



Project Document Cover Sheet

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Project Acronym: WoLF
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JISC Final Report

Work Based Learners in Further Education Project WoLF

Lucy Stone, (Leicester College), January 2009

Table of Contents

Acknowledgements	4
Executive Summary.....	5
Achievements: The following emerged as Outputs from the WoLF project.....	6
Recommendations.....	7
Background	8
Aims and Objectives.....	8
Programme evaluation framework	9
Methodology.....	9
Implementation.....	11
Second Cohort – Start April 2008.....	12
Additional group	15
Outputs and Results	17
Outcomes.....	18
The institutions	18
Implications	19
Conclusions & Recommendations	20
Implications for the future.....	21
References.....	22
Appendixes	23
Project Dissemination.....	23
Glossary of Acronyms.....	25

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Executive Summary

The WoLF Project investigated the use of how Pocket PCs supported the learning of a group of students whilst they were in their work-based settings. The students involved in the project were: Foundation Degree in Educational Studies - 5 3rd Years, 5 2nd Years and 10 1st Years. Another cohort of 5 3rd year students became involved half way through the project from the Foundation Degree in Families, Parenting and Communities. All cohorts were worked based learners with class contact of four hours per week.

The Aim of the project was to address two challenges facing this group of learners:

Challenge One: the ability to record instances in the busy classroom settings that could contribute towards the development of their portfolio of evidence and promote reflection on their practice.

Challenge Two: to provide opportunities for the learners to learn in many different spaces by offering a VLE (Moodle), which could be accessible from the Pocket PCs, on a PC or laptop at home or in the workplace.

	Findings	Source of evidence
1	Five major factors shape use of the PDA. They are the competence of the learner; the nature of professional practice learners belong to; the pedagogy underpinning the teaching and learning processes; the environmental conditions where the PDA is used and the quality of output from the PDA.	Interviews Observation Documents
2	Six main user types emerged. These are confident users of PDA, progressive but less confident users, self-sufficient users who have access to alternative technologies, the techno-stressed who find use of IT mentally demanding and the traditionalist who prefer learning without technology and the white flagger who gives up use of the PDA when they encounter problems. (See: http://swww2.le.ac.uk/departments/beyond-distance-research-alliance/projects/wolf/wolf-deliverables/wolf-deliverables and http://wolf.lec.ac.uk)	Interviews Web logs
3	The PDA was used mainly by the TAs as an information gathering and evidenced based learning tool.	Interview Portfolios
4	Constraints with the use of equipment resulted in additional work to eliminate barriers to device use included overcoming of ethical issues of capturing images, sound and video in an early years setting, ongoing technical support via a number of means and anxieties regarding loss or damage of equipment.	Interviews VLE (FAQs)
5	Evidence found the devices were used within smaller groups (up to 6 pupils). Capturing data in larger groups created issues with sound quality with background noise and interference.	School visit and classroom observation
6	Found to be of value to disabled student through ease of access and size.	Interview
7	Evidence found that a more "structured" and directed approach of device usage impacted on the learning process and student experience.	Interview with students and course tutor
8	Evidence showed that formative assessment offered through the reflective journal and E-Tutorial chat room helped towards motivation, impacting on retention and achievement.	Weblog Interview with course tutor

Project Acronym: WoLF
Version: 8
Contact: Lucy Stone, Project Manager
Date: 01 April 2009

The following issues were identified as significantly impacting on the success of mobile and work-based learning:

- *Structured* versus *flexible* learning design approaches towards portfolio development
- Delivery learning *support* across different context and learning environments
- Technical *standards* for integrating PDAs into institutional VLEs.

Achievements: The following emerged as Outputs from the WoLF project.

- Development of a course site offering tools including a reflective journal, on-line tutorial chat room, discussion forums, online formative and summative feedback, ability to self assess study skills and ICT skills through surveys which then informed the tutor of any additional support needs, increasing opportunities for learners to liaise and collaborate with their peers and tutors, improved access to resources and information, facility to upload still images, video clips or sound in support of written work submitted online – A Captivate demonstration can be found at:
http://wolf.lec.ac.uk/file.php/1/Resouces_Developed/The_student_moodle/Student_Moodle_WoLF_Project_demo.swf
- A pedagogical framework for work-based mobile learning which will continue to influence the institution and the sector and is already in use in a new project (Duckling).
- A number of developments on Moodle that can be shared across the HE provision at Leicester College (HELLO Project) and the wider community, including an E-Tutorial Chat Room and Reflective Journal.
- Learner produced audio and video clips using PDAs, examples can be found on <http://wolf.lec.ac.uk/mod/resource/view.php?id=164>
- Learner generated online reflective, multi media evidence-based journals for personalised learning
- Teacher driven E-tutorial service as part of formative feedback to students example shown on page Page 16
- Extensive dissemination and interest across the e-learning and mobile learning communities which has resulted in 3 papers to date and many presentations – <http://wolf.lec.ac.uk/mod/resource/view.php?id=44>
- Technical Issues Wiki highlighting issues with the mobile devices and Moodle – <http://wolf.lec.ac.uk/mod/wiki/view.php?id=160>
- Narrative on Lessons Learnt – <http://wolf.lec.ac.uk/mod/resource/view.php?id=173>
- Shared resources generated to support practitioners and users of the technology, including Adobe Captivate animations, handouts and webpages - <http://wolf.lec.ac.uk/mod/resource/view.php?id=163>
- A public facing project Moodle site on which to share information to the wider community – <http://wolf.lec.ac.uk>
- Technical Help Forum developed to support the learners with the use of the technology – which will now be replicated across the HE provision as part of the HELLO project

