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the wings of learning

The Newsletter of the MOBilearn Project

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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.

MLEARN 2004 conference preview special

Preparations are going "full steam ahead" for the third international conference MLEARN 2004 - "learning anytime everywhere', jointly organised by the two European projects - MOBIlearn and m-learning. Covering mobile and ambient learning, it will take place on 5-6 July 2004 at Odescalchi Castle, on the southern shore of Lake Bracciano just a short way from Rome, Italy.

MLEARN 2004

"more than 50 speakers plus 200 participants expected"

Around 250 people are expected to attend the conference and the organising committee has accepted more than fifty, out of ninety papers submitted. This edition of the newsletter aims to give you a sneak preview of the keynote speakers and other speakers from the three parallel streams.

There will be four international keynote speakers including Lim Cher Ping, Assistant Professor from the National Institute of Education, Nanyang Technological University, Singapore, who will talk about "Engagement in M-Learning". He will relate this to the development of learning objects and research he has done in the area of GPRS-enabled handheld computing and the development of learning communities in teacher education.

Another keynote speaker is Christopher von Koschembahr, a mobile learning executive from IBM, USA. He considers that "with an increasingly mobile workforce, m-learning is the next evolution of e-learning. By making online learning truly on demand and more accessible, mobile workers can remain more engaged, even while on the move, and therefore the learning has a higher chance of being successful. As mobile devices converge and new connectivities become more prevalent, profound new possibilities are now made practical and economical. There are also significant business benefits by providing learning in a way that it can fill "downtime" often experienced by "road warriors"". His presentation will explain and demonstrate the pragmatic and performance-based approach that IBM has taken to address the needs of mobile workers both for IBMers, as well as for their customers.

Prof. Dr Robert Meersman: Director of STARlab, VU Brussels, Belgium will talk about the semantic linking of courseware, competences, career, and culture for the mobile citizen. Robert, founded the Semantics Technology and Applications Research Laboratory (STAR Lab) at the Free University of Brussels in 1995.

Continued on Page 2

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Continued from Page 1

The keynote address of Dr Tom H Brown from the University of Pretoria, South Africa will be "Exploring future learning paradigms" in the context of his work in developing a m-learning model for Africa. He considers that because of the lack of infrastructure for ICT (cabling for Internet and telecom) in certain areas in Africa, the growth of wireless infrastructure is enormous - even more rapid than in many first world countries.

Some forecasters estimate that there will be almost a 100 million mobile users in Africa by 2005. Tom considers that we can therefore differentiate between two ideal target markets for m-learning. One is learners that are either without infrastructure and access - third world rural or remote area learners who have mobile phones. The other group are learners that are continually on the move - first world learners who are the workforce on the move with state of the art mobile devices.

Gerardo Greco, Counsellor to the Italian Ministry of Innovation and a leading light of the Italian chapter of SCORM, has been invited to talk about standardisation issues concerning mobile SCORM. Both Maria Letizia Moratti of the Italian Minister of Education (University and Research) and Lucio Stanca of Italian Minister of Innovation have also been invited. From the European Commission, Patricia Manson of the Technology-Enhanced Unit of the Information Society DG has also been invited to talk about recent research results and future perspectives for European funded research projects.

Further details with the latest programme of MLEARN2004 can be found at: http://www.mobilearn.org/mlearn2004

Also within the framework of the MLEARN 2004 conference will be "MLEM 2004" – the first international workshop on m-learning for emergency management that will be held on 6 July 2004. It focuses on the achievements and possibilities of new advanced wireless technology, that networks multimedia, intelligent agent technology, and socio-cognitive knowledge into applications for mobile learning under time constraints and emotional stress.This involves situations of high risk of organization, social and individual crisis; and emergency and disaster, for instance, in the presence of a large-scale blackout of critical infrastructures.

