

E-LEARNING USE IN THE TERTIARY EDUCATION IN CYPRUS

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Abstract: The aim of this study has been to investigate e-learning facilities provided in some of the main tertiary education institutions in Cyprus, namely the Intercollege, the University of Cyprus and the Higher Technical Institute. The findings of this investigation, formed as brief case studies, are presented herein and certain conclusions are being made.

1 INTRODUCTION

The geographic position and size of Cyprus make it ideal for businesses to grow by capitalizing on the benefits of e-learning and e-training. Opportunities exist in all areas of e-learning in academic education and industrial training for expanding education in Cyprus to other regions, creating regional hubs for international students and industries on-line worldwide. Any strategic move in this direction would initially require an appreciation of the current state of affairs in respect to e-learning availability in Cyprus.

Our knowledge about the e-learning use in Cyprus educational systems is incomplete mainly because there is limited information on the key players offering e-learning services in Cyprus. Following that there is a need to systematically categorize the e-learning services offered, evaluate the advantages and limitations of Cyprus e-learning systems, and identify what is missing and what can be improved. Thus, the aim of the present study was to investigate e-learning facilities provided in some of the main tertiary education institutions in the island. The findings of this investigation, formed as brief case studies, are presented in the next section.

2 E-LEARNING CASES

The three institutions investigated in our study were the Intercollege, the Higher Technical Institute and

the University of Cyprus. Data regarding the e-learning facilities available in the three institutions was collected through interviews with the respective Web Administrator and addressed many aspects for evaluating an e-learning systems as outlined in Rogers (2002); van Duyne et. al. (2003) and Zhang and von Dran (2001).

2.1 Case 1: E-Learning at Intercollege

Intercollege has been using its e-learning system for 5 years. The type of system that it runs is the WebCT.

Main Features:

Searching Facilities:

Users can search the content by topic or keyword and can have control over navigation. The speed of navigation depends on the student's internet connection. Students are not allowed to search for content in other e-learning systems since there is no cooperation among the educational institutions. The Site Map of the e-learning system is a hierarchical menu which can easily be used to locate resources.

Content Management:

Introductory compulsory text to courses includes a course outline stating the course name, description, requirements etc. set up by the instructor/designer of each course.

- Resource Management. The e-learning system provides a library of pre-built templates and images for use in custom content development. But it does

not monitor the availability of paper reference materials.

- **Personal Learning Records.** The system has the capability to be the e-learning system for all training experiences including instructor-led, CBT, WBT, outside seminars, video, professional conferences etc
- **Reporting.** Students can generate a training transcript indicating course attendance, both upon course and individual learning module completion, scoring etc. There is no capability for reporting on competency data but reports are easily generated regarding all aspects of the training arena such as reports of individuals who have completed training and the name of the training requirements.
- **Content Delivery.** Intercollege e-learning system is able to deliver on-line Instructor Led Training (ILT) content, and on-line custom Web Based Training (WBT) content but it is not able to deliver an on-line Video Tele-training (VTT) content. For backup and maintenance purposes the system provides a version control scheme for on-line courseware.
- **Assessment.** Assessment of all learning activities is possible but there is no linking of competencies with courses. There is a capability to perform skill gap analysis tasks, including skills defining, tracking and searching depends on how the lecturer designs his/hers tests.
- **Content Authoring Tools.** The e-learning system allows the development and delivery of custom Web Based Training (WBT) content and it provides both the capability for sharing custom authored courses as well as converting existing PowerPoint presentations to web based content.
- **Layout and Design.** There is a consistency between pages.
- **Error Tolerance.** The e-learning system provides for help when needed but this is not implemented automatically. Also, the error pages provide useful information.

Administration:

The system allows remote administration of courses and classes and it's able to collect, track and report course delivery costs. Administration can not maintain and manage organizationally-developed competencies and skill-based job definitions, management, monitoring and reporting.

Technical Requirements

- **Security, Infrastructure & System Integration**
Intercollege's e-learning system includes security authorization and authentication identification using a student-ID password control. An auditing mechanism that tracks security and system administration actions of the system and maintains

current, past student data and their educational history records is available.

The e-learning system follows all relevant international standards, and gives access to users with disabilities. However, it is not capable of further customization which is handled using a direct connection to other SQL, Oracle, and ODBC compliant databases.

2.2 Case 2: E-Learning at HTI

The Higher Technical Institute (HTI) has developed an E-Learning laboratory, named Solar Energy, funded by the Leonardo da Vinci Program. The aim of the "Marvel" project was the implementation and evaluation of a learning environment for Mechatronics in vocational and professional training that allowed students to access physical workshops and laboratory facilities from remote places.

Main Features

HTI uses an e-learning platform, which is called Moodle since November 2004. HTI offers the possibility to students to conduct live experiments in the field of solar energy processes using the installations of the laboratory that are located geographically away from the student. The installed hardware and software includes features for controlling external devices, responding to events, processing data, creating report files and exchanging information with other applications. All operational and output data of the system are registered during an experimental session and can be stored on the users PC for various calculations and documentation.

A booking system is available for the experiment. User enters a User ID and a password for security purposes.

Searching Facilities:

Users are able to search the content by topic and keyword. They can have control over the fast speed of navigation. They can also search for content in other e-learning systems, that is, within a network of colleges and other institutions from Cyprus, Germany, Greece, Portugal, UK and Switzerland. Moodle includes course characteristics, such as course length and prerequisites, a site map and also an introductory text.

Content Management:

The layout is consistent between pages and error pages provide useful information to users. Help is available and task-oriented. The system also provides step-by-step instructions.