The following emerged as Outcomes of the WoLF Project

- An understanding from practitioners for a need to identify uses of the technology in their classroom and workbased learning settings and to “guide” students
- Using the technology to capture visual and auditory evidence enabled students to put into context their written work, adding to existing lesson observations in the workplace
- Additional support offered through online E-Tutorial, discussion forums and through the reflective journal
- Ability to intervene with appropriate support for the students as a result of them carrying out a study skills self assessment
- Work place evidence and moments captured on the mobile devices, allowing students to reflect back on their practice and to embed the evidence within their portfolio

Project Acronym: WoLF
Version: 8
Contact: Lucy Stone, Project Manager
Date: 01 April 2009

- Increased communication tools to assist with students collaborating on joint assignments and presentations
- Increased communication tools to assist the tutor in communicating with cohorts or whole course
- Opportunities to try out the mobile devices in other work based settings
- Bringing the early years classrooms into the FE classroom enabling students to carry out discussions with real-life examples which were shared via a student VLE site as well as in the classroom

Recommendations

Engaging Staff in using the VLE

- Engage students and staff by delivering a thorough induction into the technology when a cohort starts
- Provide access to technological support through face to face contact, telephone, email and via a Technical Help Forum
- Develop the VLE site for the lecturer, empowering them through staff training to continue what has been put in place
- Consider ethical issues of using something that captures still, video and sound – particularly in the early years setting
- Provide insurance and/or assurance for equipment that is broken, lost or not returned. Do not hinder the use by learners owing to their anxieties about using the equipment, make it clear who is liable institution or individual? Consider the cost of replacement device rather than the cost of an insurance policy and potential claims.

Recommendations for integrating PDA with a VLE

- Seamless *infrastructure* is key to facilitate cross institutional integration
- The PDA can serve as a *pull/push* device of data gathering and transmission
- Communication applications e.g. wireless and email applications are important for *data transmission* and also for *collaborative learning* across space
- Personal computers are essential for *data processing* and manipulation
- VLEs should make provision for different *formats* of user generated objects e.g. picture, video, audio and text
- VLEs can serve as the student *personal home page* for managing their mobile learning activities

Summary of recommendations:

- Mobile devices have a place in a flexible learning environment
- Individual confidence and competence is crucial for engaging with mobile devices
- Better use of the technology may be as a result of encouraging learners to use their own devices.
- The pedagogy underpinning learning design and delivery is important to successful mobile learning
- Context sensitive learning support is very important for learning across contexts
- The Pocket PC is good as an active device to capture spontaneous moments but not so good for accessing pre-prepared activity and resources which are better delivered through an institutional VLE.
- Consideration needs to be given to the ethical dimensions of mobile learning.

Background

Ensuring that all Teaching Assistants are professionally qualified to Level 3 is a priority for national government and the local Learning and Skills Council (LSC East Midlands, 2007). A Foundation Degree in Educational Studies is the main route for Teaching Assistants wanting to gain HE qualifications.

- a) This project is about complimenting the core activities of JISC's E-Learning Capital Programme, focused on meeting the needs of learners in a work based learning environment. The project contributed to creating a personalised learning experience enabling learners to reflect on their practice in a number of locations, for example, at College, home or in the workplace. The mobile device provided the students the opportunity to capture stills, video and sound to enhance their written work and to put into context what they were learning.
- b) Prior to the project the students were using Blackboard to access documents and resources and occasionally participating in a forum discussion.
- c) The Teaching Assistants often work in hectic classrooms within their chosen early years setting (Primary schools, nurseries and special educational needs environments), often relying on recording instances that occur with paper and pen or a laptop. As technology enhances, there are now many devices that provide the facility to take still images, video clips, Dictaphone recordings and digital note taking. These pocket sized devices would be easily accessible to the Teaching Assistants simply to record a moment that could be used for their portfolio of evidence, to refer to when reflecting on their practice or to share with their tutor or peers in a face-to-face lessons, these Teaching Assistants do not have desk with available technology.
- d) This is a transferable model that compliments other types of peripatetic, work-based learners for example, chefs, constructions workers, hairdressers and nurses.

Aims and Objectives

WoLF addressed two challenges directly concerned with TAs ability to learn.

First, systematic recording of classroom activities and developing a portfolio of evidence are key aspects of TAs' learning which occurs in primary school classrooms. TAs rely on pen-and-paper because it is too awkward to use laptops in a hectic classroom. WoLF examined how Pocket PCs can open up new opportunities for TAs to develop their portfolios and thereby promote reflection in practice.

Second, TAs learn in many different spaces: for example, factual and conceptual learning in weekly face-to-face sessions with tutors; through practice and observation while at work; and private studies at home, in the learning resources centre and elsewhere. Varied learning activities occurring in these spaces should knit together so that TAs can map their learning in one space onto their learning in the other spaces. Access to the VLE on a mobile device will help the TAs to have all their learning resources in their 'briefcase', enabling them to integrate learning occurring in all the spaces, and to record their classroom observations.

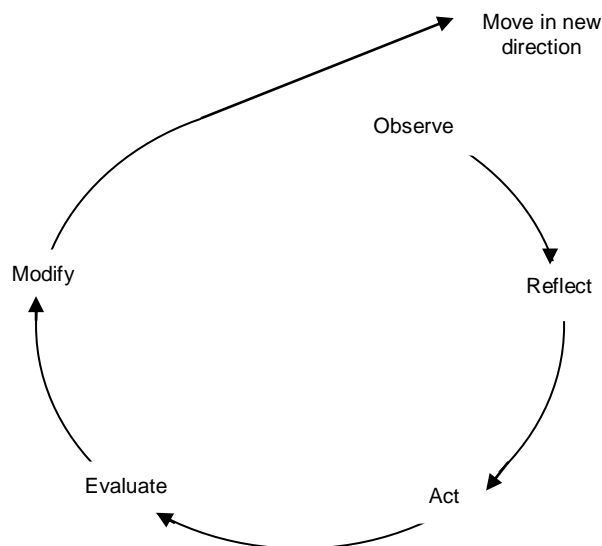
Programme evaluation framework

Methodology

There are a plethora of methods in use by mobile learning researchers. The choice of method is usually determined by a complex combination of project aims and objectives and practical measures of convenience and ethics (Pachler 2007, Kukulsa-Hulme & Traxler 2005). WoLF followed an action research methodology for the following reasons:

