Integrating an Educational Game in Moodle LMS

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ABSTRACT

The authors present a learning platform based on a computer game. Learning games combine two industries: education and entertainment, which is often called “Edutainment.” The game is realized as a strategic game (similar to Risk™), implemented as a module for Moodle CMS, utilizing Java Applet technology. Moodle is an open-source course management system (CMS), which is widely used among universities as an eLearning platform. Java Applet enables development of rich-client applications which are executed in web browser environment. During the game, players receive questions from specified Moodle quiz, and all answers are stored back into Moodle system. Students can later verify their score and answers, and examine the test that they actually worked on during the game. This system supports synchronous as well as asynchronous interaction between players.

Keywords: Educational Games, eLearning, Game-Based Learning, Learning Management Systems, Strategic Game

1. INTRODUCTION

Entertainment information systems today belong in top of software products hierarchy, by the number and by the profit earned. In 2004 overall profit from recreation software was $8 billion, and 144 000 people were involved in that business. Estimation is that by the 2011 these numbers will be $15 billion and 250 000 programmers.

Today educational trend is toward e-learning, as a logical way of distance learning expansion. E-learning is there for a longer period of time, but with the appearance of Internet, distance learning raised to a new dimension. Since introduction of computer and Internet technologies, distance learning significantly progressed in regard to the time when it worked as a corresponding school. By the year 2005, over 2 million students were enrolled in online courses in higher and high education in USA. According to Sloan consortium (http://www.

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sloan-c.org), trend is in progress with 25 percent rate at annual level.

It is possible now, besides lessons and examination, to add many other activities to distant learning. One of the possibilities are educational games, which stimulate learning and provide recreational dimension. Educative games are not new, but in recent years there is a possibility for merging them with Internet technologies. As a combination, they present a new powerful tool for learning and education.

Internet became more and more accessible all round the world. Also, continuous reduction in dimensions of electronic components, leads to the possibility of connecting devices like mobile phone, and others. In this environment, no doubt, future will continue e-learning market growth.

This paper deals with educational-recreation software development. Software presented is an educational strategic game for several gamers in network environment. This game, V-Strat is a project under the development of Multimedia Communication Lab, Faculty of organizational sciences, University of Belgrade.

2. E-LEARNING

E-learning is an universal term, in common use it describes learning using a computer. It often includes different devices as personal digital assistant (PDA), mobile phones and similar. However, all this devices, in order of its way of working, are mini computers. And e-learning could be defined as learning by using the computer. Also, e-learning involves materials based on web technologies, as well as hypermedia content (multimedia CD-ROM, web site, discussion forum, collaboration software, electronic mail, blog, wiki, educational animation, simulation, games, course management system and others). Often e-learning used combination of different methods.

E-learning is a natural extension of distance learning as a way presented from 1930, when first corresponding school was established.

Today, e-learning in higher and high education tends to form Virtual Learning Environment - VLE, which in conjunction with controlled information system became Managed Learning Environment - MLE. This environment distinguishes itself by consistent user interface standardized in an entire educational institution. More and more universities, classical as well as virtual, offer internet diplomas and courses. Some of them require student presence in campus, but some of them could be fully completed online.

E-learning advantages are flexibility and convenience for users, especially when they have other occupations. In that case good communication between students, adaptation to student needs, diversity in contrast to classical courses, presence of multimedia content is used to simplify material acquisition.

Different authors emphasize shortcomings such as lack of interaction with the instructor and physical isolation of the student. Some of them state that this type of process is not educational, viewed from strictly philosophical aspect. First issue can be partly resolved by using video and audio conferencing systems on the net. And student isolation can be partially replaced by using forums, chat services and other modes of online communications.

There is a question whether E-learning is worth investing in? Because of high initial costs, this can be compensated only through mass offer. Development of network software can appear to be an expensive investment. Also, instating adaptable educational material can prove to be a lasting process in contrast to classical material. Transition from traditional to e-learning, requires significant amount of financial resources for teachers training in hardware and in software.

Communication technologies used in e-learning can be synchronous and asynchronous. Synchronous activities are the one that requires all users to work simultaneously. These types of activities are interactive message exchange (chat), multimedia content exchange (white
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