

## Implementation of e-learning system in Albania

Silvana GRECA, Endrit XHINA  
University of Tirana, Natural Science Faculty, Tirana, Albania

silvana.greca@fshn.edu.al, endri.xhina@fshn.edu.al

### Abstract

*The national strategy of Albania government for the development of communication and information technology has set priorities and policy orientation towards the development of these systems. In this point of view, the information systems for e-learning are important to support the teaching and learning process. Hence, the need for a multimedia system is immediate in all universities in Albania. This, because of the increased number of students as well as the latest technological developments as: the increased use of computer, the reduced cost of Internet access, the development of multimedia technologies, the creations of a national and international environment more collaborative.*

*We have studied some technologies and tools that can be used separately or combined between them to support multimedia systems for e-learning. These technologies are studied in several aspects such as functionality, implementation options, life expectancy, extensibility and the cost. The results are presented in the form of comparative tables associated with diagrams and respective schemes. In this article is also given a solution for its implementation.*

**Keywords:** e-learning, teaching, learning, VLE, CMS, multimedia, web publishing

### 1. Introduction

The objective of Albania government is to increase the number of students per habitant, in the same time this will faced the universities with challenges to guarantee and enhance the quality, and the technological developments in Albania, and a new collaborative environment in the region are asking for the multimedia system which will facilitate the learning process. Already, such systems are successfully implemented by the western universities in Europe such as, the University of Hanover in Germany [1], the University of Polytechnic of Valencia in Spain [1], the University of Geneva in Switzerland [2].

Recently, the Albanian government has increased the number of students in public universities. In table 1 are given the figures of students admitted for each academic year.

Table 1. Number of students according to academic year

Academic Year	Number of students
2010 – 2011	23534 <sup>1</sup>
2009 – 2010	22134 <sup>2</sup>
2008 – 2009	21 702 <sup>3</sup>
2007 – 2008	14 608 <sup>4</sup>
2006 – 2007	8440 <sup>5</sup>

<sup>1</sup><http://www.keshilliministrave.al/?fq=brenda&m=neës&lid=13394>

<sup>2</sup><http://www.qpz.gov.al/doc.jsp?doc=docs/Vendim%20Nr%20864%20Dat%C3%AB%2029-07-2009.htm>

<sup>3</sup>[http://www.aaal.edu.al/Doc/sekamat%20e%20ial\\_publike/kuotat%20e%20pranimit%20IAL\\_publike%202008-2009.pdf](http://www.aaal.edu.al/Doc/sekamat%20e%20ial_publike/kuotat%20e%20pranimit%20IAL_publike%202008-2009.pdf)

<sup>4</sup><http://www.mash.gov.al/matura/universitetet.htm>

<sup>5</sup><http://www.mash.gov.al/struktura/VKM%20pranime%203.pdf>

Obviously, in the five year as is shown above the number of students is increased three times. This caused increasing the number of students in auditoriums and classrooms, and therefore, is more and more required an e-Learning system to achieve the improvement in the quality of education system.

In Albania, the internet has been used by a majority of the population, mainly after the year

1997. Internet Providers in Albania offer different prices for different internet speeds, but more important is that the prices are constantly dropping for the same package offered. Currently the Albanian main provider, Albtelecom, in 2008 for the ADSL package with speed 256/64 kbps offered the price 1999 leke/month, while in 2010 the same package had the speed 2 mbps and the price was 999 leke/month [3].

Actually, it is difficult to say which is exactly the level of using computer in Albania, but one thing is for sure tremendously increased computer sales if we refer to the figures. Other factors which have contributed in increasing of internet users are: open and fair telecommunications service, improvement of computer knowledge, greater demand for communication, lower rates of internet service.

Recently, in particular is developed the technology of production and transmission of multimedia information. Albania is among the leader countries in digital transmission because of private investments in this area. Therefore, Albania marks 7 years [4] in digital transmission and 5 years digital transmission in mobile devices, mobile-TV. Particularly, in the last five year, the internet providers and the companies for transmission of data have increased investments in tripple-play technology and a part of them offer this service in several major cities of the country. The lack of a central connection point between ISPs is still a problem.

Nowadays it is always better to exchange knowledge in order to generate new knowledge or expand those existing. This is realized with the cooperation between University of Tirana and University of Tetova, among other universities not only of the Albanian regions, as well as with the participation and activation of Albanian universities in international projects such as FP7, Tempus etc.

In this article we have taken into consideration some products on the market that support teaching and learning and these were analyzed for the features that directly affect in this process. It is shown the scheme of the logical model and its implementation in the informatics department. After the use of this system, we have taken the students opinions.

## **2. The aspects of teaching and learning**

Based on these premises and condition of the real life, this study will focus at some aspects of teaching and learning based on this point of view. In this paper are analyzed some tools and technology for the opportunities that they offer in enhancing the quality and effectiveness of the process.