- Action Research aims to bring about practical improvement, innovation and change within a social practice (Cohen, Manion and Morrison 2007).
- Within education research, action research is seen as an appropriate methodology for investigating learning activities (Meighan & Siraj-Blatchford 2003).
- As a form of enquiry, action research is carried out by practitioners themselves to investigate their own practice and find ways of improving and living fully in the direction of their educational values (McNiff and Whitehead, 2006)
- The evidence and practice-based framework of action research is seen as an ideal approach to the management of change (Nunes & McPherson 2003)

WoLF is primarily about improving practice and bringing about change. Thus action research was found to be suited to its aims and objective. A plan of the process involved is:



At the beginning of the project it was envisaged that 30 Teaching Assistants on the foundation degree programme will participate in the WoLF project. Recruitment was done through opportunistic sampling methods base on convenience of access to the Teaching Assistants. Ultimately, 20 Teaching Assistants participated in the research due to lower than anticipated recruitment to the course, together with three individuals who dropped out in initial stages of the research.

(Table 1)

Year Group	Date of registration for foundation degree program	Number of Participants
Third year	2006 - 2007	5
Second year	2007 - 2008	5
First year	2008 - 2009	10

Data was gathered qualitatively from multiple sources adhering to ethical guidelines:

Project Acronym: WoLF
Version: 8
Contact: Lucy Stone, Project Manager
Date: 01 April 2009

Semi-structured one-to-one interviews with Teaching Assistants/ project staff

- i. Tracking Teaching Assistants use of project VLE both content and discussion.
- ii. Visits to classrooms to observe Teaching Assistants at work in schools
- iii. Focus group discussion with first year students
- iv. Analysis of evidence included in portfolios

Owing to the sensitive nature of going into an Early Years setting, and the nature of capturing images and sound in these settings, two processes occurred prior to interviews taking place or the devices being used. The first was a CRB (Criminal Records Bureau) check of the Researcher to enable him to go into the schools, nurseries and SEN establishments to carry out interviews. The second was a letter to all Heads of the establishments asking if the taking of images and sound recordings was permissible and how and when this information would be shared with the community. A tear-off slip was essential to record their responses. A copy of this letter can be found at: <http://wolf.lec.ac.uk/mod/resource/view.php?id=25>

Data analysis was carried out using cognitive mapping, a data analysis methodology founded on George Kelly's theory of personal construct to help structure analyse and make sense of accounts of problems. As a methodology, cognitive mapping supports a subjective view of knowledge in which individual beliefs, assertions; attitudes and values are considered valid and hence provide evidence for research. As an approach to data analysis it provides a representation of how respondents think about a particular issue or situation and enables both respondent and analyst to negotiate a way forward. In the WoLF research, the methodology enabled detailed modelling of the views, experiences and feelings of the Teaching Assistants and provided evidence for making interventions at various stages of the project.

Project Acronym: WoLF
Version: 8
Contact: Lucy Stone, Project Manager
Date: 01 April 2009

Implementation

The project started in April 2007. Lucy Stone was appointed as Project Manager (PM) in September 2007. During the initial months a number of meetings took place between Leicester College and project partners University of Leicester. Chris Battison, E-Learning Manager investigated and evaluated pocket PCs on the market that would be affordable on the project budget. A temporary Research Associate (RA) was appointed by the University of Leicester followed by a permanent one year RA appointment from October 2007.

Around the start of the new term 2007 the Hewlett Packard rw6815 was bought – each device costing £257.00. At this time a cash-back offer meant that a refund of £600 went back into the project funds. Wolf also purchased 20 HP Bluetooth keyboards at a cost of £75.00 with the intention that these could be used in the busy classroom environments to type up notes or adjust lesson plans as well as mini HD cards for additional storage capacity and cradles costing £36.00. No testing or evaluation had been carried out on the keyboards as it was assumed that a piece of HP equipment would work with HP devices. However, after rigorous testing and some researching of Forums, it became clear that the keyboards would not connect to the device. Two alternatives were tested, a Palm keyboard (£35.00) and Belkin. Both worked well with the device, but it was felt that the Palm keyboard was far more robust and sturdy for regular use. It is unclear how much these were used, and seemed inconsequential to the learner's use of the Pocket PC. It was agreed not to issue them to the second cohort.

Within the first month of the Project Manager's appointment, an external site <http://wolf.lec.ac.uk> was developed. The site was to ensure information was available to the wider community and included profiles of the project team, steering group and access to informative documentation.

Within the WoLF Project site the PM developed a password protected site to offer other opportunities for communications between Leicester College and the BDRA team at University of Leicester and members of the Steering Group. Features included Agenda Wikis, all minutes of meetings, the Project Manager's Journals and regular information updates.

Training on the use of Moodle, the Project site and Project Management Site was delivered to the team at University of Leicester. One to one training was given to Professor Hawkrige, a member of the Steering Group.

