Intelligent e-Learning Portal Development

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Abstract: The paper presents an intelligent e-Learning portal development and its applications of the internet-based xHTML, CSS and PHP education system. The solution is based on the application of the free, open-source, LAMP (Linux, Apache, MySQL and PHP)-based software package. E-learning has been defined as the use of new multimedia technologies and the Internet to improve the quality of learning. E-Learning is based an a reliable technology but is pedagogy-oriented.

Keywords: intelligent, e-Learning, portal, internet-based, xHTML, CSS, PHP, Linux, Apache, MySQL

1   Introduction

Europe should become, by 2010, „the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion" (European Council, Lisbon, March 2000). As Europe enters into the emerging global information society, new opportunities are arising for cost-effective solutions to education. The convergence of information and communication technologies is enabling the creation and implementation of e-Learning systems. The eLearning development in Europe is a further step towards realising the vision of technology serving lifelong learning. It focuses on a set of actions in high priority areas, chosen for their strategic relevance to the modernisation of Europe's education and training systems.

E-learning has been defined as the use of new multimedia technologies and the Internet to improve the quality of learning. According to this definition, e-learning stimulates remote exchanges and collaboration and empowers the learner in every situation. The internet gives easy access to resources and services. E-Learning is based an a reliable technology but is pedagogy-oriented.

This paper gives the development of an intelligent e-Learning portal and its applications of the Web-based xHTML, CSS and PHP open source education system. The paper is organized as follows:
- Section 1: Introduction.
- In Section 2: The Advantages of the e-Learning Courses are illustrated.
- In Section 3: The e-learning Skill Categories are illustrated.
- Development an Intelligent e-Learning Portal and its Applications of the Web-based xHTML, CSS and PHP Open Source Education System are given in Section 4.
- Conclusions are given in Section 5.

2   The Advantages of the e-Learning Courses

The advantages of the E-learning concept from the learner's viewpoint:
- lower delivery costs,
- faster training,
- learners do not have to travel, with an E-learning course learners can take the course at their own pace
- accumulated intellectual capital,
- learning anytime and anywhere,
- learners create their own learning experiences.

One of the first goals was to convince teachers to use an e-Learning platform. Using Web technology teachers can make their job more effective and productive. Instead of distributing course materials separately to each of the participants, a tutor can host it on the campus web so that students can download it as and when they need. The teacher can easily deploy such collaboration tools as chat/discussion forums and thereby make the course more interactive and engaging [8].

Teachers want to create course websites quickly and publish already existing Word-like, Excel-like or PDF documents. A Web-based teaching tool that enables a tutor to do such teaching-related tasks as distributing course documents, exercises, announcements and conducting discussion on the subject being taught will certainly improve the teaching quality. The teacher should be able to operate this tool also independently. That is, he should be able to create a course Web site with the aforementioned features without the help of a Web specialist.

3   E-learning Skill Categories

The process of creating an E-learning portal is a complex task. The following sections describe the skill categories required to create an online E-learning course. This developing requires the ability to conceive complex human interactions and execute them in available technologies. Creating an E-learning application takes a wide range of talents. The skill categories required to create an online E-learning course are [2], [3], [4], [5], [6]:

- **Visual design** – developing an E-learning course may require a visual design engineer to design all of the page content.
- **Multimedia development** - developing an E-learning course will need a multimedia engineer to create audio and video components, animations and integrate all these multimedia elements.
- **Courseware development** – this task involves creating the components that present information and interact with learners.
- **Instructional design -** is critically important for E-learning (that will require the same attention to ease-of-use).
- **Technology integration** - creating E-learning usually requires combining several technologies.
- **Project management** - developing an E-learning course require proper monitoring and control.

4   Development of Intelligent e-Learning Portal and its Applications of the Web-based xHTML, CSS and PHP Open Source Education System

The Web address of the free, open-source, LAMP (Linux, Apache, PHP and MySQL)-based "e-tananyagfejlesztés" intelligent e-Learning portal is: http://www.gmesterweb.com/e-tananyag [10]. This e-Learning portal has been developed to support good teaching and learning, not to replace it. The portal is open source and modular, it enables the manager to add and modify tools, change the moduls, adapt databases. It's an excellent application for the internet-based xHTML, CSS and PHP education. All the software required can be downloaded free of charge, both server side: Linux, Apache, PHP, MySQL and client side: any browser: xHTML and CSS. The Portal use only open formats and languages and allows teachers to create and admin course websites through a browser. You can:

- publish documents in any format (Word, PDF, xHTML, Video),
- Admin the Portal,
- Manage modules,
- Create student groups,
- Manage statistics, and
- Compose exercises and tests.

Fig. 1 shows the initial page of the self-registering web portal:

Fig. 1 The initial page of the self-registering web portal.

After successful registration, you will need to enter your e-mail address and password (Fig. 2):

Fig. 2 Login to the Portal

At this point the system will present the main page with xHTML, CSS and PHP e-Learning modules (Fig. 3):

Fig. 3 xHTML, CSS and PHP e-Learning modules

Under the modules you will find your courses. The system will now display the courses `admin' page with access points to xHTML, CSS and PHP modules. You can use these course module parts with content (Fig. 4). This section provides a comprehensive mechanism for organizing files that you would like to make available to the students.

Fig. 4 Content of the xHTML e-Learning modules

Active course components – exercises appear in colour in the section of the course page with the code and design view (Fig. 5):


Fig. 5 Exercise with the code and design view

You can place the course materials under the "Könyvtár" section (Fig. 6):

Fig. 6 The "Könyvtár" section

Users section - this is the section where you can control who is registered on your course. You can archives and delete students, but cannot modify students' settings like user name or password. You can create groups of students.

The e-Learning Portal allows the generation of multiple choice tests (Fig. 7). You can add a question into the previously created exercise. Questions will be running in a random order among all questions of the exercise. Activated question components 👁 are seen by students. Deactivated 👁 question components are invisible to students.
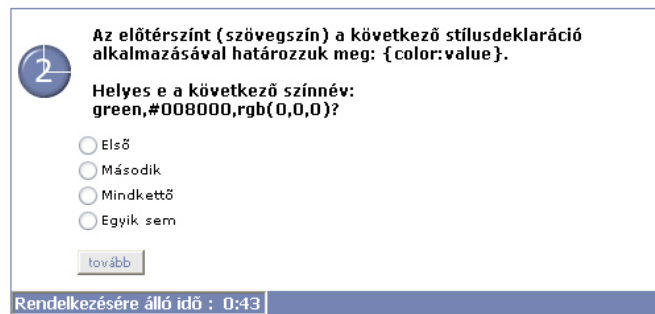

Fig. 7 The multiple choice test

Conclusions

The paper presents an intelligent e-Learning portal development and its applications of the internet-based xHTML, CSS and PHP education system. The solution is based on the application of the free, open-source, LAMP (Linux, Apache, MySQL and PHP)-based software package.

Using this Web-portal it's possible: publish documents in any format (Word, PDF, xHTML, Video), admin the Portal, manage modules, create student groups, manage statistics, and compose exercises and tests.

Application of the e-Learning portal using open-source environment shows the validity of the proposed method.

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