

# Mobile Open and Distance Learning

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**Abstract:** Internet Courseware for Mobile Open and Distance E-Learning is rapidly bringing about a revolution in didactical technologies. This paper describes the EU Leonardo da Vinci project, MENUET, the aim of which is to develop arts and skills for teaching in the m-Learning era. One of the outputs of the MENUET project is the The ODL E-Book concerned with Open and distance Learning. This E-Book is described in detail here.

**Keywords:** Mobile – Internet – Courseware - E-learning – ODL – Open and Distance Learning

## 1. e-Learning

Electronic learning (e-Learning) is a type of Technology supported education / learning (TSL) where the medium of instruction is through computer technology, particularly involving digital technologies. E-learning has been defined as pedagogy empowered by digital technology.

Information and Communications Technologies (ICT) have rapidly entered the educational sector and, as a result, more and more new learning tools are appearing. These change the way the teachers and students work and interact thus enabling a more effective learning process.

Historically, educational and corporate training managers have always looked for ways to reduce the cost and improve the effectiveness of training programs and processes through the use of technological advances. In the 1960s and 1980s, organizations used mainframe and interactive video approaches. In the 1980s and 1990s, PC-based CD-ROM content was the preferred approach. Since 1998 or so, however, Internet-based approaches (e.g. e-learning) clearly have become the dominant delivery method for creating fast, scalable, low cost learning and corporate training.

E-learning as we know it has been around for fifteen years or so. During that time, it has evolved from being a radical idea - the effectiveness of which was yet to be proven -to something that is now widely regarded as mainstream. It is the core of numerous business plans and a service offered by most colleges and universities today

## 2. Mobile e-Learning

The exponential development of information and communication technologies (ICT) has prompted educational institutions to develop alternatives to traditional classroom teaching methods.

With the increasingly sophisticated functionalities of E-technologies, there is capability of increased interactivity in the learning process. There is a pedagogical revolution involving an evolving change of role of the lecturer from that of imparting information via classroom delivery to a facilitator of

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dialogue via electronic communication. Thus new pedagogies that support critical and original thinking as learning outcomes, favouring knowledge construction above knowledge acquisition, are being developed. Emphasis is shifting in the teaching approach from a didactic model to a dialogic model, learning through engagement and collaboration rather than through the acquisition and regurgitation of information imparted from the lecturer.

Traditional learning resources have been lectures, guidance notes, books and journals with learning support via seminars, group exercises and laboratory work. Assessment has been accomplished using coursework and formal examinations.

ICT-based learning resources include computer-aided learning and interactive simulations from CD-ROMS, intranet or internet-based resources including bibliographic databases. Learning support can be provided using interactive computer-aided learning and various applications software (e.g. spreadsheets, statistical or textual analysis, CAD, 3-D modelling, multimedia, etc. Assessments can be carried out by computerised intranet or internet-based tests with electronic marking and feedback. There is the possibility of structured discussions on internet forums and other collaborative activities, assignments and projects among peers, lecturers and students.

Desktop PCs confine the user to sit at a stationary workplace.

Laptop PCs free the user from this constraint. They can be carried anywhere and therefore into the classroom. Many students moved from taking paper notes of the lectures to typing notes into their Laptop PCs. Until recently, Laptop PCs had to be connected to a telephone line to access the internet, reintroducing the constraint of the fixed workplace when on-line. Telephone sockets were introduced at university locations, including libraries, but not yet in many classrooms. Hotels are increasingly installing internet connections in their guest rooms and some trainlines have internet connections on their trains. These dialup connection facilities are currently being replaced with broadband capabilities. In very recent years, wireless connections have become available, freeing the user from having to physically connect to a telephone system and therefore becoming mobile. Inexpensive wireless adapters to be plugged into the Universal Serial Bus (USB) port of a Laptop PC are now available. Wireless networks however are presently few and far between. University campuses are responding fast and networks are being installed at airports, some hotels and other locations. These are, at present, very expensive to use.