A calendar of regular meetings was established:

- Weekly, with Course Team Leader (CTL) responsible for Foundation Degree in Educational Studies
- Monthly, with the Project Management Team consisting of the Leicester College and BDRA staff
- Three meetings with the Steering Group
- In addition to these meetings further extraordinary meetings took place

A further site was created on Moodle for access by the learners and the Course Team Leader. Initially this site was set up to provide support to the learners on the use of the device. After the devices arrived a number of online tutorials were produced on use of the equipment: These can be found at - <http://wolf.lec.ac.uk/mod/resource/view.php?id=163>

- What equipment was provided in the box
- Installing ActiveSync
- How to synchronise with your laptop/PC
- Taking a still image
- Taking video
- Making a sound recording
- Moving an image or sound recording and putting it into a PowerPoint presentation

Project Acronym: WoLF
Version: 8
Contact: Lucy Stone, Project Manager
Date: 01 April 2009

The resources developed to support the students included tutorials in Captivate, pictorial and written worksheets, video clips and still photos.

First Cohort - Start April 2007

On 8th October an induction took place with the first cohort of students. The induction lasted 45 minutes. The cohort consisted of a group of 3rd Years as well as a first year group that had started in April 2007. The 3rd year group did not engage in the project for a number of reasons; they had little contact with their tutor and were already carrying out independent study towards the end of their course. From the first year group, one student had no access to a computer both at home or in the workplace. One factor contributing to the short induction was the need for the tutor to cover the curriculum during this allotted time. This study cohort was allowed to use the PDA's in their own way guided by their lectures. The reason was to hear the learner's voice and to ascertain whether the students will come up with innovative ways of using the PDA for learning.

As the five students from the first year group began to use the device, technical issues became apparent. One key issue was the use of external devices on institutional computers with the ICT policy blocking the installation of ActiveSync. It was agreed that the new cohort starting in April 2008 would only be encouraging to engage with the project if they had access to their own machine or the technical support within their place of work to support them with the use of the equipment.

Difficulties arose in availability for interviews. Often, the learners could only see the RA during their lunch breaks in their workplaces. A time delay occurred in getting the RA CRB clearance which was required for him to go into the Primary Schools. Various methods were used to try and book interviews with the learners.

The ethical issues of using a device in the early years setting had to be considered. Each early years establishment has different policies with regards to photos and video clips being taken. Some use a system of a "global" letter to all parents and guardians covering all photographic opportunities. Others seek the approval of parents and guardians for individual events or occasions. The PM initially wrote to Headteachers about the project but soon realised there was need of solid confirmation that they understood the implications issues. A separate letter was resent, this time with the addition of a tear off slip - <http://wolf.lec.ac.uk/mod/resource/view.php?id=25>. Responses were positive,

- 100% of Head Teachers returned the tear-off slip
- 83% requested to be kept informed by email
- 8% requested a visit to a staff meeting

Students were anxious about using the College provided equipment in case they lost or broke it. This 'fear' factor needed to be eliminated for the project to progress. This was achieved by writing to the students about "safe keeping of the devices" and ensuring them that should something go wrong they would not be liable for it. To date no equipment has been broken or lost.

It was important to keep solid records of which students had which equipment. There has been a delay between students withdrawing from the course and the PM finding out, making retrieval of equipment difficult. This continues to be an issue and still needs to be addressed. Returning of equipment relied on students passing it on to the CTL, returning it to College reception (who, on one occasion refused to store it over a weekend), or the PM driving to their workplace to pick it up.

Face to face technical support was given to the learners, with the PM visiting learners in the workplace and feeding back the issues to the rest of the group.

The PM also observed two learners together with the tutor during the lesson and was able to recommend how the device could have been used in that setting and context.

Second Cohort – Start April 2008

Project Acronym: WoLF
Version: 8
Contact: Lucy Stone, Project Manager
Date: 01 April 2009

Prior to April group starting, the purchase of a further 12 Pocket PCs was required and the regular supplier and others were unable to supply the HP rw6815 as these were no longer available on the market. An evaluation took place of possible replacement devices and it was agreed to purchase the HP 500 Voice Messengers at the cost of £156.00 per device. This device resembles a mobile phone and has the same functionality as most mobile phones. It still had the three key features used by the students of still images, video and Dictaphone. It was agreed that the use of the keyboards had been so little that it was not necessary to purchase anymore.

Unfortunately, all support materials developed for the HP rw6815 were no longer valid and new resources had to be made available to the learners.

Adaptations were also made to the VLE which had now evolved into a Course Site with a number of assessments being made on-line.

The PM met the students on the first week of their course and talked, briefly, about the project so the seed of information was already planted. The learners were asked to consider if they wanted to participate or not and it was clearly stated how many interviews would take place.

PM and Tutor planned a more intensive, thorough session lasting four hours details of this induction can be found on <http://wolf.lec.ac.uk> The Importance of Induction a lesson learnt.

Students participated in activities ranging from taking stills, video clips and Dictaphone recordings. The Moodle VLE session started with the students filling out their personal profile, and opting in to email and SMS communications (only 4 of the cohort chose to receive text messages). They carried out a survey of their use of ICT, including questions on previous use of mobile devices or PDAs, access to computers at home or the workplace, whether or not they used an mp3 player and questions about Web2.0 tools. Results from these surveys can be found at <http://wolf.lec.ac.uk>

– Meet the students

By the end of the induction session, 100% of the cohort had participated in a Forum, typed up their first Blog and had used a chat room.

Students were asked to come to the induction session with written work on a memory of learning. They were taught how to participate in the forum discussion using this piece of work as the instigator of discussions. Students also wrote their first blog, carried out a self assessment of their study skills, highlighting elements that they felt unconfident or confident in giving the tutor the opportunity to intervene with appropriate support very early on in the course.

Based on the experiences of the first learning cohort a more structured approach was taken with the second cohort. Learners were introduced to the first element of their module – the Reflective Journal. This was set up as an online text activity. Students were able to take the theory learnt during their Monday class, implement in the work based setting and reflect on how it went via the journal. The Tutor gave weekly feedback. Learners have continued to use the journal despite the module now being over, and this has become a feature of the VLE for all years of the course and for forthcoming years. For the Tutor, this small development impacted on her methods of assessment. By giving weekly feedback, evidence showed that the students felt motivated. The tutor was able to assess the individuals' levels of literacy, study skills and ability to reference their work very early on. Previously, this assignment would have been handed in three months into after issue, giving her the first insight into her learners' abilities. The mobile technology was not used during this process. The VLE aspects of the induction were a key part of motivating the students.