For further details about MLEM2004 see http://www.mobilearn.org/mlem2004

Media partners

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A taste of some of the presentations

Engaging and Supporting Mobile Learners

Jill Attewell and Carol Savill-Smith of the Learning and Skills Development Agency (LSDA) will be presenting a paper on the learner research and systems trials phase of the m-learning project and on emerging findings from the project as a whole. Between February and July 2004, 300 learners are involved in using smartphones and pda/phone hybrids to access the learning materials and systems developed within the project. The research trials are exploring learner and mentor reactions to, and experiences with, the devices, learning materials and systems.

LSDA, as the co-ordinator and other partners in the m-learning project are exploring whether m-learning can engage reluctant young learners in education or training by creating more enthusiasm for learning. They are also developing appropriate and effective ways of providing pedagogic support and scaffolding. The m-learning project is a three-year collaborative research and development programme supported by the European Commission. The partners (LSDA, CTAD and Ultralab from the UK, Lecando from Sweden and CRMPA from Italy) combine skills in pedagogy and technology. The project has developed prototype products and innovative approaches to support learning, particularly literacy, numeracy and life skills, using handheld devices e.g. mobile phones and personal digital assistants.

The fact that many young adults have poor literacy and numeracy skills and little or no interest in education and training - is considered to be both a personal tragedy and a waste of potentially valuable national and European resources. However, the project considers that learning is a natural human activity that most people will engage in if given the right encouragement.

Therefore, as many young people tend to be interested in and excited by new technologies this offers a potential for engaging them back into learning. Key findings of the project will be presented at the conference.

Mobile learning = collaboration

Feedback from learners and tutors in the m-Learning project trials has found that users enjoy the content but they **love** the collaboration. According to Jo Colley and Geoff Stead from Cambridge Training and Development – a partner in the m-learning project one of the key challenges has been the development of a collaborative learning tool called mediaBoard. This allows learners to collaborate with text and picture messaging, contributing to a shared website that everyone has helped to make.

During their presentation they will review how mediaBoard works by looking at case studies of how the mediaBoard is being used with different learners and how it has involved attendees in a real-time and a highly enjoyable collaborative event.

The mediaBoard has encouraged learners to use a mix of technologies - camera phones, non camera phones, SMS, MMS, mobile and regular web access - to contribute to online projects. Tutors can set up their own mobile-event or project. These projects can be competitive like treasure-hunt style, collaborative with differentiated tasks or reflective using the board as a diary or blog.

Developing a mobile learning game prototype

Three researchers from the Information Management Research Group, University of Zurich, Switzerland - Christoph Göth, Urs-Peter Häss and Gerhard Schwabe will be describing a scenario of a mobile game for mobile learning in which new students explore the campus of a university. This scenario has been implemented by developing test prototype developed in the framework of the project MOBILearn but financially funded by the Swiss Federal Office of Education and Science (BBW).

They will describe the architecture, the technique and the positioning engine used in the prototype as well as lessons learnt.

Using of ambient technology to test mobile learning theories

Andrew Brasher from the Open University will be presenting a paper that focuses on the potential of ambient technology to obtain quantitative data about learners interaction with all kinds of learning materials. It describes some preliminary work towards the development of a research plan, which if followed, aims to enable ambient technology to be used as a tool which researchers can use when testing theories of learning with mobile devices and which developers can use when evaluating mobile learning systems.

This work described is one aspect of work towards the development of a "road map for further research into the theory and practice of personal mobile learning supported by new technologies" being carried out within the MOBIlearn project.

Andrew will report on progress that has been made towards developing a research plan to enable ambient technology to be used as a tool which researchers can use when testing theories of learning with mobile devices and developers can use when evaluating mobile learning systems. It describes the approach used, informed by the T-Plan approach and the progress made by examining sources including existing academic research which tests theories of learning; frameworks for evaluating educational and information about relevant existing and emerging technologies such as those for identification of physical objects, data communication (e.g. GSM, GPRS, WLAN, UMTS, Bluetooth); outdoor location (e.g. GPS/ GNSS); indoor location (e.g. infrared, optical); and video and audio data capture.

