AN EVALUATION OF OPEN SOURCE LEARNING MANAGEMENT SYSTEMS ACCORDING TO ADMINISTRATION TOOLS AND CURRICULUM DESIGN

Fezile Özdamlı
Near East University, Cyprus
fozdamli@neu.edu.tr

ABSTRACT

Distance education is becoming more important in the universities and schools.. The aim of this research is to evaluate the current existing Open Source Learning Management Systems according to Administration tool and Curriculum Design. For this, seventy two Open Source Learning Management Systems have been subjected to a general evaluation. After that, among them the eight, most demanded software, were chosen: Atutor, Bazaar, Bodington, Claroline, Coursemanager, ILIAS, Moodle and Sakai. Those software chosen were investigated in detail according to features of the Administration Tools and Curriculum Design respectively. Software have been evaluated by being members of websites, using demo programs and in accordance to the features of given at the internet website.

Keywords: Learning Management Systems; Open Source; Online education; Distance Education.

INTRODUCTION

Information is the most significant element of social life. To arrive to the knowledge and more effective using are important. Distance education is becoming more important in the universities and schools. Learning Management Systems are available systems for distance education. Learning Management Systems are online software which can provide different types of education materials, sharing of materials, ready quizzes, feedback, and registration of students and etc. The advantages of Learning Management Systems for students; they can learn thoroughly the subject according to own capacity. Time and place is not important, everybody which have internet, can arrive the knowledge, can share the knowledge with interaction environment. Learning Management Systems are dividing two division in the literature, these are; Commercial Learning Management Systems and Open Source Learning Management Systems. Over hundreds of non-commercial and commercial learning management systems are present on the internet. Commercial firms are deciding to the price of the Learning Management system, later presents to the service. For example, WebCt and Blackboard. Users can view the source code, change and re-construct open source software. Open source software are generally free. Cole (2005) argues that LMS typically offers a wide variety of tools to make a course more effective: an easy way to upload and share materials, hold online discussions and chats, give quizzes and surveys, gather and review assignments, and record grades. In other words, it's a suite tools that enhance teaching by taking advantage of the internet without replacing the need for the teacher.

Traditionally, the design of pedagogy has been the realm of expert instructional designers, textbook authors, and software engineers. With the advent of easy-to-program web scripting languages and simplified digital authoring software, teachers are playing a greater role in the creation of learning materials and designs. Furthermore, the popularity of open source courses management systems with pluggable modules and point-and-click configuration has allowed teachers to experience unprecedented freedom of design. (Moodle Community Learning Design Book Study Group, 2005)

Related Researches

Recently, numerous research papers on Learning Management Systems have been published showing the benefits of distance education for students and instructors as well. A growing body of academic research supports the use of Learning Management Systems. Some of these;

In a study reported by Cavus et. al. (2006) Learners worked with Moodle Learning Management System together with collaborative editor which name is GREWPtool. The research result showed that a LMS are more efficient if it is enhanced with a collaborative learning tool. Also results showed that programming languages for instance Pascal and Java courses can be teach to learners in a web-based environment using an LMS system together with a collaborative tool.

Uzunboylu's (2004) study showed students who study English grammar on the Web was succesfully than the group who study with traditional methods.

In a reported study LMS evaluation is also based on the qualitative weight and sum approach. They choose 9 LMS system for evaluation. The result of the evaluation shows that the platform Moodle outperforms all other platforms and also obtained the best rating in the adaptation category. Graf & List (2005)

The Purpose of the Study

The purpose of this research is to evaluate the current existing Open Source Learning Management according to Administration Tools and Curriculum Design.

METHOD

In the study, literature review method was used. Seventy Two (72) Open Source Learning Management Systems have been subjected to a general evaluation in the internet. After that, among them the eight, most demanded latest stable versions software, were chosen: Atutor 1.5.2, Bazaar 7.11, Bodington 2.6.0, Claroline 1.7.1, Coursemanager 2.4, ILIAS 3.5.5, Moodle 1.5.3, Sakai 2.1.0. Those software chosen were investigated in detail according to features of the Administrative Tools and Curriculum Design, which are Authentication, Course Authorization, Hosted Services, Registration Integration, Course Management, Instructor Helpdesk, Student Tracking, Course Templates, and Customized Look. Evaluation scale has been taken from edutools.org web site and has been implemented after the approval by expert people. Software have been evaluated by being members of websites, using demo programs and in accordance to the features of given at the internet website.