To encourage students to engage with the use of the mobile technology, the tutor and Project Manager agreed a number of elements where further evidence could be captured, embedding the use of the devices within their course work. It was hoped that students would use this evidence to reflect on their practice (it may be some days between delivering a lesson/classroom activity in the work place to sitting down and writing up their course work). However, some students used the evidence captured in the classroom to support their written assignment work and uploaded sound, video and stills to the course Moodle site in conjunction with their word processed work. For the tutor, in addition to the classroom observations she carried out, she found the additional evidence helped to put their written work into context of their working environment.

Project Acronym: WoLF
Version: 8
Contact: Lucy Stone, Project Manager
Date: 01 April 2009

Guided activities included:

- Recordings of observations comparing teacher's scientific vocabulary with children's everyday use ie "transparent" with "see through"..... "melt" and "dissolve"
<http://wolf.lec.ac.uk/mod/resource/view.php?id=176>
- Recordings of Piaget conservation task
- Photos of classroom displays
- Video of science modelling task <http://wolf.lec.ac.uk/mod/resource/view.php?id=178> and <http://wolf.lec.ac.uk/mod/resource/view.php?id=175>
- Photos and recordings of the "draw a scientist task" – and questionnaires about what is science
- Recording interview of children as part of literacy lessons
- Recording a field trip to a museum

On the whole the PDA was used as a tool for evidence gathering, information management, reflective learning, and for other uses including time management:

- Use of the PDA as an alarm
- Use as a communication tool
- As a memory aid
- As an aid to reflection after lessons

Other resources were made available to the students on a Memory Card supplied with their device, it included:

- Course Handbook
- All module handbooks

The combination of use of mobile technology and VLE impacted on the tutor, she said:

"Moodle is great for storing administration, course material, SEDs, Data, Marking, lesson plans and programme specifications. It is useful for communicating with part time students during the week particularly work based learners who are difficult to contact via telephone. Uploads from the device allows 'the early years classroom to be brought into the F.E classroom, seeing practice first hand generates quality discussion and sessions are less abstract and more engaging. Students can download course material; refer to guidelines either at home, when mobile or at work. Formative feedback is easy to give electronically and can arm the student with confidence to carry on and complete their assignment, sometimes students do not wish to ask for help within class time if it is a very individual need. Students can be reminded of upcoming deadline. The new chat function will be great when students are preparing collaborative presentations."

Technical and Tutorial support was given to the second cohort through the VLE. For the technical support a forum was set up and the learners raised their issues with either the devices or the site. A response was given always over the forum so all students would receive notifications. Handouts were often included - <http://wolf.lec.ac.uk/mod/resource/view.php?id=163>.

Issues raised over the forum included:

- Transferring video and sound from device to computer
- Space is full
- Text alerts
- Video files
- Sending video files
- Sound quality
- Device going flat within a few hours
- Accessing ActiveSync
- Viewing documents from the Moodle site

Project Acronym: WoLF
Version: 8
Contact: Lucy Stone, Project Manager
Date: 01 April 2009

- Inserting sound files into PowerPoint

It was agreed to try to run a tutorial in a chat room. Initially this was with the “good will” of the tutor as class contact time was not given. The chat room was made available to the cohort every Thursday evening from 7pm for an hour. Clear instructions were given to the cohort that conversations would be logged and other members of the group would be able to view or join in. Over the weeks, 5 learners from the second cohort participated regularly, and 1 learner from the first cohort. The chat room was used purely to capture instant conversations an example being:

Tutor: Are you settling in ok?

Student: thanx, settling in well thanks i do feel i open my big mouth a bit in class but i find the awkward silences when a course leader asks for a reply and no-one answers so difficult not to fill. My brick wall theory is also the basis of my skipping theory I will explain next week. After a course on 'meaningful movement' my skipping theory was not so daft.

Tutor: No I really appreciate your responses, the group are great, very supportive. Yes we will be looking at nature specifically gender on Monday . Then the week after half term im going to ask the whole group to bring their tasks to date in and we can work on them and the assignment. i will see you all one to one then. Your theories sound intriguing

Additional group

We had a number of devices available from the first cohort students that did not engage in the project. It was agreed that we would lend these to a group of five, third year students on the Foundation Degree in Families, Parenting and Communities. A weekly session was organised for the students to learn to use the device, and for 6 weeks met for the first thirty minutes of the lesson. One student had profound learning needs and was a wheelchair user. Training was given to both her and her support tutor. This group were already using Moodle and were familiar with its features. With the freedom to use the device the learners took stills, video and sound files. The learner with needs was able to take images of a group of children making fairy cakes, recording a sequence of events.

Within this group was a wheelchair user with multiple disabilities but a high level of experience with ICT for learning and everyday life. This student found the PDA of exceptional help in her learning. In particular the wireless networking increased her mobility, the PDA was light to carry and avoided her needing to use a wider range of equipment. The student used the PDA to develop a wide range of visual resources for her school.

The Learner and Tutor voice

A video of the tutor and student experience can be seen on the WoLF site (<http://wolf.lec.ac.uk>).