### **3. The MENUET Project**

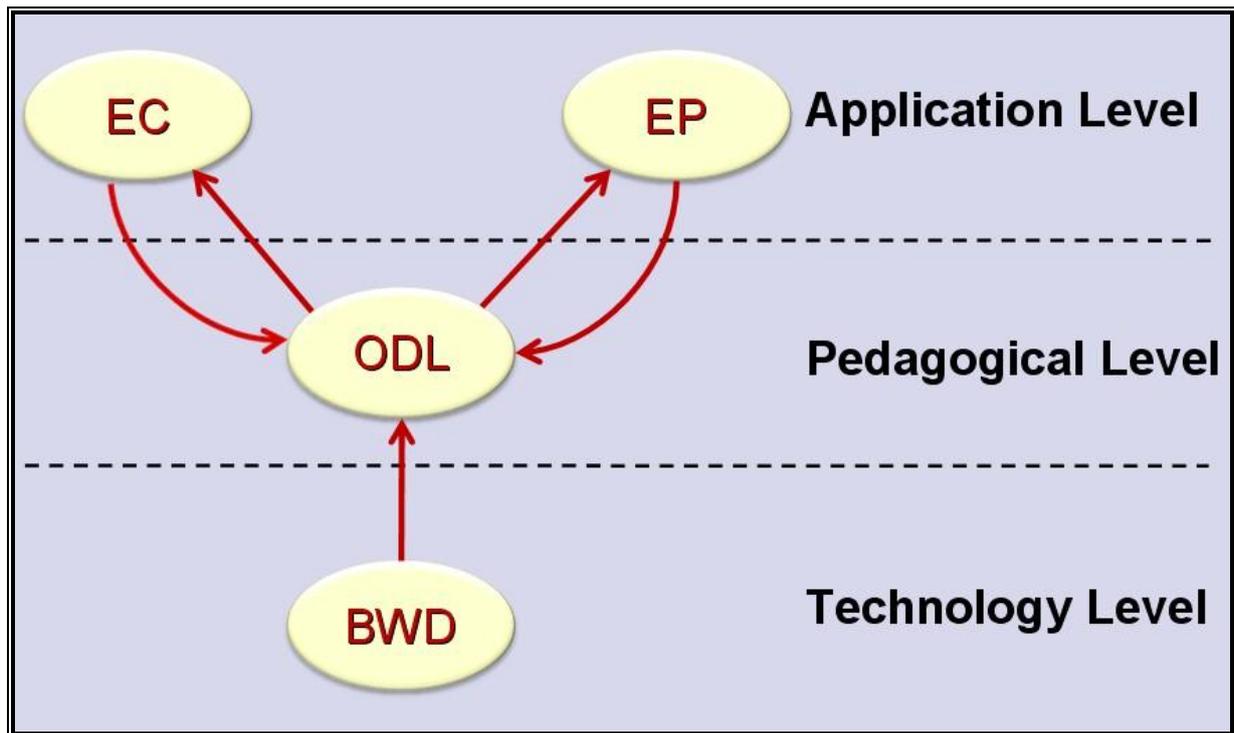
<http://menuet.etcenter.ro/><sup>6</sup>

The MENUET Project commenced in December 2008 and is due to be completed in December 2010.

The aim of this EU Leonardo da Vinci project is to develop arts and skills for teaching in the m-Learning era. Comprehensive guidelines that integrate learning drivers with enabling mobile technologies have been prepared in order to provide a logical framework for promoting and coordinating new m-learning practices adapted to the needs of learners and teachers. Relevant didactical concepts and methodologies in the field of mobile learning, computer technologies and applications are being developed to disseminate best practices in the use of ICT in environmental protection for sustainable development, with emphasis on mobile technologies in ODL, classroom learning and blended learning. The resulting product constitutes an integrated training and decision support tool aimed at providing end-user skills for the management of environment protection.

