywhere') and 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, would continue to present a barrier to successful use.

For our academic unit, the smartphones have acted as a catalyst, raising the profile of professional development and promoting dialogue amongst the staff members involved, in the unit more widely and beyond. We are planning to run workshops and similar events to share knowledge and experience with the rest of the university after the end of the project. These will also be a chance to show how the activity of recording development needs could be extended to similar activities for students. Learning partnerships with individuals in other faculties might be offered, subject to the availability of sufficient devices. This will involve staff being put in touch with a willing colleague in another part of the university, so that expertise may be shared more directly on a one-to-one basis. The feasibility of these plans is being assessed as the project develops.

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