

The IT Problems of E-Learning Systems

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Abstract— The E-learning systems opened a new age in the higher education. The main problem is to cover the needs of institutions by a common E-learning frame system. This follows to the blended learning methods. The paper focuses on the progression of learning habits, and models comparing it with the evolution of the supporting information systems, and E-learning systems considering the development of info-communication technology (ICT).

I. INTRODUCTION

The last thirty years the human knowledge was increased on his double. This general knowledge base created by people should capture the future generations. It means, each person should learn an individual a part of general knowledge to become a useful member of the society and economy. This is a formal learning process in the frame of education. The labor market is interested on high qualified professionals. The knowledge's renewal cycle nowadays is significant shorter as the generation changing which followed to problem of the paradigm changing in the field of education and introduced the new age of life-long learning (LLL).

The E-learning is an individual or team learning process supported and controlled by ICT. This paper will show the progression way to the modern technologies, also case studies from the practice of Óbuda University and their evaluation.

II. KNOWLEDGE REPOSITORIES

A. Teacher and the Gutenberg Galaxy

For centuries the source of knowledge were the written literature in the form of books, periodic, or other printed publications stored in libraries. The knowledge mediator was the teacher who prepared handouts or lecture notes for the students with the aim of better interpretation teaching materials. This model (see Fig.1.) called as

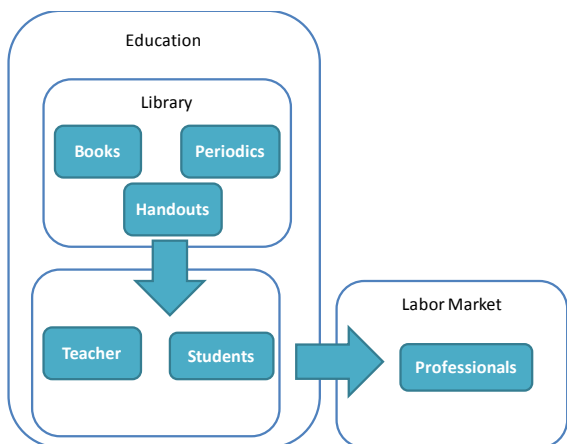


Figure 1 Learning model using the Gutenberg Galaxy

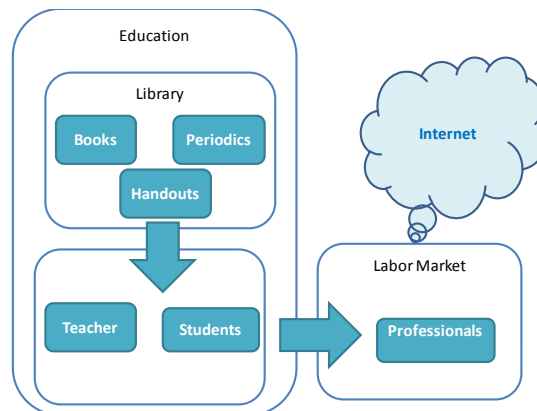


Figure 2. The Internet and the on-line learning model

Gutenberg Galaxy not supported the easy access to the information.

In the middle of 90's last century appears the E-learning concept in the form of multimedia CDs but through the high development fees, and the standalone using model this was not the most popular initiative.

B. Internet

The widespread use of the Internet in the beginning of 21st century solved the problem of the on-line, and cost effective access to the information. Initially the World Wide Web (WWW) was not a reliable professional source of information through the open characteristics (see Fig.2.).

The on-line multimedia applications, the on-line catalogs, the scientific publication's data bases, also the E-books have made acceptable the Internet services for libraries, too (see Fig.3.). The process of virtualization in the field of education was starting [1, 4].