The Learner: *“We were give this mobile device (holds up device), just like a mobile phone really which makes it more appealing to my generation. With your mobile phone you can access it quite easily to do voice recordings, camera to take recordings, video snap shots. You can use it as a mobile phone but I prefer to use my own to be honest.*

I've used the Moodle web site quite a lot actually. I found it very interactive; it's very accessible any hours of the day. I found I go on first thing in the morning anything from quarter past five, because that is when I'm up. It's really, really good. I have done an online tutorial with Kirsty which was a totally new experience but it was great because I could ask questions I hadn't had time to task and I got instant feedback, straight away. I've looked at accessing the reflective journal, updating that every week, and again Kirsty has given me feedback in a couple of days. I've been onto the technical forum which was great because I've had a couple of problems with different issues and they've been resolved because Lucy has got back to me. I've found it easier than trying to get in touch someone by phone because leaving a message, you are never sure it's got there. But you send it straight through, on the Moodle site, you'll know you'll get something back within the next few hours.

Project Acronym: WoLF
Version: 8
Contact: Lucy Stone, Project Manager
Date: 01 April 2009

*I found I was a little bit anxious I think to start when I first heard about the Moodle web site. I thought **“how is this going to impact on me personally?”**, but I found it a great asset. I mean I’m not particularly up on the “jargon” they have. I like to use the internet, I like using my digital camera, I’m quite happy to transfer and put my photos together, and I like to use search engines. I’m by no means on a par with anybody else. My kids are far better, they are teenagers. I can ask “what is a wiki?” and they rattle it off, they say “I’m going to do this...”, and “Mum you should put that in s a zip compressed file” (indicates it is over her head), “what is that?!”. But it has been great and I’ve found it very comfortable to work with.”*

The Tutor: *“Moodle has changed the way I work in several ways really. The first way is that for part-time learners it’s a fantastic way of communicating with them throughout the week, so whether that be in an electronic tutorial or email or texting, students can clarify any issues they have with tasks and also it gives me an alternative way of marking their work. So that, for particularly new students, when they are anxious about submitting their first assignment I can give them formative feedback along the way. So that is the first reason, a communication tool.*

The second way would be a way of storing my own administration so documents I have to provide for the college like the College SED (Self Evaluation Document), I store them all on Moodle, along with marking, along with any other course documents that I’m asked to provide, it’s particularly useful with inspection.

Prior to Moodle existing, we’ve always, for the first module, asked the students to compile a reflective journal. So week by week the students are asked to reflect on the session, the content of the College session, and to link that to their practice in the workplace. Prior to Moodle this was done as a paper based portfolio that would be submitted to me in July then I would mark it. Since Moodle has happened I can give them (the students) weekly feedback on their entries so we can sharpen up study skills, look at the way students do referencing, look at how they are reflecting and analysing and go beyond the descriptive which is the method of an HE Level course.

The students are quite active in using Moodle. For some of their portfolio tasks they can collect data using the mobile device then they upload that data to Moodle. One example would be that students record their target child in the classroom setting, carry out an observation, for example, Piaget’s Conservation system and then they upload that to Moodle. Then there is the possibility for us to share that as a group. So it really makes teaching and learning a bit more real and brings the early years classroom into the FE classroom.”

Outputs and Results

Output	Result
Project progress reports – interim and final	Completed, available on http://wolf.lec.ac.uk Final Report to be uploaded on approval.
Student Website with interactive and participative Blogs, Wikis, Forums and podcasts	Completed, now developed a main course site and three, separate year VLEs
Project website that uses collaborative Wikis for Journal, Agenda Setting and brainstorming activities	Completed
Development of observation criteria to evaluate use of technology by learners	Project Manager carried out two observations – Observation criteria used for her purposes found at http://wolf.lec.ac.uk – Project Paperwork
Set of scenarios which ‘hear the learner’s voice’ in the form of podcasts, Wikis and Forum postings	http://swww2.le.ac.uk/departments/beyond-distance-research-alliance/projects/wolf/podcasts/ and http://wolf.lec.ac.uk – Project Information Podcast that focuses on benefits challenges and expectations for the future Watch the video on the impact of WoLF on the student and the tutor http://wolf.lec.ac.uk – Project Information
Set of recommendations/exemplars showing how A4-centric materials can be repurposed for PDA delivery	Not developed as students did not access large amounts of reading materials from the mobile device
Presentations and dissemination events	Completed (see Appendix) and http://wolf.lec.ac.uk Dissemination/Events
Technical report on the integration of the Moodle open source VLE, Microsoft Sharepoint Web Parts for Moodle and Microsoft Active Sync	Technical issues were recorded via blogs completed by the E-Learning Manager and Project Manager and now compiled into Technical Issues Wiki - http://wolf.lec.ac.uk/mod/wiki/view.php?id=160 Microsoft Sharepoint Web Parts is yet to be rolled out within the Institution. Issues arising with the technology will be fed back into the Institutional ICT Policy, in particular the difficulties of students had with installing ActiveSync on a computer that did not belong to them.
Moodle FAQs database for fault reporting	Technical Forum created for student use on Moodle.
Evaluation report	No separate Evaluation Report has been produced as this was an Action Research project. Research outputs also serve to the meet the objectives of the project.
Case studies drawn from the project to inform further projects working in other vocational/multi-site discipline areas	One case study is ready to be uploaded to the WoLF Site. However, the study is of a particularly sensitive nature, and although the content is anonymous we are waiting for approval for it to be released from the student. This was case study portrays an emergent outcome.
A set of animated/video reference materials will be developed to support the use of PDAs.	Completed, available on http://wolf.lec.ac.uk – Resources Developed Captivate Demonstrations. (Although these are now invalid for the product they were developed for).