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<sup>6</sup> You must register at this site to obtain a user name and password to access the ODL E-Book for free.



It introduces students and their trainers to the new technologies involved in interactive E-books for self-paced learning.

In order to accomplish the project aim, four main activities are being undertaken: STUDY, DESIGN, TEST AND EVALUATION and DISSEMINATION OF RESULTS.

The STUDY activity involves studies on ICT and E-learning concepts, the production of a Guide to the production of interactive E-books, test methodologies and available hardware and software.

The DESIGN activity involves the production of four E-books covering the Basics of Web-Design (BWD), Open and Distance Learning (ODL) Techniques, E-Commerce (EC) and Energy Saving and Environment Protection (EP). These E-books, currently under construction, include DHTML technologies, Internet Links, Text, Graphics, Audio, Animations, Video, Interaction, Excelets, MultiMedia Quizzes and Automatic Score Generation.

The TEST AND EVALUATION activities are taking place in this second year of the project. A system of wireless networks have been set up at the universities involved in the project. Students and Tutors are using and evaluating the training materials.

The project outputs are the four E-books, the results of the evaluation and a Step by Step Guide for Tutors on how to produce multimedia materials, tests and automatic score generators.

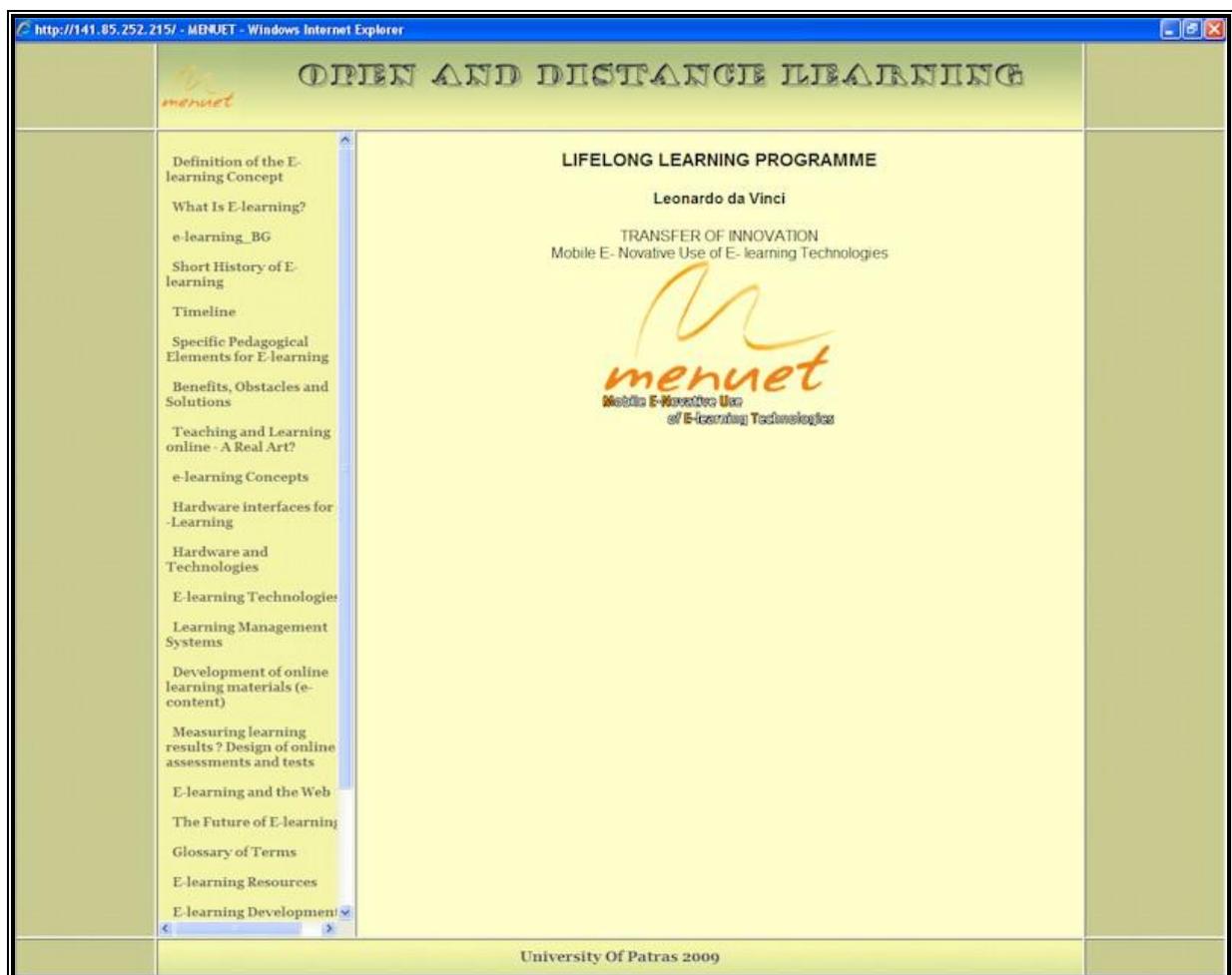
The **ODL E-Book** is concerned with Open and Distance Learning.