FINDINGS

- *Administration Tools*
    - Authentication

Atutor: Administrators and instructors can set courses to be publicly accessible or can protect access to individual courses with a username and password. System has a password reminder option.

Bazaar: Administrators and instructors can set courses to be publicly accessible or can protect access to individual courses with a username and password. Access can be restricted based on number of login attempts.

Bodington: Administrators and instructors can set courses to be publicly accessible or can protect access to individual courses with a username and password.

Claroline: Administrators and instructors can set courses to be publicly accessible or can protect access to individual courses with a username and password. System has a password reminder option. Students can maintain their own passwords for enrolled courses.

Coursemanager: Administrators can protect access to individual courses with a username and password. Students can maintain their own passwords.

ILIAS: Administrators and instructors can set courses to be publicly accessible or can protect access to individual courses with a username and password. Students can maintain their own passwords for enrolled courses.

Moodle: The system uses basic username and password authentication. The system can authenticate against a variety sources, including external databases. System has a password reminder option. Students may maintain their own passwords for enrolled courses.

Sakai: Administrators can protect access to individual courses with a username and password. Students can maintain their own passwords.

- 1.2 Course Authorization

Atutor: Instructors can assign students limited access to instructional tools based on pre-defined roles or permissions, and create teaching assistants or additional instructors, each with their own custom privileges. Instructors or students may be assigned different roles in different courses, or in different groups.

Bazaar: The system supports restricting access based on pre-defined roles Instructors can customize specific access permissions for each student. Instructors or students may be assigned different roles in different courses.

Bodington: Administrators can assign different levels of access to the system based on the following pre-defined roles: students, instructors, and managers.

Claroline: Instructors can customize specific access permissions for each student. Instructors or students may be assigned different roles in different courses.

Coursemanager: Administrators can assign different levels of access to the system based on the following pre-defined roles: instructors, students, teaching assistants, registrars, and administrators.

ILIAS: Instructors can assign different levels of access to their course based on the following pre-defined roles: instructors, students, designers and guests.

Moodle: The software provides tools for Administrators to assign access privileges to different group roles: Administrators, instructors, students and guests. Group role privileges can be further defined into subgroup privileges. Instructors or students

may be assigned different roles in different courses.

Sakai: Administrators can create an unlimited number of custom organizational units and roles with specific access privileges to course content and tools. Instructors or students may be assigned different roles in different courses and group contexts.

- Hosted Services

Atutor: The product provider offers: a free-hosted system for a small number of courses.

Bazaar: The product does not support hosted services.

Bodington: The product does not support hosted services.

Claroline: Claroline is capable of hosting ten thousands of courses and users.

Coursemanager: The product provider offers a hosted system that includes 24x7x365 monitoring, redundant Internet connections, and backups at a secure facility.

ILIAS: With ILIASasp Databay AG in Aachen, Germany offers hosting/ASP of ILIAS installations.

Moodle: The product provider and partner companies offer hosted systems.

Sakai: Institutions and other organizations can purchase hosting and support services from a number of Sakai Commercial Affiliates including Embanet, which provides daily and offsite tape backups, system clustering, managed bandwidth usage, and multiple Internet service providers to provide redundant fail-over capabilities.

- Registration Integration

Atutor: Students can self-register. Administrators or instructors can batch add students to a course using a delimited text file, and send a system generated e-mail message to students inviting them to join courses.

Bazaar: Instructors may enroll students in online courses, or the students may self-register.

Claroline: Instructors can add students to a course or students can self-register. Instructors can batch add students to a course using a delimited text file.

Coursemanager: Students must self-register. The system provides registration progress tracking. The system provides support for secure online tuition payment by check or credit card.

Moodle: Instructors can batch add students to a course using a delimited text file or students can self-register.

Sakai: Students can self-register. Administrators can batch add students to the system and courses using providers or scripts.

- Course Management

Atutor: Instructors can selectively release course content and assessments based on specific start and end dates.

Bazaar: Instructors can selectively release materials based on previous course activity or specific start and end dates. Instructors can set up specific course content that is released on a specific date and that students must complete before they continue with the course.

