

## Open Source Tools in E-Learning

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### Abstract

The use of web based learning management systems is getting pace in the academia in the last few years. The education world is making use of immense features developed and deployed in hundreds of available virtual learning environments. The higher education institutes and universities throughout the globe are giving more emphasis on launching the academic activities using learning management systems. As per the report of Bersin et al. 2009, the LMS (Learning Management System) industry represents an \$860 million market which is made up of more than 60 different providers. Number of packages and software suite are available in the software industry to implement virtual learning in the academia which includes open source as well as licensed software products to be embedded within these products for the delivery and

management of instructor-led synchronous and asynchronous online training based on learning object methodology. This paper typifies the use of web based learning technologies for the enhancement of academic activities in the academia. The paper expresses the study and experiments that can be conducted on an eminent learning management system MOODLE.

*Keywords: E-Learning, LMS, Web Based Learning*

## **Introduction**

The academe all through the orb is making use of the excellent features in virtual learning environments (VLE) and Learning Management Systems (LMS) to intensify the existing system of traditional learning. The LMS products are escalating the development of virtual classrooms, learning environments as well as mobile learning establishments. The academia is focusing on the Anytime-Anywhere-Availability (AAA) rather than classical Chalk and Talk (CAT) theory of faculty members to the learners. The LMS products are replacing the conventional face-to-face classroom teaching and makes use of technology. To achieve this goal, LMS or VLE Products are used in the administration, documentation, tracking, reporting of training programs, classroom events, online events, e-learning programs, and training content. Hundreds of software applications and suite are available in the market which enables the mentors to deploy these features to implement e-learning. MOODLE is one of the e-learning platform or learning management system which is excellent in performance in all parameters.

Till now MOODLE has 36,421,666 users and hosted in 212 countries throughout the global education industry

The Learning Management Systems typically provides a number of features including -

- User Management and Administration

- Lessons Management
- Courses, Curriculum and Categories management
- Files management and Recovery Remedies
- Exam and Quiz builders
- Assignments builders and evaluation modules
- Communication tools (Forum, Chat, Calendar, Glossary)
- Progress tracking and reporting
- Authentication methods
- Enrollment methods
- Certifications and Reports generators
- Extensibility via Modules
- Payments integration (through Paypal and other Payment Gateways)
- Social tools (Lesson & system history, user wall, user status, Facebook interconnection, twitter)
- Customizable notification system through email
- Skins, Themes and Templates

MOODLE also possess several features needed in an enterprise environment:

- Organization structure management
- Skills management
- Job positions management
- Automatic assignment of courses to specific job descriptions
- Skills gap tests management
- User card with training history
- LDAP support

Moreover, developers can broaden Moodle's modular construction by creating plugins for specific new functionality. Moodle's infrastructure supports many types of plug-ins:

- Activities (including word and math games)
- Resource types
- Question types (multiple choice, true and false, fill in the blank, etc)
- Data field types (for the database activity)
- Graphical themes
- Authentication methods (can require username and password accessibility)
- Enrollment methods
- Content filters

Here is the description of major network based learning platforms as well as comparative analysis in terms of performance and accessibility.

## **GLOBAL MARKET AND FUTURE OF E-LEARNING**

As per the report in 2009 by American Society for Training and Development (ASTD), 91 percent of respondents are using LMS's in their organizations. E-Learning is experiencing exceptional growth and will continue to do so for the anticipated future. The analysis and forecast released by research firm Ambient Insight bolstered previous research in this area, showing that electronic learning, by dollar volume, reached \$27.1 billion in 2009 and predicting this figure to be double by 2014, with academic institutions leading the way. As per the reports, "The Worldwide Market for Self-paced e-Learning Products and Services: 2009-2014 Forecast and Analysis," by 2014, e-learning will reach a dollar volume of \$49.6 billion, representing a compound annual growth rate (CAGR) of 12.8 percent over five years. The dollar figures in the research included expenditures in five categories of electronic learning technologies, or "self-

paced e-learning products." These included: packaged content, custom content development services, learning platform and tool hosting services, authoring software and tools, and installed learning platforms.

The educational institutes are searching for a secure platform as well a product with all the features which includes all the components that are required in the academia. These components include Online Exams., Quiz, Forums, Chat, Wiki, Blog, Newsletter, Bulletin Board, Content/Course Management System. Hundreds of e-learning products are available in the global learning industry, but the academic establishments are concentrating on open source technologies because of flexibility and efficiency of these products.

Moodle was developed by Martin Dougiamas as part of his research thesis and to help educators create online courses with a focus on interaction and collaborative construction of content.

**Table 1: Top 5 sites by users**

Site	Users	Courses
Moodle.org	979,328	65
OU online	651,727	5,332
Hocmai.vn - Ngôi trường chung của học trò Việt	573,752	132
MyLinE - Online Resources for Learning in English	204,166	46

Christian Courses	181,457	177
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**Table 2: Top 10 sites by courses**

Site	Users	Courses
VDU Moodle	3,566	59,920
Minha UFMG	62,887	56,385
Universidade Presbiteriana Mackenzie	64,627	26,288
Ming Chuan University portal	66,443	25,119
Concordia Course Web Sites	114,801	24,545

The screenshots of LMS deployment cited here is with reference to the configuration and deployment of a leading Open Source Solution, Moodle™ [Modular Object Oriented Dynamic Learning Environment] in the academic institutions.