It contains sections as follows:

1. Definition the *E-learning* Concept
2. Short History of E-learning
3. Specific Pedagogical Elements for E-learning

4. Teaching and Learning online – A Real Art?
5. Hardware interfaces for e-Learning
6. E-learning Technologies
7. Development of online learning materials (e-content)
8. Measuring learning results
9. E-learning and Web 2.0
10. The Future of E-learning

## Annexes



### 1. Definition the *E-learning* Concept

This answers the question: What Is E-learning?

### 2. Short History of E-learning)

This covers the period from 1960 to the present day.

The screenshot shows a web browser window with the address bar displaying 'http://141.85.252.215/ - MDJNET - Windows Internet Explorer'. The website title is 'OPEN AND DISTANCE LEARNING'. On the left, a vertical navigation menu lists various topics related to e-learning. The main content area is titled 'Timeline' and contains a 'Short History of E-learning' section. This section features a horizontal timeline from 1960 to 2010 with four key milestones: 'MAINFRAMES INTERACTIVE VIDEOS' at 1960, 'PC-B CD-R' at 1980, 'The dawn of The Electronic age in the 1990s' at 1990, and 'INTERNET E-Learning' at 2000. The footer of the page indicates 'University Of Patras 2009'.

### 3. Specific Pedagogical Elements for E-learning

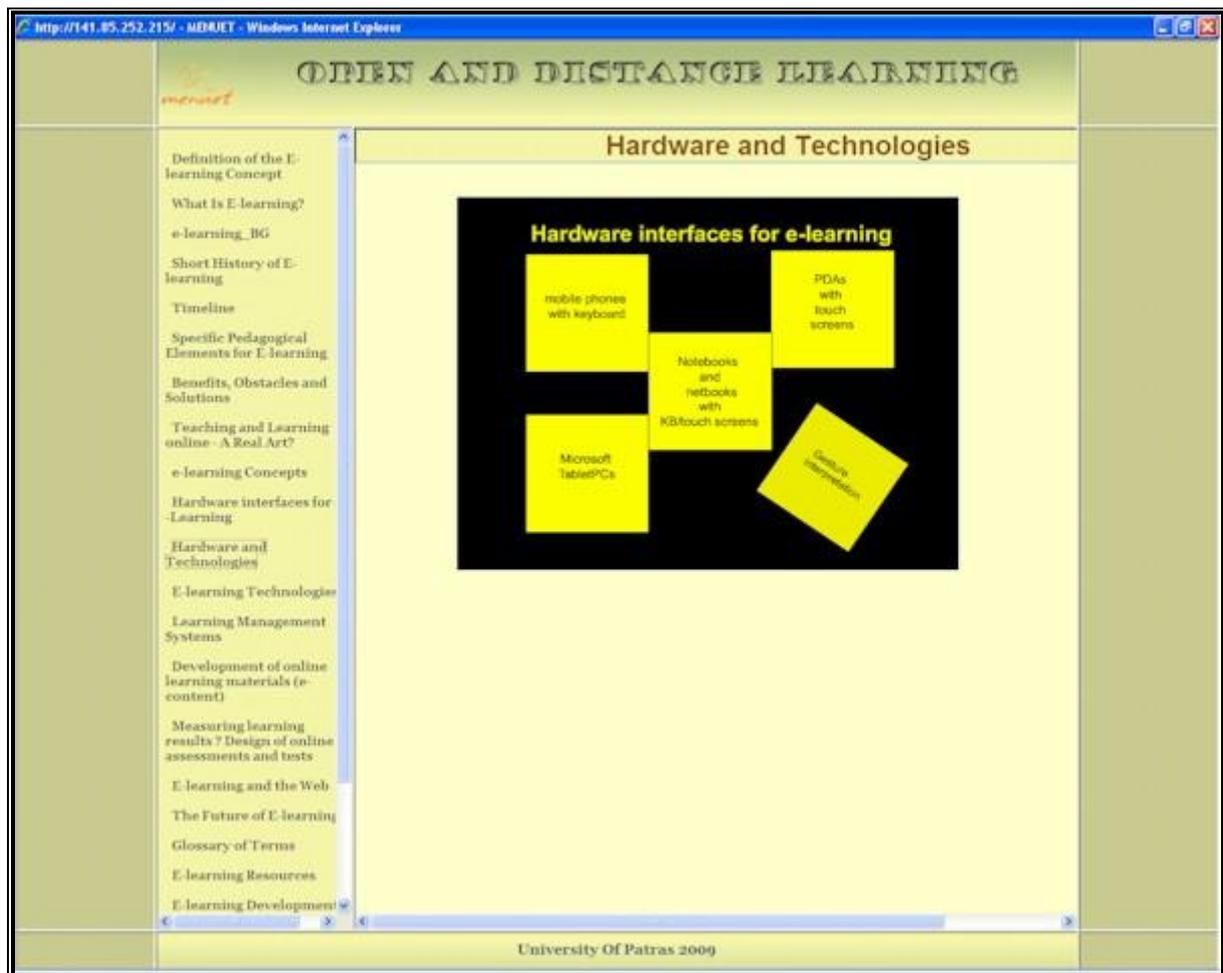
This deals with the Obstacles in the development of E-learning and offers Solutions in the development of E-learning.