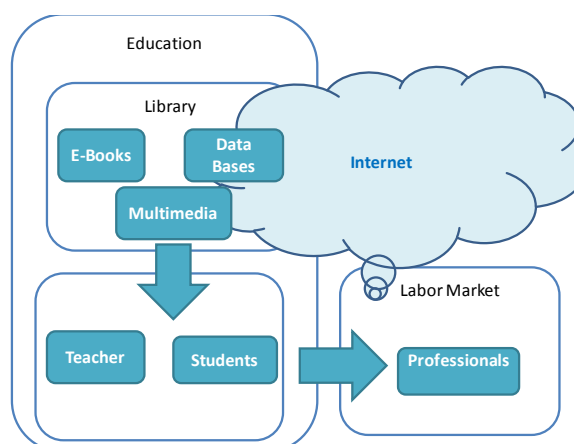


Figure 3. The virtual model of learning

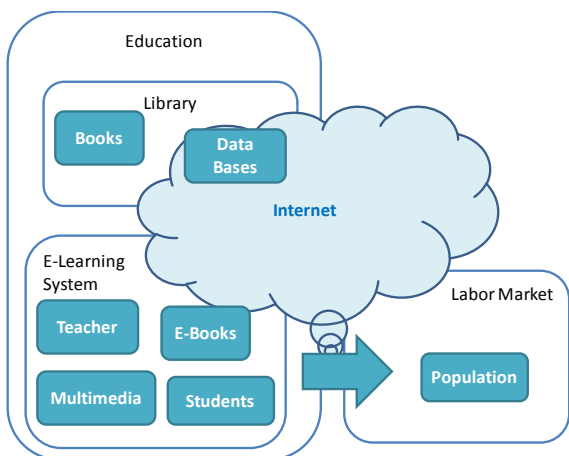


Figure 4. The E-Learning model

C. The E-Learning Systems

The extensive development process of E-learning systems was started at the beginning of 21st century. This field covered several markets, the public education, the higher education, the adult education, and the corporate trainings [2]. Initially the custom-developed systems dominated the market than the easy configurable E-learning frame systems have appeared (see Fig.4.).

A typical E-learning system consists of two main parts

- LMS learning management system
- CMS content management system

The LMS responsible for tutor and student administration, registration of courses, data import and export, interface to other systems, collaboration of the tutor with the students, and the students with each other.

The main functions of CMS are the navigation in the course list, the storage and handling of teaching materials (version control, backup and recovery), the management of tests (reusable question bank), the support of several type of learning processes (blended learning, team work, adaptive learning), the support of wide range of documents, and media types.

The Moodle E-learning frame system became one of the most popular in this field because of his open structure, customization, and standardization possibility [5].

III. USING E-LEARNING SYSTEMS IN THE ÓBUDA UNIVERSITY

In the year 2003 the Neptun information system [6] was introduced in the predecessor of Óbuda University for the

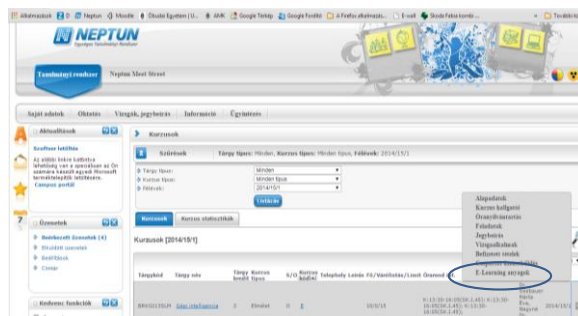


Figure 5. The Neptun Student Information System of Óbuda University



Figure 6. The Moodle E-Learning Portal of Óbuda University

supporting of Bologna process. The Neptun system capable to solve the LMS functions but is not really prepared for CMS (see Fig.5).

A. The Moodle E-Learning System

In the year 2008 the predecessor of Óbuda University decided to introduce a common for all faculties E-learning system, particular a Moodle system [7]. Since them more version upgrades were fulfilled, a new Moodle portal was created which integrated the E-handouts, the K-MOOC, the open university, too (see Fig.6.).

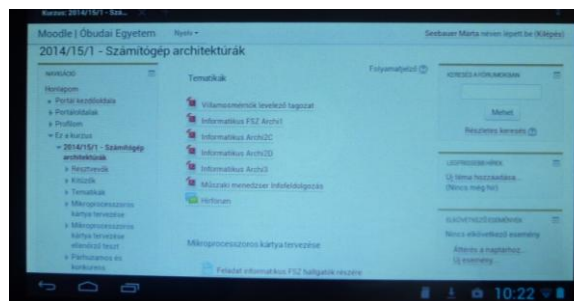


Figure 7. The Moodle E-Learning Portal running on tablet

The Moodle system works in private cloud and runs also on tablets, and smart phones in Android operating system, too (see Fig.7.).

