

***MLEARNING:  
A NEW DEVELOPMENT TOWARDS MORE FLEXIBLE AND LEARNER-CENTRED  
LEARNING***

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## **Introduction**

Mobile technologies spark a trend which is known as mLearning, the next stage of development towards more flexible and learner-centred learning. mLearning is endowed with a unique feature: learning activities are no longer constrained by time and space. Students can learn at any time, any place and any pace by way of wireless networked laptops, handheld computers, PDAs, mobile phones and the networks that connect them. The distinction between desktop and mobile is likely to disappear some day and the ability to learn effectively is at a premium. This article is intended to outline more possibilities for the future of learning and mLearning will be of paramount importance for the English language learning in the near future.

Leonardo da Vinci Programme (<http://www.leonardo.org.uk/>) is a European Community programme which aims to support national training strategies through funding a range of transnational partnership projects aimed at improving quality, fostering innovation and promoting the European dimension in vocational training. For rich and poor alike the current central innovation is the move from the wired technologies of the 1990s to the new mobile technologies of today. The basic personal computing and communication device will be an integrated, battery-operated device, small enough to carry with you all the time. With the increasing use of these devices, this emerging communications infrastructure will enable many new Internet applications by supporting Web browsing, e-mail, real-time chat, and access to remote computing resources.

Each new technology brings with it a certain potential for teaching and learning. Dr. Desmond Keegan, Director of the Irish Centre for Distance Education Research and Information, UNESCO, states in his new book (Keegan, 2002) that the project (*The Future of Learning: from eLearning to mLearning*, supported by the Leonardo da Vinci programme) sets in place the first building block for the next generation of learning: the move from dLearning (distance learning) and eLearning (electronic learning) to mLearning (mobile learning). Specifically and practically the project will map the evolution from the wired virtual learning environment of today to the wireless learning environment of tomorrow.

## **From eLearning to mLearning**

The differences between eLearning and mLearning can be detected by studying the characteristics of the two forms of learning. The nature of eLearning might be represented diagrammatically thus: <http://batory.plo.lublin.pl/~jkrajka/tewt/mlearning1.jpg>. In Figure 1, Wired Virtual Learning Environment of Today, the computer screen represents the study area - the equivalent of the lecture theatre or classroom or practical training session of conventional

education, or the student's home in distance education. Course content is shown on the computer screen and student support services are provided electronically to the student in the form of electronic communication or feedback on assignments or other questioning. Access to the WWW is provided for other resources, suggested readings and library resources. Other materials can be CD ROMs, floppy discs, audio, video or paper-based resources. ELearning represents the awarding of nationally and internationally recognized university degrees, college diplomas or training certificates to students who spend some of their study period in front of computer screens. In the diagram student-to-student communication makes use of email, bulletin boards or chat rooms in which students can communicate with other students in their class or institution mainly by typed interactions. Student-to-tutor communication is also mainly by email, with tutor intervention in list giving a further possibility for and tutor reaction to student assignments, quizzes and other forms of summative or formative evaluation.

In the short space of time between 1995 and 2000, eLearning became the state of the art for the use of technology in education. However, with its learners' spending so much of their working day in front of wired computer screens, eLearning is certainly not the final solution for corporate training and university programmes alike. "Although there is much evidence from eLearning research of the interactive value of emailing, the validity of typed interactions for learning purposes can be questioned when compared with spoken interaction." (Keegan, 2002) Recent statistics indicate that Europeans are unimpressed with eLearning: Almost two thirds of Europeans rate eLearning as either 'fair' or 'poor', according to a new ETV survey. "Only one-third of all respondents rate the quality of eLearning as 'good'; while 46 percent rate it as 'fair'. Fifteen percent believe eLearning to be 'poor'. Just one percent of respondents rate eLearning as 'excellent', while five percent opt for 'very good'." (The European Training Village Web, Jul 05 2002, [www.trainingvillage.gr](http://www.trainingvillage.gr))

mLearning, a development of eLearning due to the fast developing mobile technologies, can be defined as educational and training provision using wireless devices such as mobile telephones, palmtops and PDAs (Personal Digital Assistants). This model of the environment might be represented in the following way:

Figure 2. Wireless Virtual Learning Environment of Tomorrow,  
<http://batory.plo.lublin.pl/~jkrajka/tewt/mlearning2.jpg>.