Under the new approach created as a result of technological development, tools and technologies help synchronous and asynchronous teaching.

The technology can increase the effectiveness of learning by allowing the students to use theoretical materials at any time, to simulate tests for reinforcement of knowledge, to view multimedia simulations of processes that they are studied, to use technological laboratory platforms in distance by sharing them with other students.

Particularly, the technologies will help in the control of knowledge's process or in the elimination of direct communication between professor and student, by placing the students in front of a challenge only with their knowledge.

## **3. The technology and tools to support the teaching process**

There are different technologies and tools to support the multimedia systems for e-learning. Some of them are given below.

### **Moodle**

Moodle is a course management system (CMS) also known as a learning management system (LMS) or as a virtual learning environment (VLE) [5]. In tables 2, 3 and 4 are shown some of

the main technological and functional characteristics of Moodle 2.0.

Table 2. The technological characteristics of Moodle [9]

<b>Technologies</b>	
Platform	Open source
Interface	PHP, MySQL, HTML/CSS
Operating system	Windows, Mac OS, Linux
Cost	Free
License	GPL
Customization	Themes, Plug-ins
Extensibility	Plug-in
Support	Documents, forums, books, manuals
Languages	86 (and in albanian)
Structure	Modular

Table 3. The teaching functionalities of Moodle

<b>Teaching's functionalities</b>
Set course's parameters
Upload lectures, homeworks and file with different content
Create tests and online quizzes
Organize the classes and groups of student
Create open forums
Synchronous communication
Glossary
Survey
Set results
Create blogs

Table 4. The learning functionalities of Moodle

<b>Learning's functionalities</b>
Download learning materials
Upload homework's
Answer to the tests and quizzes
Participate in forums
Synchronous communication
Glossary
Complete the surveys
Save privacy of students examinations

## Wordpress

Wordpress is a content management system (CMS) platform, one of the most usable today in the world especially for the blogging [6]. In tables 5 and 6 are shown some of the main technological and functional characteristics of Wordpress 3.0.

Table 5. The technological characteristics of Wordpress [6]

<b>Technologies</b>	
Platform	Open source
Interface	PHP/MySQL
Operating system	Microsoft, Mac OS X, Linux

Computer's parameters	PHP, MySQL, Apache
Cost	Free
License	GPL
Customization	Theme
Extensibility	Theme-at, Plug-in
Support	Documentation, forums, books, manuals
Languages	67 (and in albanian)

Table 6. The functionalities of Wordpress

<b>Functionalities</b>
Blogging
Powerful CMS
Simplicity to insert multimedia
User-friendly interface
Discussions
Website
It's easy to change the content without knowledge of HTML

### Google apps

Google Apps is a service from Google, which provides appropriate independent versions of several Google products [7]. It includes a number of web applications with similar functionality to traditional suite office. Provides several tools that are needed to communicate and collaborate more effectively. In tables 7 and 8 are shown some of the main technological and functional characteristics of Google apps.

Table 7. The technological features of Google apps [7]

<b>Technologies</b>	
Platform	Google
Operating system	Independent (service hosted by Google)
Cost	Free
Customization	Is possible
Extensibility	API
Support	Documentation, forums, books, manuals

Table 8. The functionalities of Google apps

<b>Functionalities</b>
Gmail
Google talk
Google calendar
Google docs
Google sites

### Microsoft live@edu

Live@edu is a suite applications of desktop, web-based and mobile in helping the interaction of students and to create a community for the education [8]. It promotes and supports to exchange and communicate knowledge, learning and new ideas among students and staff. In tables 9 and 10 are shown some of the main technological and functional characteristics of Microsoft live@edu.

Table 9. The technological features of live@edu [8]

Technologies	
Platform	Microsoft Exchange
Interface	.Net
Operating system	Independent (hosted by Microsoft)
Cost	Free
License	Microsoft
Customization	Is possible
Extensibility	API
Support	Documentation, forums, books, manuals
Language	English

Table 10. Functionalities of live@edu

Functionalities
Outlook Live
Windows Live Messenger
Shared calendar
Documents
Windows Live Sky Drive
Office Live Workspace
Windows Live Spaces
Windows Live Groups

#### 4. Logical model

After we have analyzed the parameters of some products, we have design the logical model based on the combination of some the above mentioned products. In figure 1 is shown the architecture for this system.

