

Issue One
July 2003



MOBILEarn is a worldwide European-led research and development project exploring context-sensitive approaches to informal, problem-based and workplace learning by using mobile technologies. The MOBILEarn project



consortium involves 24 partners from Europe, Israel, Switzerland, USA and Australia. Their competencies are integrated and extended by a Special Interest Group which includes more than 250 of the World's leading organisations, active in Information Technology.



Guidelines for Developing Mobile Learning

Fuelled by the confluence of three technological streams - ambient computing power, ambient communication and development of intelligent user interfaces - mobile learning is an innovation in a state of intense development – according to Prof. Mike Sharples at the University of Birmingham, UK and a member of the MOBILEarn Project team. However according to a report recently produced by the MOBILEarn Project “a consequence of this rapid development is that the pedagogy of mobile learning has yet to become clearly established”.

*“a user
- centred
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“Guidelines for learning/teaching/tutoring in a Mobile Environment” has attempted to define mobile learning in terms of a flexible model that will enable developers, tutors and learners to identify learning practices and effective pedagogies incorporated in a particular ‘learning space’. It has identified key elements that are unique to mobile learning, and provided an initial checklist indicating pedagogically useful learning activities that can be supported by the technologies.

Based on a study of the current literature on the pedagogy of mobile learning the report aims to assist designers in developing a user-centred approach that is driven by ‘learner pull’ rather than ‘technological push’ and to provide signposts for tutoring, teaching and learning with mobile devices. In addition literature from other paradigms, such as e-learning and online

Project Overview

The MOBILEarn Project has now been running for just over a year and is due to be completed by the end of 2004. It is a major research and development project investigating how mobile technologies could be utilised to enhance learning in various contexts. This newsletter aims to highlight what is being achieved and learnt within the project as well as point to other relevant news. It is the first of six newsletters that will be produced over the next eighteen months.

The MOBILEarn project has identified three selected and very representative application areas for mobile learning:

- The Master in Business Administration (MBA) - where business schools will be able to extend the reach and scope of their current blended learning offering by providing learners with personalised and tailored subscriptions to content on mobile networks and “orientation games” for the induction of students on their entry into the university by providing supported ad hoc, situation-based, serendipitous learning.
- Museums - a museum that manages historical and cultural heritage locations of the city will improve its offerings enabling learning citizens to access context-sensitive art, historical and cultural knowledge with mobile devices while visiting museums and galleries.
- Health – aimed at providing access to basic first aid medical knowledge to enable support for anywhere and anytime interventions for non-specialized citizens in basic medical situations.

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communities, has been included where the results are thought likely to contribute to the mobile pedagogical paradigm.

What is Mobile Learning?

The report considers that advances in computer technology, intelligent user interfaces, context modeling applications and recent developments in the field of wireless communications, including Wi-Fi, Bluetooth, multi-hop wireless LAN and the global wireless technologies such as GPS, GSM, GPRS, 3G and satellite systems have created a wide array of new possibilities for technology users. When these technologies started to be used in conjunction with mobile computers a new learning paradigm, mobile learning, emerged.

Mobile learning, or m-learning, has been defined as learning that takes place via such wireless devices as mobile phones, personal digital assistants (PDAs), or laptop computers. In the different definitions encountered in the literature, it is only the employment of specific types of technology that seem to differentiate mobile learning from other forms of learning.

However, when considering mobility from the learner's point of view rather than from a technology perspective, it can be argued that mobile learning goes on everywhere. For example, pupils revising for exams on the bus to school, doctors updating their medical knowledge while on hospital rounds, language students improving their language skills while travelling abroad. All these instances of formal or informal learning have been taking place while people are on the move.



Therefore, the report considers that a definition of mobile learning should therefore be widened to include:

Any sort of learning that happens when the learner is not at a fixed, predetermined location, or takes advantage of the learning opportunities offered by mobile technologies.

The research and development work has been organised into a number of different modules that deal with user requirements, pedagogical methodologies, adaptive human interfaces, learning objects, context awareness, learning content management, mobile media delivery and collaborative learning. This first issue and subsequent newsletters will highlight some of the key developments that are emerging in these areas.

User trials and evaluation are due to start during the summer of 2004 and the project will also develop a business plan for the exploitation of the results.

An important aspect of this project is the formation of a special user group that now has over 250 private company and institutional members from over thirty countries worldwide.

Guidelines for learning in a mobile environment

A key component of this report is a set of fifteen initial guidelines that have aimed to identify issues from existing projects and lessons that need to be learnt for the implementation of future mobile learning activities. The guidelines have been designed for a number of different audiences - institutions, system designers and usability engineers, teachers, decision-makers and users. They address costs; systems design; choice of technology; the roles for initiating and supporting mobile learning; the procedures and strategies for the management of equipment when the institution provides it.

The guidelines also consider the training and ongoing technical support for teachers to enable them to use mobile technologies to enhance current and to enable new instructional activities. Consideration is given to the use of mobile technologies for student administration tasks and how they can support collaborative and group learning. Another guideline considers the need for teachers to discover and adopt suitable applications that match the needs of their specific classroom and maps directly to their curriculum needs.