"Ericsson's 2-year project involves designing a viable learning environment for wireless devices and developing accompanying software." (Keegan, 2002) 2001 saw the project's first building blocks put in place. A key benefit of mLearning is its potential for increasing productivity by making learning available anywhere and anytime. Because mobile devices have the power to make learning even more widely available and accessible, mobile devices are a natural extension of eLearning, where you could actually access training at the precise place and time on the job that you need it. When the vision of mLearning comes true, learning will no longer be confined to the desktop or classroom. Over 1000 pages of course material were developed in html for the Compaq iPaq. A WAP overview course was created in wml script to be run on the WAP phone R520 and the smartphone R380. 2002 brought improvements to the didactic environments for PDAs and mobile phones, development of additional courses for both devices and the trialling of courses and the system with real students in real learning situations. When broadband

multimedia becomes accessible and mobile terminals get larger colour screens within a few years, there will be no limitations as to what kind of content it will be possible to provide. Thus, the challenge for further development of mLearning lies more within pedagogical and organizational aspects than with technological ones.

### **The Future of Learning**

mLearning is situated clearly in the future of learning. Mobile technologies are now accessible almost to everyone, and fast enough to be used for the “last mile” of links from wired networks. And simultaneously learning providers are looking for ways to provide services everywhere. There is convincing evidence that mLearning is beginning to take hold. These are some arguments (Keegan, 2002: 12-13):

- Over 50 percent of all employees spend up to half of their time outside the office.
- More than 75 percent of all Internet viewing will be carried out on wireless platforms by 2002.
- Mobile devices will outnumber landline PCs by 2002 and exceed the 1 billion mark the following year.
- More than 525 million web-enabled phones will be shipped by 2003.
- Worldwide mobile commerce market will reach \$200 billion by 2004.
- There will be more than 1 billion wireless Internet subscribers worldwide by 2005.

mLearning is developing fast in the learning society. Here is one of the multimedia scenarios:

Jack is traveling by train to meet a customer. He has to get prepared for the meeting, but after reading through the background material of the customer, he has time to engage in some 3G competence development. He connects to the e-business education that started this week, and views a short video that introduces the first week's topic.

The video raises some interesting points. Jack is especially interested in the point about customer relations' management (CRM). He decides to initiate a video-conference with a colleague in his group to discuss the issue right away. The 3G platform indicates that his colleague will accept incoming video-conference calls related to the e-business education. Jack makes the call and they talk for five minutes and reach the opinion that CRM seems to be a fad. Jack decides to share their thoughts with the rest of the group and posts a short written message in the common discussion area.

### **Practical Application: Stanford Learning Lab**

Stanford University has a long history of leadership in distance learning in the US. This is a highly innovative project to use mobile phones in language teaching at the university (<http://sll.stanford.edu>). Cell phones, Palm Pilots, wireless Web - they help us check email, trade

stocks and stay in touch - but can they help us learn? Are we in a position to fill in gaps of daily time with learning opportunities?

Last summer, the Stanford Learning Lab (SLL) developed a few rough prototypes for mobile learning. The SLL staff chose foreign language study as the content area, hypothesizing that mobile devices could help provide sorely needed opportunities for review, listening and speaking practice in a safe, authentic, personalized and on-demand environment. The prototypes developed let users practice new words, take a quiz, access word and phrase translations, work with a live coach, and save vocabulary to a notebook - all in an integrated voice/data environment. The intent was to begin exploring recent technologies and fundamental human cognitive challenges involved in learning on-the-go, and also to better understand what kind of learning can happen in the fragmented pieces of time.

### **Three User Modes and Technology Tests**

SLL staff conducted three discrete technology explorations and informal tests on several language students of varying skills, with the following general results:

Text Quiz: vocabulary quizzes over mobile phone-based wireless Web.

Pros - convenient small question chunks to test knowledge during opportunistic bits of time.

Cons - small screen is difficult to focus on while outdoors; small bits of text do not provide an immersive enough experience for learning new content.

Live Coach: live-voice coaching sessions over mobile telephones.

Pros - speaking with an expert is ideal for language practice.

Cons - comprehension can be difficult over the phone; time with live coaches is difficult to scale.

Interactive Audio: automated voice-controlled vocabulary and quiz sessions over mobile telephones

Pros - audio experience can coincide with other activities (driving, walking, etc.) instead of replacing those activities; automated system offers potential for scalable, personalized, database-driven listening and speaking practice.