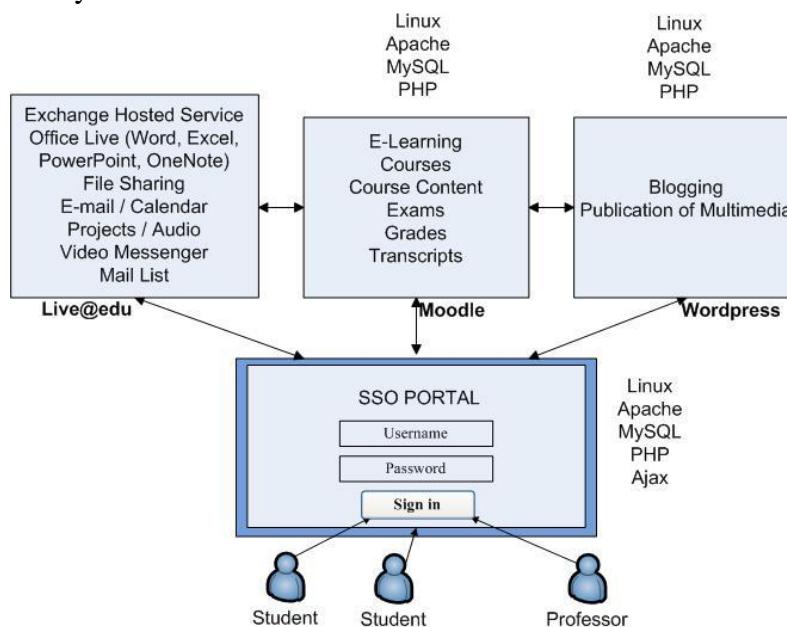


Fig. 1. Architecture for e-Learning

The Live@edu program is used to create the user accounts, including email and other elements for cooperation such as file sharing, calendar sharing, projects, audio, video, messenger and mail list. The Moodle is used for creating and organizing courses, for organizing classes and groups of students. It is also used to support different courses projects

for group assignments, for the preparation of syllabus, calendars and materials of courses, tests and exam results. Wordpress is used as a blogging platform for the courses, especially to load multimedia materials such as images, audios and videos. Students can be registered freely with the condition to have an email in the university domain. Moodle provides this service. We can use the API provided by the Live@edu for the communication with LDAP service to get the accounts from Live@edu and to create them automatically in the moodle. This can be performed when a new user is created in Live@edu or through an additional utility that allows a user with administrator privileges to synchronize accounts between Live@edu and Moodle. This architecture enables the student or professor to have access in the system only through a web browser without the need for software licenses for uses of Word, Excel, PowerPoint, Project manager and web site. It enables the access to the LMS system at any time and at any place.

## 5. The application of technologies

The ideas of the teaching and learning supporting products are illustrated practically during the courses in the department of informatics. There are integrated Microsoft services for students and professors in [www.depinfo.info](http://www.depinfo.info) (or in <http://www.depinfo.info/moodle>) and in figure 2 is given a view of that.

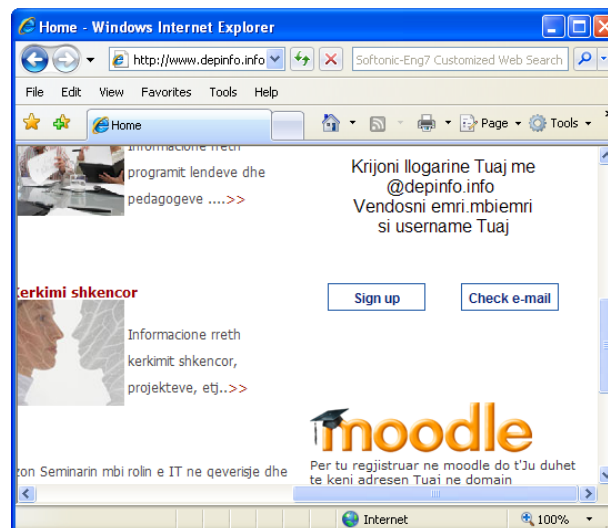


Fig. 2. Implementation

The Moodle is also implemented, in which are developed some courses. Application of those technologies is under development but particularly this one has attracted much more the interest of the students. There are so many reasons such as, group collaboration, availability of getting the material at any time, better coordination of the course activities, and the privacy in the examination of the student's knowledge. During the work process of a course is created an archive or a database of knowledge which is available online for further steps. The nature of such courses demand from the students to be familiar with technology and requires a lot of individual work by them. Also, the teaching and the didactic materials are frequently updated and the sources of information are numerous in the internet. The courses have an applied nature, which requires involvement of the student during the learning process that require projects in group, so for that students have to manage resources and their time except the knowledge. As a result of practical projects is generated knowledge which are stored, better organized and can serve for the student community in the future.

Implementation of those technologies has been successful in two perspectives:

- On students the point of view by the opinion taken by them
- On the results of the course whose have been near average. Generally, students have accepted or have been aware of their results.

We did implemented currently the wordpress and we are working for Single Sing –On.