Other guidelines consider security and privacy for end users; the need to gain user consent

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when collecting data about users, user control over this data and that it is stored securely. Another guideline explores the potential of mobile technologies in supporting old and enabling new activities.

Guidelines also cover the roles within the mobile learning environment that are required to facilitate computer supported collaborative learning and the selection of hardware that fulfils these requirements. A final guideline addresses the flexibility in the software to make upgrades easier.

This full report can be found in the Public Results area of the Mobilelearn Web site: <http://www.mobilelearn.org/results/results.htm>



Personalising the learning context

The project is developing a number of software tools that can be used in various mobile devices to personalise the learning context. One software tool is being developed by a team led by the University of Tampere, Finland. They are looking at the design of adaptive human interfaces as a part of usability research and user interface design. There are two types of adaptive human interfaces. If the user is able to change certain parameters and adapt their behaviour accordingly interfaces (systems) can be called adaptable and if system interfaces are adapting to the users needs automatically they can be called adaptive.

Adaptive human interface design is based on the information from user models. To produce a user model or profile, the system needs information about the user that can be collected directly from the user through forms or feedback or indirectly by tracking user behaviour in service or context. The user model can be adapted according to user input or behaviour, and profile information is used in predicting user needs and actions.

Can mobile devices help you better use museums?

Museums are considered to be the mechanism through which we research, interpret and present our insights into the natural and cultural worlds. They represent our belief systems concerning cultural inter-relationships, our relationship with the environment and our place in the Universe. They are windows on the “dream-time” of humanity!”

The project is keen to find out more about how you might use information on a mobile device when visiting a museum, a castle or an old palace. This will help understanding of how mobile devices might be introduced and developed in the tourism sector.

Complete the questionnaire at: <http://www.mobilelearn.org/results/questionnaire/questionnaire.htm>

In designing adaptive interfaces personalisation is also one of the key issues. Personalisation can be defined as a process that changes the functionality, interface, information or content of interfaces (systems) to increase their personal relevance to an individual. Personalisation can be system or user-initiated, the former often being described as customisation.

The University of Birmingham, UK is developing a “context awareness module”. This is designed to facilitate context dependent content delivery for learners using mobile devices such as phones, PDAs, and tablet PCs.

The context awareness module is intended to provide learners with a way to access appropriate content on their mobile devices without having to pay too much attention to searching and querying the set of all available content. The software is being designed to “listen” to the specific needs of the learner and then respond to these needs depending on the learner’s current context of use. In addition the learner will be able to customise and “fine tune” it to better meet their specific needs at different times.

“museums are the “dream-time” of humanity”

“adaptable and adaptive user interface systems”

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It is being designed to support flexible re-use by non-expert users by providing a generic, re-usable architecture with the means to define customised listener objects using a structured textual description.

This context awareness module will also be capable of enabling the mobile device to provide learners with recommendations about available resources, like personal files and local data stores, and also services like communication links to other learners and more remote data stores.

Further more technical information about these developments will be available in the Public Results area of the MOBILEarn web site.

Mlearn Conference Huge Success

The two-day conference MLEARN 2003 held in London in May this year proved to be a huge success attaching over 200 delegates from 13 countries. The event was organised by the Learning and Skills Development Agency (LSDA) on behalf of two mobile learning projects - 'm-learning' and 'MOBILEarn' – both supported by the European Commission's Technology Enhanced Learning (TEL) Unit in the Information Society Technologies programme. The book of Abstracts from this conference are now available online at: - <http://www.lsda.org.uk/events/mlearn2003/index.asp?section=18>

Next year's conference MLEARN2004 will be held on 17-18 May 2004 in Bracciano (Rome), Italy. More details from Giorgio Da Bormida.

Further information on the MOBILEarn Project and the Special Interest Group contact :-

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Other News

Cookies for mobiles

A UK firm is marketing a system that acts in a similar way to a cookie - but for mobile phones. Bango's Fingerprint system allows pseudonymous authentication of mobile phones, meaning firms can track their customers for marketing purposes without knowing their full details. The system is already being used by a ringtones vendor. Rob Bamforth at IT analysis firm Bloor Research says the service is like those that process credit card payments for e-commerce sites, but covers marketing as well. "It's essentially third-party verification of who you are, but without disclosing all the information about yourself," he says.

Source it-analysis <http://www.it-analysis.com>

Bluetooth screen

US company MicroOptical looks set to become the first to market an LCD screen that connects wirelessly via Bluetooth to mobile phones and PDAs. The DV-1 viewer, a 12bit QVGA display, clips on to eyeglasses and delivers images significantly larger than those seen on the phone or PDA's screen. The company claims the battery-powered viewer is, unlike many LCD devices, readable in all lighting conditions. MicroOptical hopes to launch a version of the DV-1 later this year.

Further information:

<http://www.microopticalcorp.com>

Seminar on Portable and Mobile Information Devices

The presentations from the BECTA (British Educational Communications and Technology Agency) Expert Seminar on Portable and Mobile Information Devices, held in London on 18th June, are available at

http://www.becta.org.uk/etseminars/presentations/index.cfm?seminar_id=13

Wanted News from SIG Members!

If any MOBILEarn Special Interest Group (SIG) members have any short news items for this newsletter please email to pjb@pjb.co.uk. The deadline for material for the next issue is 14 September 2003

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