Project Acronym: WoLF
 Version: 8
 Contact: Lucy Stone, Project Manager
 Date: 01 April 2009

A set of worksheets will be developed for the students on how to use their website, for example, posting a Forum topic, uploading images/video	Completed, available on http://wolf.lec.ac.uk – Resources Developed Handouts.
A Pedagogic Model and ‘proof of concept’ that can be reused and retried in different work-based learning contexts and disciplines.	http://swww2.le.ac.uk/departments/beyond-distance-research-alliance/projects/wolf/wolf-deliverables/wolf-deliverables and http://wolf.lec.ac.uk - Deliverables
Resources for practitioners for designing reflective learning activities based on work-based learning scenarios and using Pocket PCs to capture evidence for portfolios.	http://swww2.le.ac.uk/departments/beyond-distance-research-alliance/projects/wolf/wolf-deliverables/wolf-deliverables and http://wolf.lec.ac.uk - Deliverables
Exemplars and user cases developed from students’ learning experience, highlighting both positive and negative instances of student learning.	Typology of users, their needs and ways of addressing their challenges http://swww2.le.ac.uk/departments/beyond-distance-research-alliance/projects/wolf/wolf-deliverables/wolf-deliverables and http://wolf.lec.ac.uk - Deliverables
Guidelines for integrating the use of Pocket PCs for work-based learning and into institutional VLEs, including the avoidance of problems, within disciplinary and institutional specific contexts and as part of institutional e-learning strategies.	1. Guidelines for integrating PDAs with institutional VLEs link coming 2. Guidelines for integrating PDA use in e-learning strategies - Lessons learnt to be presented on WoLF site after Final Report approval
Systematic review of literature	Posted on http://tinyurl.com/basfz2 and http://wolf.lec.ac.uk – Dissemination – Literature Review

Outcomes

WoLF has had impact in four main areas.

The institutions

- The project VLE becomes a platform for knowledge sharing and management around learning objects developed by tutors and learners.

Teaching delivery

- A model of delivery learning with PDAs has emerged from empirical research where tasks and assignments provide a *structure* for learners to gather evidence in a *flexible* manner using the classroom as a base
- Use of the PDA has led to context generated learning design where learning activities in one context are mapped onto learning in other contexts
- A new method of formative assessment has been developed through the use of E-tutorials a chat service developed by the tutor.

Learning

- Learner generated audio and video clips base on classroom activities driven by course assignments are now embedded into portfolios.
- A Learner generated *online reflective journal* distilling learning from practice and tracking learning processes and experiences is in use
- The potential for collaborative learning is emerging along the lines of cohort based *communities of practice*

Research Community

- The use of cognitive mapping methodology has proved valuable for detailed modelling of the views, experiences and feelings of the Teaching Assistants.

Employers

- Use of the device can be adjusted to any learning or working environment – Evidence of this can be seen in the Case Study (awaiting approval to release).
- Most students produced resources for assessment/feedback from the tutor; however, some students commenced production of resources during the project. It is likely that their awareness was raised overall for using personally owned devices in the future.
- Learners will be acquiring transferable ICT and e-communication skills that are potentially of added value to employers - Some students recognised the importance of ICT skills to future learning and employment (mainly progressives and innovators).

Implications

Embedding mobile devices into curriculum design

The PDA was added to the foundation degree programme rather than being embedded into it, and as such was less integrated than if curriculum design occurred earlier.

Learner profiling and support

In view of the differences in learner competence and confidence, early profiling of learners is important for the provision of personalised support.

Building communities of practice

Attention to work roles and mentoring is useful for building horizontal communities of practice around work teams and learning cohorts.

Learning design and structure

Context sensitive classroom activities, (as highlighted on page 15) within small groups is more likely to promote engagement. Formative feedback is useful for distilling learning from practice.

Ethical policies

Mobile learning occurs mainly in public spaces. Institution-wide ethical policies are thus important for learning across different spaces.

Quality assurance

Effectiveness of mobile devices depends on the quality of output generated. It is thus important to purchase devices that produce quality outputs, for example, use of images in PowerPoint presentations, sound files used as portfolio evidence picking up background noise.

Technical infrastructure

Seamless cross-institutional access to learning platforms is important.

Learning support

Learning “anywhere and at anytime” should go hand in hand with “support anytime in any location”. It is important to integrate formal and informal support mechanisms.

Conclusions & Recommendations

Conclusions

The Wolf project has demonstrated that engagement of learners through small scale mobile devices can be achieved, the new opportunities for learning are opened up, new 'spaces' become involved and 'learning locations dramatically extended.

Engaging Staff in using the VLE

- Engage students and staff by delivering a thorough induction into the technology when a cohort starts
- Provide access to technological support through face to face contact, telephone email and the use of a Technical Help Forum
- Develop the VLE site for the lecturer, empowering them through staff training to continue what has been put in place
- Consider ethical issues of using something that captures still, video and sound – particularly in the early years setting
- Provide insurance and/or assurance for equipment that is broken, lost or not returned. Do not hinder the use by anxieties about using the equipment, who is liable institution or individual.

Recommendations for integrating PDA with a VLE

- Seamless *infrastructure* is key to facilitate cross institutional integration
- The PDA can serve as a *pull/push* device of data gathering and transmission
- Communication applications e.g. wireless and email applications are important for *data transmission* and also for *collaborative learning across space*
- Personal computers are essential for *data processing* and manipulation
- VLEs should make provision for different *formats* of user generated objects e.g. picture, video, audio and text
- VLE can serve as the student *personal home page* for managing their mobile learning activities

Summary of recommendations:

1. Mobile devices have a place in a flexible learning environment.
2. Individual confidence and competence is crucial for engaging with mobile devices
3. Better use of the technology may be as a result of encouraging learners to use their own devices.
4. The pedagogy underpinning learning design and delivery is important to successful mobile learning
5. Context sensitive learning support is very important for learning across contexts
6. The Pocket PC is good as an active device to capture spontaneous moments but not so good for accessing pre-prepared activity and resources which are better delivered through an institutional VLE.
7. Consideration needs to be given to the ethical dimensions of mobile learning.

