



## **1<sup>st</sup> six monthly Project Update as at 31 March 2002**

### **THE IMPORTANCE OF STANDARDS**

The m-learning project includes a review of current and emerging standards and specifications associated with e-learning and e-learning materials development.

This work is required because adopting a standard approach will:

- enable integration of component parts of m-learning which are being developed by individual partners in the m-learning consortium i.e. the learning management system, the intelligent tutor, the microportal layer and the learning materials.
- facilitate future commercialisation of all or part of the results of the project by ensuring interoperability with other learning management systems and thus enabling integration with third party life long learning strategies

Categories of standards, specifications, languages and methodologies under review include in an international context:

- e-learning
- learning object representation
- conceptual knowledge modelling
- learner modelling
- student learning profiles

To-date the following recommendations have been made to the m-learning consortium regarding preferred standards/specifications:

- IMS Metadata Specification (to describe expositive Learning Objects)
- IMS QTI (to describe tests)
- DAML+OIL and SHOE (to describe domain ontologies).
- IMS LIP (for learner modelling representation)

### **THE LEARNING MATERIALS**

For trailing demonstrator materials in phase one of the project m-learning developers are focussing on PocketPC devices and mobile phones as delivery platforms and materials primarily consist of SMS, VoiceXML, Flash, HTML and compressed media.

Five initial learning themes have been drafted. Each of these will contain a collection of learning objects using multiple-technologies that fit together into a single learning mission. The main objective of the learning objects design is to entice young adults into taking part learning activities the materials are also intended to assist in addressing literacy and numeracy skills development needs. The initial themes are:

- Football refereeing
- Sex and sexual health advice
- Urban survival
- Making and reviewing videos

- Virtual band

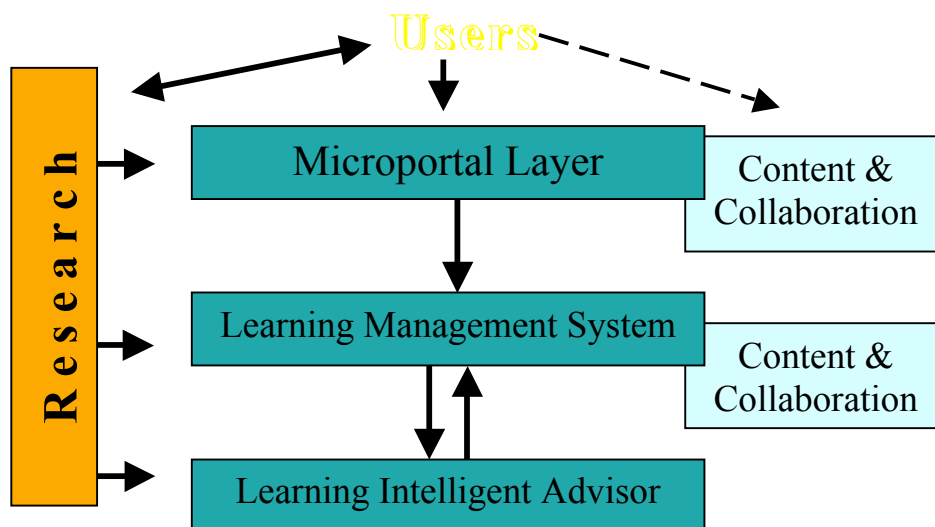
UK centres working with young adults and topics have been identified for piloting the phase 1 learning materials. Italian language versions of the demonstration learning materials are under development.

## INFRASTRUCTURE

The m-learning project infrastructure consists of three inter-related elements that provide young adult users with access to m-learning materials:

- the Learning Management System
- the Learning Intelligent Advisor intelligent tutoring system
- the Microportal Layer

The following diagram illustrates how the infrastructure elements are related, their relationships with learning materials and how their development is supported and informed by research activities.



### The Microportal Layer

It is anticipated that young people will access most learning materials and activities via the Microportal layer although it will be possible to access some materials and activities directly from particular types of mobile devices. The Microportal Layer itself will access some materials and activities directly whilst for others it interfaces with the Learning Management System (LMS).

An Italian language version of the Microportal layer is being developed.

### The Learning Management System

Lecando's e-Learning system, Lecando Training Server 5, has the functions of a Learning Management System (LMS) and a Learning Content Management System (LCMS). The generic system already

existed when the m-learning project began. Since that time A test and development environment has been created and an m-learning version of Lecando Enterprise Server is installed and running at Lecando.

### **The Learning Intelligent Advisor**

As a basis for development of the Learning Intelligent Advisor (LIA), the intelligent tutoring system, the following work has been carried out

- development of a methodology able to describe learning objects in a machine-understandable way and appropriate for the particular technology and pedagogy of m-learning.
- Definition of a student model able to formally represent student learning profiles, i.e. what students know and what their learning preferences are.

Activities relating to the definition of the architecture of LIA are in underway and in order to ensure full interoperability with external components LIA is being developed as a web service.

### **RESEARCH**

m-learning research activities fall into two categories:

- Technologies research
- Users and usage research

#### **Technologies Research**

Most partners undertake technological research as part of their development activity. CTAD's working groups have carried out research into specific technologies potentially useful as delivery vehicles for m-learning materials. Lecando are engaged in researching voice technology systems and tools and CRMPA have completed research into standards and specifications.

Ultralab, in collaboration with CTAD, are responsible for the strand of m-learning research tasked with identifying and reviewing current and emerging mobile personal communications devices and infrastructure and how these might be employed by the m-learning project. An output of this work is the Technology Watch web pages on the project website.

#### **Users and Usage Research**

The users and usage research strand is led by LSDA with input from other partners.

A review of previous and current research publications and activities relevant to the project is underway. A questionnaire survey focussing on young adults' use of mobile phones and exploring their needs, preferences, attitudes, habits and experiences took place in the period November 2001 to January 2002. This survey sought information about

young adults' use of mobile phones, their views concerning other portable technological devices and some insights concerning the following broad research questions.

- How do young adults use their mobile phones?
- What might be the future take-up of new services and facilities on mobile phones and other technology devices?
- Are mobile phones likely to be used beyond a short-term fad?
  - Would young adults be willing to use their phones to take part in literacy and numeracy learning activities?

A pilot study involving 72 mobile phone owners aged between 16 and 24 in two locations in the UK was conducted to test the data collection instrument prior to conducting the main study. A report detailing the findings of the pilot study has been completed and circulated within the project consortium. Data collected in the main study from 746 young people in 7 locations across the UK is currently being analysed. The report on the findings of the main study will be completed in July 2002.