Bodington: Instructors can personalize access to specific course materials based on group membership. Instructors can selectively release materials.

Moodle: Instructors can link discussions to specific dates or course events. The system can synchronize course dates defined by the institutional calendar.

Sakai: Instructors can selectively release assignments, assessments, and announcements based on specific start and stop dates.

- Instructor Helpdesk

Atutor: Instructors can access an online instructor manual, context sensitive help, and an instructor support forum hosted on the product provider's site.

Bazaar: Instructors can access an online instructor-training manual and form online groups to share experiences with instructors in their organization.

Bodington: Instructors can access an instructor support forum and subscribe to an instructor mailing list. Instructors can also access online instructor help manual.

Claroline: Instructors can access context sensitive help and numerous instructor support forums through the development community website. Site is also including teacher manual.

Coursemanager: It includes operation manual.

ILIAS: Instructors can access an online help manual and instructor support communities hosted through the development community website.

Moodle: Instructors can access the online instructor manual, context sensitive help, and an instructor support community hosted on the product provider's site.

Sakai: Instructors can access the system's help, which provides context sensitive help. A knowledge base and user support communities are also evolving within the wider open source community.

- Student Tracking

Atutor: Instructors can get reports showing the number of times, the time and date on which, and the frequency with which each student accessed course content. Instructors can get a report that shows number of attempts and time per attempt on each assessment for individual students. Instructors can get a report showing the duration of time each student or all students spent on course content.

Bazaar: Instructors can get reports showing the time and date on which each student accessed specific course units.

Bodington: Instructors cannot get a report about student tracking.

Claroline: Instructors can get reports showing the number of times all students in a course as an aggregated group accessed course content.

Coursemanager: Instructors can get a report showing the frequency with which, and the IP address of, each student who logged in.

ILIAS: Instructors cannot get a report about student tracking.

Moodle: Instructors can get reports showing the number of times, time, date, frequency and IP address of each student who accessed course content, discussion forums, course assessments, and assignments. Instructors can get a report that shows number of attempts and time per attempt on each assessment for individual students. Instructors can maintain private notes about each student in a secure area. Instructors can monitor students who are currently logged in to the course.

Sakai: Instructors cannot get a report about student tracking.

- *Curriculum Design*
    - Course Templates

Atutor: Course content may be uploaded to a file manager, imported from, or exported to, a learning object repository, imported directly from the Web using a URL, or imported from an HTML editor. Instructors can clone and modify the default the templates, or create new templates. Instructors can incorporate course functions into specific course templates, after a systems administrator has enabled those functions.

Bazaar: Instructors can use templates to create announcements, course content, course units, discussion forums, and instructor biography, links, and multimedia content, syllabus and course descriptions. Course content may be uploaded through a form, by attaching files, or chosen from a learning object repository. Instructors can create new content templates.

Bodington: The software provides support for template-based content creation. The templates include a content editor.

Claroline: Instructors can use templates to create agendas, announcements, course content, discussion forums, links and the syllabus and course descriptions.

Coursemanager: Instructors can use templates to create syllabus and course descriptions and FAQs.

ILIAS: The software provides support for template-based content creation. Instructors can use templates to create announcements, calendar entries, course content, course units, glossaries, syllabus and course descriptions. Course content may be uploaded through a form or chosen from a course-specific content library.

Moodle: The software provides three default course templates: activities arranged by week, activities arranged by topic, or a discussion-focused social format. Instructors can create new course or content templates.

Sakai: Instructors can categorize course content as announcements, calendar entries, discussion forums, syllabus information, assessments/assignments, and resources.

- Customized Look and Feel

Atutor: The system provides 2 default course look and feel templates, as well as others that can be downloaded and installed. Institutions can create their own look and feel templates. Institutions can apply their own institutional images, headers and footers, across all courses, or across categories of courses.

Bazaar: The system provides default course look and feel templates. Institutions can create their own look and feel templates

across the entire system. Institutions can apply their own institutional images, headers, and footers across all courses.

Bodington: The system provides default course look and feel templates. Institutions can apply their own institutional images, headers and footers across all courses.

Claroline: The system provides default course look and feel templates. More than 10 type style sheet in Claroline.

Coursemanager: Institutions can create their own look and feel templates. Institutions can apply their own institutional images, headers and footers. Instructors can change the order and name of menu items and the background for a course.