Project Acronym: WoLF
Version: 8
Contact: Lucy Stone, Project Manager
Date: 01 April 2009

Implications for the future

Leicester University - BDRA

Outcomes from WoLF are already being deployed in a new Curriculum Delivery project at the University of Leicester: Duckling (<http://www.le.ac.uk/beyonddistance/duckling/>) and have featured in another JISC bid (Swallows – awaiting outcome).

Leicester College

Leicester College have received confirmation of possible funding for a new project: HELLO (Higher Education Lifelong Learning Opportunities). The HELLO project will focus on two aspects; the first is the replication of the reflective tools developed during the WoLF Project and the second is the development of a social networking site that allows the HE students to develop their own communities but also acts as a portal for business and industry experts and other HE institutions to participate, advise and advertise possible work placement opportunities. The HELLO project will involve 40% of the HE provision at Leicester College, affecting 250 students and at least 8 Course Team Managers across varied curriculum areas.

Through dissemination of the WoLF Project, the WoLF Project Manager has been asked to re-develop the Student Services Moodle site. The site will now offer more interactive and collaborative features, for example a Reflective Journal, Disabled Students discussion forum, self assessments of needs, and evaluation of careers advice and guidance services. The Student Services Moodle site will be accessible to every student in the organisation. This work would not have been instigated without showing colleagues and senior managers elements of the WoLF Project that benefited, motivated and support the learning experience.

Similar developments are to be made to a Project, Partners and Innovations Moodle. This will allow 1,300 students who study outside Leicester College, and throughout the UK access to support and self assessment tools appropriate to students who are studying in the work place and at other partnerships.

A number of summer courses are to be developed for staff – in particular a focus on encouraging staff to engage students in using their own mobile devices to record and share evidence, incidences and experiences. In particular, in the areas of NVQ Hairdressing and Beauty Therapy where students may have work placements in salon settings, catering students in kitchen environments and construction students who may be working on sites. Examples from the WoLF Project will be used, and resources developed shared.

Project Acronym: WoLF
Version: 8
Contact: Lucy Stone, Project Manager
Date: 01 April 2009

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Appendixes

Project Dissemination

Leicester College – Dissemination <http://wolf.lec.ac.uk>

Date	Event	Presentation
10 th – 11 th October 2007	Aston University, Birmingham	FE in HE Meeting
13 th November 2007	Basford Hall, New College Nottingham	JISC – East Midlands ILT Forum
9 th January 2008	Leicester University	Learning Futures: the Campus and Beyond
22 nd January 2008	Loughborough University	Blue Skies Committee
4 th March 2008	Leicester College	Quality Away Day
13 th March 2008	CULN, Leicester	HE/FE/AEL Research Group
2 nd May 2008	Leicester College	HE Away Day
5 th June 2008	Kingston College	Visit and sharing of ideas with KASTANET Project
17 th June 2008	CULN, Leicester	Realising the Potential Conference
18 th June 2008	Danemill Primary School	Visit to talk to staff about mobile learning
24 th June 2008	JISC East Midlands E-Fair, Walkers Stadium	Presenter
2 nd and 3 rd July 2008	Tresham Institute –	New ways to use Moodle staff development sessions
3 rd March 2009	JISC Lifelong Learning Symposium	Case Study
9 th March 2009	Live Case Study on the QIA Excellence Gateway	http://excellence.qia.org.uk/page.aspx?o=192227
24 th March 2009	JISC Conference	Presenter: Can technology help motivate and retain students

Future Events

Date	Event	Presentation
31 st March 2009	ILT Forum	Online Conference – Presenting WoLF Project and what happens next?
23 rd June 2009	JISC E-Fair, Walkers Stadium, Leicester	WoLF Project and what happens next?

Project Acronym: WoLF
 Version: 8
 Contact: Lucy Stone, Project Manager
 Date: 01 April 2009
 Leicester University - Dissemination <http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/wolf>

Dates	Event	Presentation
26 th March 2008	JISC Learning and Teaching Practice Experts Group. Held in Bristol.	Distribution of Flyers
17 th April 2008.	Seminar. Centre for Research in Education and Educational Technology - Open University. Computers and Learning Research Group	Distribution of flyers
17th June 2008.	CULN research seminar. University of Leicester.	Talked about WoLF in a small working group
17th June 2008.	JISC HE in FE online meeting	Power point presentation found at http://www.slideshare.net/JISC_HEinFE/wo-lf-jisc-h-ein-fe-pal-and-sahm-17-june2008
24 th /06/2008.	RSC East Midlands e-Fair. Walkers Stadium, Leicester.	Informal discussion in small working
9 -11 Sept. 2008	ALT-C Leeds.	Short paper: What can we learn from a WoLF? Mobile learning lessons from a HE in FE project. http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/wolf/research-papers/ Power point presentations http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/wolf/conference-presentations/
8-10 October 2008	M-Learning. Wolverhampton	Research paper: _Accounted Learning: A WoLF oriented approach to mobile learning. By Sahm Nikoi and Palitha Edirisingha http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/wolf/research-papers/ Power Presentation. http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/wolf/conference-presentations/
3-5 December 2008	Online Educa. 14th International Conference on Technology Supported Learning and Training Annual Conference. 3rd to 5th December 2008, Berlin	Paper: "Supporting WoLFs to learn: A case study of mobile-learning from an HE in FE project". By Samuel Nikoi. http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/wolf/research-papers/ Power Point presentation. http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/wolf/conference-presentations/

Project Acronym: WoLF
Version: 8
Contact: Lucy Stone, Project Manager
Date: 01 April 2009

Glossary of Acronyms

PM	Project Manager
CTL	Course Team Leader
TA	Teaching Assistant
FD	Foundation Degree
BDRA	Beyond Distance Research Alliance
RA	Research Associate