### 6. Evaluation of the current situation

We did a survey to evaluate the necessity and the effectiveness of the uses of the system after it’s implementation and operation. The survey had as target group the students of informatics and consisted of 15 questions. Most of the questions had a rating system with 5 options rating from 0 that was less important to 4 which was more important. It had also questions of type Yes or No. In the survey we had been taken part 100 students from different grade. In Figure 3 are shown responses of some survey questions.

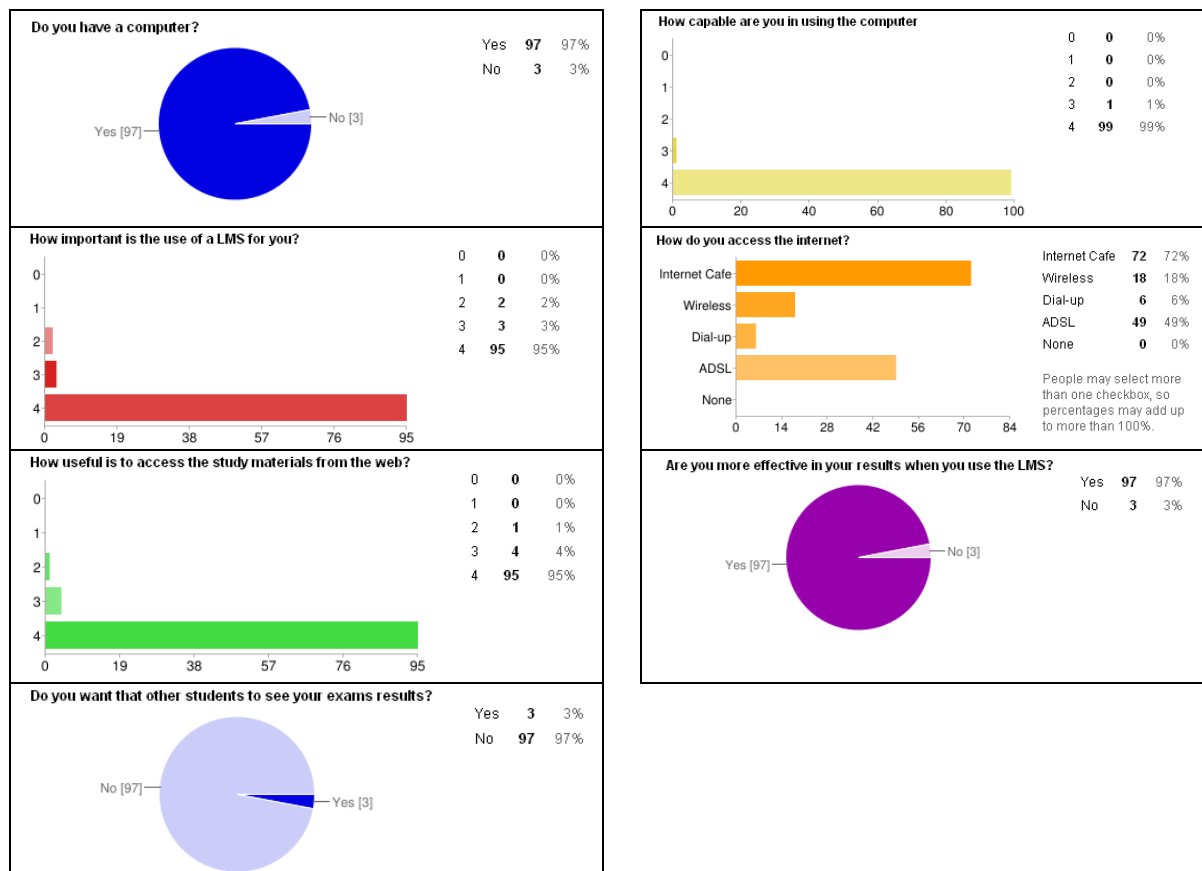


Fig. 3. The survey results

As we can see from the graphics the access in technology is high, so the students have at least one computer and they want to use a course management system. The results which the student achieve at the end of the course using the CMS where considered higher then before. Having that in mind, when the Hi-tech is more and more complement of our learning process we strongly emphasize that, and especially in the technical and engineering branches as: informatics, electronics, computer science, computing economic, etc., is good or better to say that, it is an obligation to have online courses.

### 7. Conclusions

In this article we have taken into consideration some products on the market that support teaching and learning and these were analyzed for their features that directly affects in this



process. It was shown the logical model and the implementation of those in the branch of informatics, using Moodle, Live@edu, Wordpress and Single sign-on.

The exploitation of technology will led to the higher student performance and to maintain privacy in the courses, as those were implemented in Moodle.

Management information systems of teaching and learning have a great potential in Albania and the in the Balkan countries. They solve some current challenges in Albanian regions as well as the efficient use of capacity in academic teaching by giving a lesson once and having it several times, to overcome some infrastructure problems in teaching throughout simulation etc.

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