A context awareness approach for creating an engaging learning experience in an art museum

The MOBIlearn project aims to develop a re-usable architecture for delivering mobile learning experiences. A key component of this architecture is a context-awareness subsystem that is intended to tailor the content and options made available to a learner, depending on their current situation, preferences, and learning history. The context awareness subsystem has been developed alongside a hierarchical model of context, and has been subjected to formative evaluation.

With reference to their context model and preliminary tests, one presentation will describe the planned deployment of this system in an art museum learning scenario, and provide details of the contextual elements that will be used to determine the learner's context. The team from MOBilearn partner – University of Birmingham is led by Prof. Mike Sharples and consists of Peter Lonsdale, Chris Baber, Will Byrne, Theodoros N. Arvanitis and Russell Beale.

Their presentation will argue that context aware computing has a lot to offer mobile learning. By taking into account the learner's surroundings engaging learning experiences can be created with content and options that are tailored to the current context. One of the aims of the MOBilearn project is of developing several learning scenarios designed to allow the deployment and testing of the system, including the context awareness subsystem. The team will present their plans for deploying and evaluating their context awareness architecture for students in an art museum.

Environmental Detectives

Kurt Squire from the University of Wisconsin-Madison and Eric Klopfer from MIT, USA will be presenting a paper that investigates their first prototype - "Environmental Detectives" - a participatory simulation where groups of students participate in a real-time simulation-game based around a local river watershed. Students must combine real-world and virtual-world data and develop an argument about how to best remediate the problem.

The spread of the hazardous chemical Trichloroethylene (TCE) is simulated on a location-aware Pocket PC equipped with a GPS device, which allows players to sample chemical concentrations in the groundwater depending on their location. Players have three types of reusable drilling apparatus that they use to drill for water samples.

TCE is used mainly as a solvent to remove grease from metal parts, but it is also an ingredient in adhesives, paint removers, typewriter correction fluids, and spot removers. It is not thought to occur naturally in the environment. However, it has been found in underground water sources and many surface waters as a result of the manufacture, use, and disposal of the chemical.

The simulation "Environmental Detectives" contains a multimedia database of resources that students use to learn more about TCE, the health risks associated with exposure to TCE, and so on, which students access through interviews with virtual university characters. Limited time forces students to choose between collecting interviews, gathering background information, and drilling wells, adjusting and re-prioritising goals as new information becomes available.

Students learnt to navigate the augmented reality space with ease and enjoyed meeting virtual characters. Some students quickly took ownership over their problems, developing strong connections between the problem, physical space, and the simulated data provided on their PDAs. Students perceived the problem as authentic and legitimate and marshalled resources to develop solutions. However, where students were less familiar with the environment, students had less emotional investment in the problem and found the problem to be more contrived.

Interactivity with a large class using wireless devices

Fabrice Mercier, Bertrand David, Rene Chalon, Jean-Pierre Berthet from Laboratoire ICTT, Ecole Centrale de Lyon in France will be describing how describe how to make teaching in large class livelier and more participative by using wireless devices. The paper briefly describes the challenge of teaching in a large class and presents the DRIM-AP project (French acronym for Multiple Interactive Radio Devices and Participative Lecture Theatres).

Although widely used in higher education, lecturing to a large class, as a teaching method, is known to present some difficulties. Teachers are often challenged to perform a lecture and at the same time try to pick up signs that indicate students' level of understanding through analysing their behaviour and by encouraging them to participate. On the student side, lectures are sometimes perceived as boring and participation is complicated by shyness and fear of being ridiculous in front of teachers or fellow students.

Over the past few years, e-learning has hugely increased the use of technologies in education, providing software solutions to manage distant students through the use of learning platforms or virtual classrooms. At the same time, little has been accomplished to really integrate the use of technologies in face-to-face lectures. However, since the rise of wireless networks and mobiles devices, all components are now available to build and test solutions that could help teachers to increase participation and get more feedback from students in large class lectures.

This is the topic of the research programme being carried out at the Ecole Centrale of Lyon where their aim is to provide a software solution of teacher-students interactivity based upon the use of wireless handheld devices and Wi-Fi local networks. The project is evaluating usability from both the teacher's and students' point of view.