Initially the built in LMS was used in Moodle system but the last year the Neptun system was assigned and all courses together with the enrolled students are automatically imported (see Fig.8.).

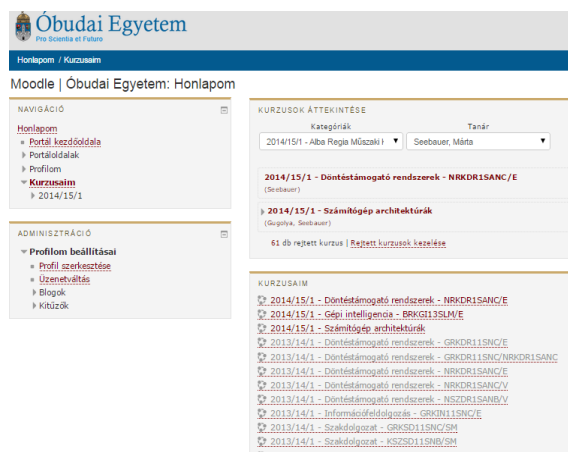


Figure 8. Course list in Moodle E-Learning Portal

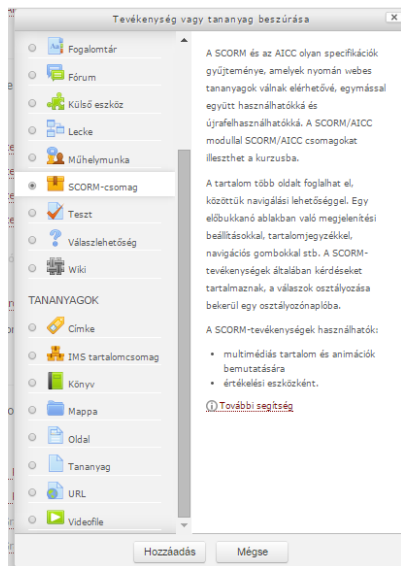


Figure 9. The functions of Moodle E-learning system

This fact and that the content of teaching material belongs to each course results a mass of useless data stored for several years.

The use of the system is mandatory for all teacher but a lot of them have either experiences or any time for professional development of E-learning courses.

The frame system supports the implementation of divers functions in a course (see Fig.9.). From the point of student’s view would be considerable the standardization of course’s content.

B. The Udacity Portal of Stanford University

The Udacity Portal [8] of Stanford University was the initiative of Sebastian Thrun and Peter Norvig offering the "Introduction to Artificial Intelligence" course on-line for the students all of the world. Over 160,000 students in more than 190 countries enrolled on this interactive multimedia course (see Fig.10.).

The last academic year 42 students of Óbuda University absolved this course. According to student’s feedback they enjoyed the interactive method of learning, well. The new generation need new methods of teaching [3].

Nowadays the Stanford University operates a portal for

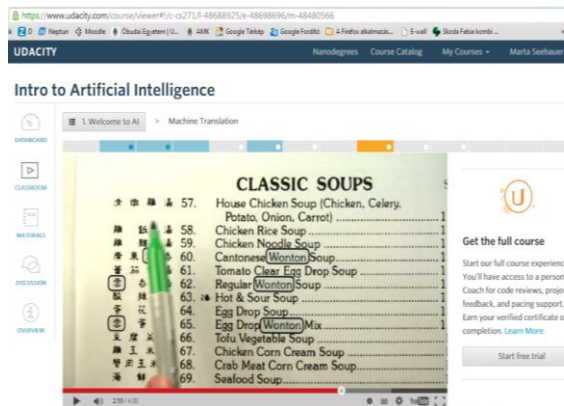


Figure 10. The video of Artificial Intelligence course on UDACITY E-Learning Portal of Stanford University