Web-based learning materials in the form of 'virtual books', including a Quick User Guide as well as an

illustrated User Guide, support all exercises and learning tasks.

The e-learning system allows students to generate training transcript indicating course attendance, both course and individual learning module completion and scoring. Moreover, it provides the capability for assessment of all learning opportunities. The system is able to check whether the user made an experiment, what time and how many times he/she tried to make the experiment. Also, the system provides the ability to link competencies with courses.

The system is able to deliver on-line Instructor Led Training (ILT), on-line Video Tele-training (VTT) and on-line custom Web Based Training (WBT) content. It provides a library of pre-built templates and images for use in custom content development and thus allows for development and delivery of custom Web Based Training (WBT) content. A version of a course can be changed and be tailored to the needs of the course. Existing Power Point presentations can be converted to web based content.

Administration:

In the e-lab web page, apart from the possibility of live access to the system, the user can find documentation material, as well as a glossary of technical terminology that is used in the system.

Technical Requirements

The system uses security authorization and authentication identification. The e-learning system is capable of future customization that results in a direct connection to other SQL, Oracle and ODBC complaint databases. The E-learning system maintains current and past student data and their educational history records.

2.3 Case 3: E-Learning at UCY

The University of Cypr (UCY) uses since 2002 a WebCT e-learning system but some particular functionality options are not used due to internal regulations.

Main Features:

Most of the features available and in use by the UCY are the same as the ones reported in the examined case 1 carried out at Intercollege. This is because the two institutions use the same e-learning system being WebCT. Different practices are only exercised in the following areas:

Searching Facilities:

The system does not include course characteristics, such as course length or prerequisites.

Content Management:

- **Resource Management.** The system monitors the availability of paper reference materials for courses but not for the users who have completed the course since there is a licence that does not allow a student to regain the course that he has already completed.

- **Personal Learning Records.** The system provides the capability to be the e-learning system for training experiences of instructor led, and WBT.

- **Content Delivery.** The system allows only one version for each course.

- **Assessment.** There is a capability for assessment of all learning opportunities. Skill gap analysis tasks, including skills defining, tracking and searching and linking competencies with courses is not possible.

Technical Requirements:

Security, Infrastructure & System Integration

The system offers security authorization and authentication identification. An auditing mechanism exists to track security and system administration actions of the system but it is not used. Furthermore the e-learning system is capable of future customization that results in a direct connection with Oracle. There is no interest in using the system to maintain past student data and their educational history records only history for courses.

3 CONCLUSIONS

This paper examined existing e-learning infrastructure in three tertiary education institutions in Cyprus. The study outlines how three of the major institutions in Cyprus use e-learning systems to facilitate delivery of content to their students and manage a number of administrative tasks. The services and support provided (summarized in Table 1) are guided primarily by existing policies and regulations in the institutions. Further advancements will align with EU policies (i.e. accessibility to all) as well as a centralized repository for a national network of e-learning service providers.

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Table 1: A summary of the E-learning features.

E-Learning Features:		Intercollege	HTI	UCY
System used		WebCT	Moodle	WebCT
No. of years in use		5	1	3
<i>Registration System:</i>	Student self-registration	✓	✓	×
	Admin. registering students	✓	✓	✓
<i>Searching Facilities:</i>	By topic and keyword	✓	✓	✓
	User control over navigation	✓	✓	✓
	Speed of navigation	Depends on connection	Fast	Fast
	Course characteristics included?	✓	✓	×
	Search in other e-learning systems	×	✓	×
<i>Notification:</i>	Site Map	✓	✓	✓
	User feedback	✓	✓	✓
<i>Content Management:</i>	Changes notifications (e.g. cancellations)	✓	✓	✓
	Introductory text on pages	✓	✓	✓
	Library of pre-built templates and images	✓	✓	✓
	Monitoring of reference materials	×		✓
	Supports instructor-led, CBT, WBT, video, etc.?	✓	✓	✓
	Performance, attendance, other reports	✓	✓	✓
	Competency reports	×	✓	×
	Easy generation of reports	✓	✓	✓
<i>Content Delivery:</i>	Training/Requirements completion lists	✓	✓	✓
	On-line Instructor-Led Training (ILT)	✓	✓	✓
	On-line Video Tele-Training (VTT)	×	✓	×
	On-line custom Web-Based Training (WBT)	✓	✓	✓
<i>Assessment:</i>	Version control for on-line courseware	✓	✓	×
	Assessment of learning opportunities	✓	✓	✓
	Gap analysis, definition, tracking, searching of skills	Depends on tests' designs	✓	×
<i>Content Authoring Tools:</i>	Linking competencies with courses	×	✓	×
	Devel. of Web-Based Training content	✓	✓	✓
	Sharing custom authored courses	✓		×
<i>Layout and Design:</i>	PowerPoint files' -> to Web-based content	✓	✓	✓
	Consistent page layout	✓	✓	✓
<i>Error Tolerance:</i>	Error pages	✓	✓	✓
	Task-oriented help	Not automatic	✓	✓
<i>Administration:</i>	Remote admin. of courses and classes	✓	✓	✓
	Organization-wide admin. facilities	×		×
	Delivery costs calculations	✓		×
<i>Technical Requirements</i>	Security Authorization & Authentication	✓	✓	✓
	Auditing security and admin. actions	✓	✓	✓
	Future connection to SQL, Oracle, ODBC	×	✓	Oracle
	Current, past student data, educational history	✓	✓	×
	Accessible to users with disabilities	✓		✓