### 4. Teaching and Learning online – A Real Art?

This deals with the Specific Pedagogical Elements for E-Learning: *behaviourism, cognitivism* and *constructivism*

### 5. Hardware interfaces for e-Learning

This covers mobile phones with keyboards, PDAs with touch screens, notebooks and netbooks with KB/touch screens, Microsoft Tablet PCs and gesture interpretation)



## 6. E-learning Technologies

This deals with E-learning Platforms and Tools, Learning Management Systems and Collaborative Instruments and gives Examples of their usage.

## 7. Development of online learning materials (e-content)

This deals with Design issues, Multimedia in education, Authoring tools and Collaborative authoring.

## 8. Measuring learning results

This deals with the Design of online assessments, Measuring learning results (offline and online) and design tools for making Online assessments.

## 9. E-learning and Web 2.0

This deals with Web 2.0 in education, E-learning 2.0 tools, Collaborative learning, Virtual Communities and their development - from *e-mail* to *blog*, *online meetings* and *social networks*

## 10. The Future of E-learning

This deals with the 21st century skills needed for the e-generation and identifies Emerging trends in learning technology

### The Annexes are:

- a) E-Learning Glossary of Terms
- b) E-learning Resources (Bibliography, Web References)
- c) E-learning Development in the EU (URLs of online courses and repositories, Educational Portals, ODL Platforms, Specific Projects, etc. activities)

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