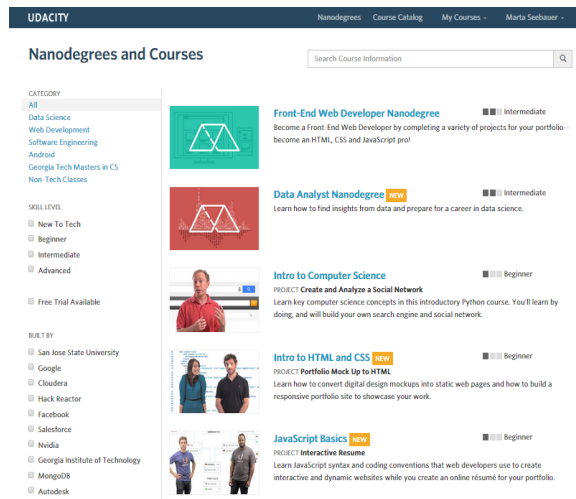


Figure 11. The UDACITY E-Learning Portal of Stanford University

virtual university actually with 48 courses (see Fig.11). All of the courses have the same structure, syllabus, a serial of videos with embedded tests named as classroom, course material for download, forum for discussion.

Recently the Stanford University started Nanodegrees courses for corporate trainings supporting the LLL (see Fig.12.).

Sadly the Stanford University decided that the courses in Udacity only in payment of costs available.

C. The HUNLine E-Learning System

The Óbuda University in consortium with the Széchenyi István University, the Eszterházy Károly College, and the College of Dunaújváros is working on a common virtual university project supported by the TÁMOP 4.1.1/C grant named HUNLine project [9]. The aim of this project is the improving the quality of education in the field of automotive engineering.

The multimedia teaching materials will prepare in German and in English languages. The HUNLine portal (see Fig.13.) for the students of consortium members are out of charge.

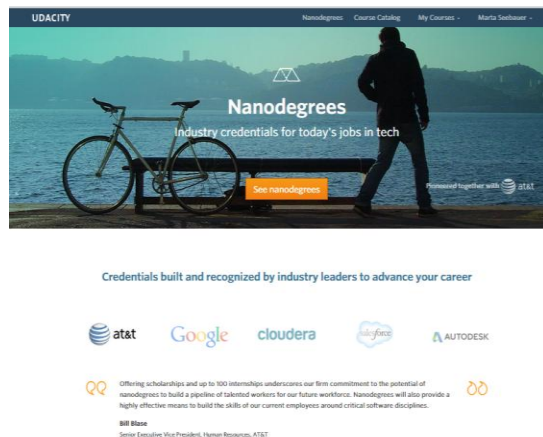


Figure 12. The Nanodegrees on UDACITY E-Learning Portal of Stanford University

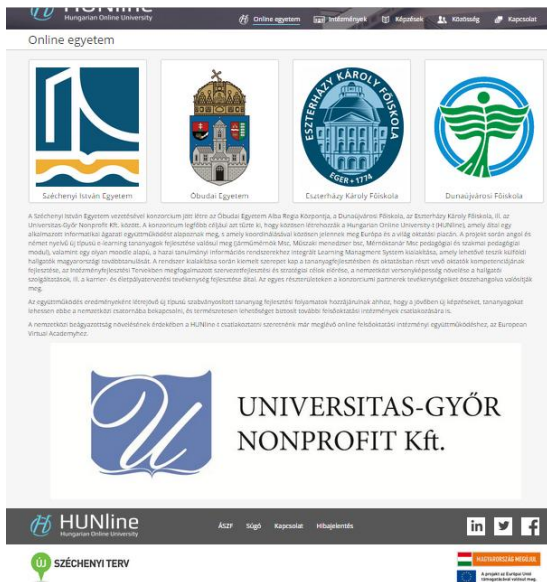


Figure 13. The HUNLine E-Learning Portal

IV. CONCLUSIONS

In the E-learning most be unified teaching materials for all modules.

The teaching materials have be assigned to modules and not to courses than the course merging is needless.

The administration combined with Neptun is complicated, the administration of students by Moodle is easier.

The storage of empty courses is unnecessary if they aren't copied from Neptun system.

The students better understand the interactive videos.

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