

Chapter 13

Computer Assisted Active Learning System Development for History of Civilization E-Learning Courses by Using Free Open Source Software Platforms

Dilek Karahoca

Bahcesehir University, Turkey

Adem Karahoca

Bahcesehir University, Turkey

Ilker Yengin

University of Nebraska-Lincoln, USA

Huseyin Uzunboylu

Near East University, Northern Cyprus

ABSTRACT

This chapter explains the developmental reasons and design to implementation cycles of the Computer Assisted Active Learning System (CALS) for History of Civilization (HOC) courses at Engineering Faculty of Bahcesehir University. Implementation purpose of CALS is to develop set of tools in a systematic way to enhance students' critical thinking abilities for HOC courses. Dynamic meta-cognitive maps, movies, flash cards and quiz tools were developed. In order to reduce implementation costs of CALS, open Free and Open Source Software (FOSS) standards and platforms were utilized in the development and implementation cycles. This study also investigates the importance of the e-learning platform usage in HOC courses in Engineering Faculty of Bahcesehir University to improve the level of students. Results indicate that the concept based meta-cognitive tool improves learning instead of students just memorizing the class material. Also, engineering students improved their positive attitude towards who wants to

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learn the history of civilization by using CALS. This study shows that software helps to change human behavior in the learning cycle. This chapter highlights the implications of successful development of FOSS for the CALS.

1. INTRODUCTION

Nowadays, information is increasing in an uncontrolled manner. Based on this cycle, information learning and teaching approaches should be supported with information communication technologies (ICT) and web based educational technologies. In this mean, information dissemination and sharing processes can be supported by Free Open Source Software (FOSS) components for online education. This phenomenon has been supported in different perspectives extensively. As stated in “gnu.org”, free software is a matter of the users’ freedom to run, copy, distribute study, change and improve the software. More precisely, it refers to four kinds of freedoms, for the users of the software (<http://www.gnu.org/>):

1. The freedom to run the program, for any purpose (freedom 0).
2. The freedom to study how the program works, and adapt it to your needs (freedom 1). Access to the source code is a precondition for this.
3. The freedom to redistribute copies so you can help your neighbor (freedom 2).
4. The freedom to improve the program, and release your improvements to the public, so that the whole community benefits (freedom 3). Access to the source code is a precondition for this.

The FOSS practice also can be carried out in web based education supporting tools such as learning management systems (LMS) or course management systems (CMS). LMS manages learners, but CMS is related with learning contents. From this view point, Massachusetts Institute of Technology (MIT) started the OpenCourseWare

project (<http://web.mit.edu/ocw/>) in 2001 and share on the Internet in 2002 (Richards, 2001). This open source project served as an inspiration to other web based course management projects for supporting university teaching. Online course management platforms supported with FOSS based systems such as the Moodle (Modular Object-Oriented Dynamic Learning Environment) project (http://docs.moodle.org/en/Online_Learning_History) for 2001. Moodle is a software package for producing Internet-based courses and web sites. It is a global development project designed to support a social constructionist framework of education. Moodle is provided freely as Open Source software (under the GNU Public License). Basically this means Moodle is copyrighted, but that you have additional freedoms. You are allowed to copy, use and modify Moodle provided that you agree to provide the source to others; not modify or remove the original license and copyrights, and apply this same license to any derivative work. Moodle can be installed on any computer that can run PHP, and can support an SQL type database (for example MySQL). It can be run on Windows and Mac operating systems and many flavors of Linux (for example Red Hat or Debian GNU) (http://docs.moodle.org/en/About_Moodle).

Kanuka, Rourke and Laflamme (2007) highlight the importance of engaging students into learning by introducing the deeper level of thinking. They argued the importance of active learning strategies where students are involved in debates and challenged to think critically. Computer tools are very effective to engage students actively into learning and make them to think critically (Aher & Repman, 1994). In Bahesehir University, a system of online computer tools were developed that engage students actively into their learning for the history of civilization lessons. In the de-

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