ILIAS: Institutions can apply their own institutional images, headers and footers across all courses.

Moodle: The system provides 10 default course look and feel templates. Institutions can create their own look and feel templates across the entire system. Institutions can apply their own institutional images, headers and footers across all courses. Instructors can change the navigation icons, color schemes, and order and name of menu items for a course.

Sakai: The system can support multiple institutions, departments, schools or other organizational units on a single installation. Each unit can apply its own look and feel templates as well as institutional images, headers and footers. Instructors can customize the left navigation menu of their sites by enabling or disabling tools, as desired.

- ❖ Instructional Design Tools

Atutor: Instructors can create both linear and nonlinear learning sequences, organized hierarchically by course, lesson, or topic. Instructors can organize learning objects into learning sequences that are reusable.

Bazaar: Instructors can organize learning objects into learning sequences that are reusable. Instructors can create relationships between assignments and required resources which can then serve as templates for future lessons.

Coursemanager: Instructors can create both linear and nonlinear learning sequences.

ILIAS: Instructors can create both linear and nonlinear learning sequences organized hierarchically by course, lesson, topic, and chunk. Instructors can organize learning objects, content libraries into learning sequences.

Moodle: Instructors can create both linear and nonlinear learning sequences using a content library. Instructors can organize learning objects into learning sequences. The software supports constructivist and problem-based learning approaches. Instructors can create relationships between assignments and required resources which can then serve as templates for future lessons.

Sakai: Instructors can create linear learning sequences organized hierarchically by course, lesson, and topic.

CONCLUSION

Open Source software and Learning Management Systems have become increasingly in many areas. Open Source Learning Management Systems improve the quality and reduce the cost of education. Some such application, Atutor, Moodle, Courseware etc. provides a constructivist learning environment that makes a significant contribution to enhance e-learning. In the whole software's, instructor can register the student, if instructors permit to the students, can do own registers. Student must be own register in the Coursemanager because isn't free payment. The software can send a notification to students when a new course available for them. Student tracking is not available with the Bodington, ILIAS and Sakai. When software's doesn't support the synchronous education teachers can't tracking the students. Student tracking is the deficiency for Bodington, Ilias and Sakai. Teachers can't take knowledge about students, when were they online and which were chapters studied. Although if the software includes student tracking the education time is not important it can to be synchronous or asynchronous. Teacher knows everything about students what they were made in LMS. Teachers must be known what the needs of students after that teacher can prepare the course.

Teachers decide contents of the course and embed them into the software; they should look beautiful to the eye and it isn't to be tiresome. There are some rules when the templates must be available for these rules. Moreover, the user and graphical interface of the learning management system must be consistent with its elements. For example, firms can be preparing templates more than 1 and users can be select which one favorable for them, so users' motivation increases.

REFERENCES

Berggen, A. & Burgos, D. & Fontana, J. & Hinkelman, D. & Hung, V. & Hursh, A. Tielemans, G., Moodle Community Learning Design Book Study Group (2005). *Practical and Pedagogical Issues for Teacher Adoption of IMS Learning Design Standards in Moodle LMS* from http://www-jime.open.ac.uk/2005/02/

Cavus, N., Uzunboylu, H., İbrahim, D. (2006*). The Effectiveness Of Using Learning Management Systems And Collaborative Tools In Web-Based Teaching Of Programming Languages.* Third International Symposium and Exhibition on Electrical, Electronic and Computer Engineering.

Cole, J. (2005). Using Moodle: *Using the Popular Open Source Course Management System*, from http://i-newswire.com/pr40110.html

Graf, S. & List, B. (2005) An Evaluation of Open Source E-Learning Platforms Stressing Adaptation Issues**,** Proceedings of the 5th IEEE International Conference on Advanced Learning Technologies (ICALT'05), Taiwan, IEEE Press

Paulsen, M. F. (2003). Experiences with Learning Management Systems in 113 European Institutions. Educational Technology & Society, 6 (4), 134-148, from http://ifets.ieee.org/periodical/6_4/13.pdf

Uzunboylu, H. (2004). The effectiveness of web assisted English language instruction on the achievement and attitude of the students. In P. Kommers & G. Richards (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications* . Chesapeake, VA: AACE, 727-733