Cons - voice recognition technology, flaky and expensive mobile phone connections and audio interface design complexities are just some of the potentially show-stopping technology challenges.

### *Automated Audio: General Responses and Guidelines for Design*

While initial test results were mixed, SLL continues to be intrigued by the potential for interactive audio to provide a scalable, rich, and flexible language learning environment. A summary of their user test findings and suggestions for future development follows.

#### *mLearning is a Highly Fragmented Experience:*

Learning requires concentration and reflection. However, being on-the-go (riding a train, sitting in a cafe, walking down the street) is fraught with distractions. Students are in situations that place unpredictable but important demands on their attention. This leaves the mobile learner with a highly distracted, highly fragmented experience. The learning application must be designed with this in mind.

#### *mLearning is a Personal and Emotional Process:*

Learning is a sensitive process and language learning especially requires opportunities to practice in an emotionally safe and supportive environment. The SLL's current interface is friendly, congratulates you when you get something right, and encourages you to try again when you don't.

#### *User Frustration Wrecks Trust and Decreases Learning:*

Poor cellular connections and environmental noises can cause imperfect voice recognition and therefore failed menu navigation and incorrect responses to learning interactions (such as quizzes). User observations indicate that repeated voice recognition misunderstandings impact users both intellectually and psychologically.

SLL's testing showed that simply having access to the application anytime, anywhere increased daily attention to learning Spanish and boosted motivation. However, highly fragmented attention and bleeding edge technology can result in an environment too frustrating for learning. The Learning Lab's advice is to keep it simple. Focus on those parts of the learning process most suited to audio, most suited to small chunks of time, and most suited to a highly distractable learner. Allow students to personalize their experience - from personality to interaction mode - to match their own learning styles and situational needs.

Here are some more university mLearning projects listed for references (Keegan, 2002):

- UniWap (University of Helsinki/ICL), <http://ok.helsinki.fi/sivut/inenglish/background.html>
- University of Birmingham HandleR project, [www.eee.bham.ac.uk/handler/default.asp](http://www.eee.bham.ac.uk/handler/default.asp)
- HICE University of Michigan, [www.handheld.hice-dev.org](http://www.handheld.hice-dev.org)
- Northern Alberta Institute of Technology, [www.nait.ab.ca/MobileLearning](http://www.nait.ab.ca/MobileLearning)

## Conclusion

Today's ICT has significantly extended the scope for learning on the move, and the term mLearning has gained serious currency in describing wireless-enabled learning strategies and processes across the entire gamut of instructional delivery. mLearning will increasingly influence how we learn in schools, in the work force and at home. The learning and teaching of English has a long history and there are probably in the region of four hundred million actively engaged in the job of learning English. Combining handheld PCs with wireless Internet access offers new possibilities for educators/teachers/ students. Colleges and schools should offer students computing access within their overall curriculum, bringing students closer to an ideal one-on-one experience with technology-based tools. mLearning not only stresses situations in which students study entirely on their own, an inborn capacity which is suppressed by institutional education, but also stresses a set of skills which can be learned and applied in self-directed learning as well as the right of students to determine the direction of their own learning. It is the willingness and ability to act independently as a socially responsible person, to take charge of one's own actions and one's own learning in the service of one's needs, that characterises mLearning. It goes without saying, of course, that the shift of responsibility from teachers to students does not exist in a vacuum, but is the result of a concatenation of changes to the curriculum itself towards a more learner-centred kind of learning. Teachers, academics and researchers are as mobile as their students are. With a Palm handheld, they can do amazing things: take notes, calculate, sketch ideas, collect data, access resources, manage activities and, with the right hardware, even access the Internet wirelessly. A smooth combination of mLearning and classroom learning will be assuredly fruit-bearing due to a more humanizing and better balanced curriculum administration. Therefore, the English teachers or educators should get a fresh point of view upon this trendiest subject, mLearning, and make new connections with the local contexts accordingly. Stanford Learning Lab is a role model for us. Let's keep abreast of the ever-changing mLearning industry and work on collaborative learning applications for wireless virtual environments. We should always bear in mind that only theoretically-supported and empirically-validated models for effective learning/teaching/ tutoring in a mobile environment can really stimulate the mLearning initiatives on the campus.

## References

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