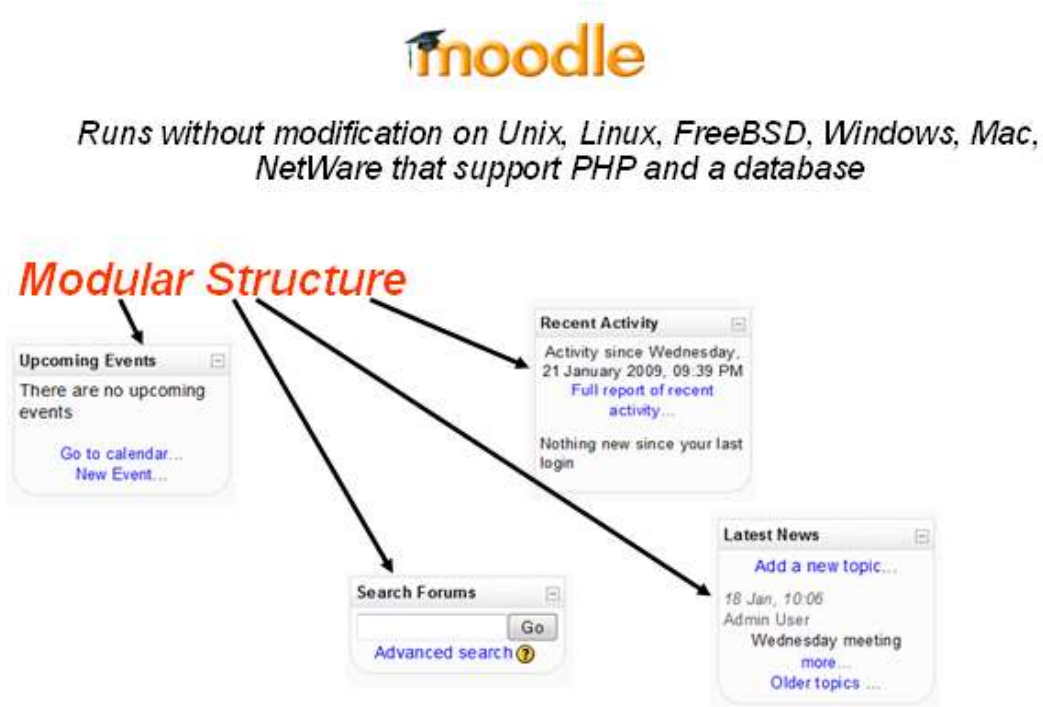


Figure 1: MOODLE LMS

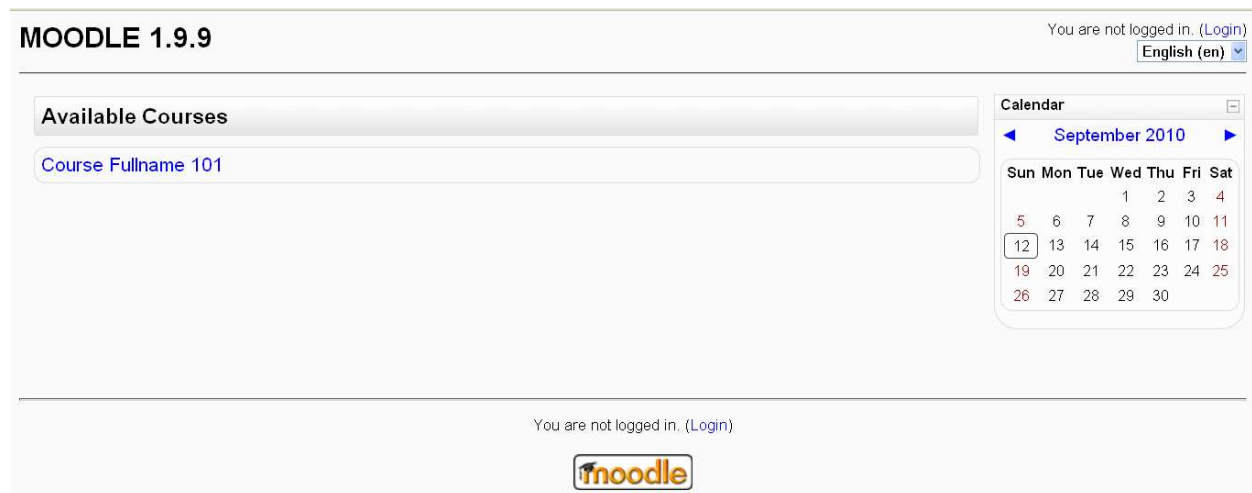


Figure 2: Course Management in MOODLE

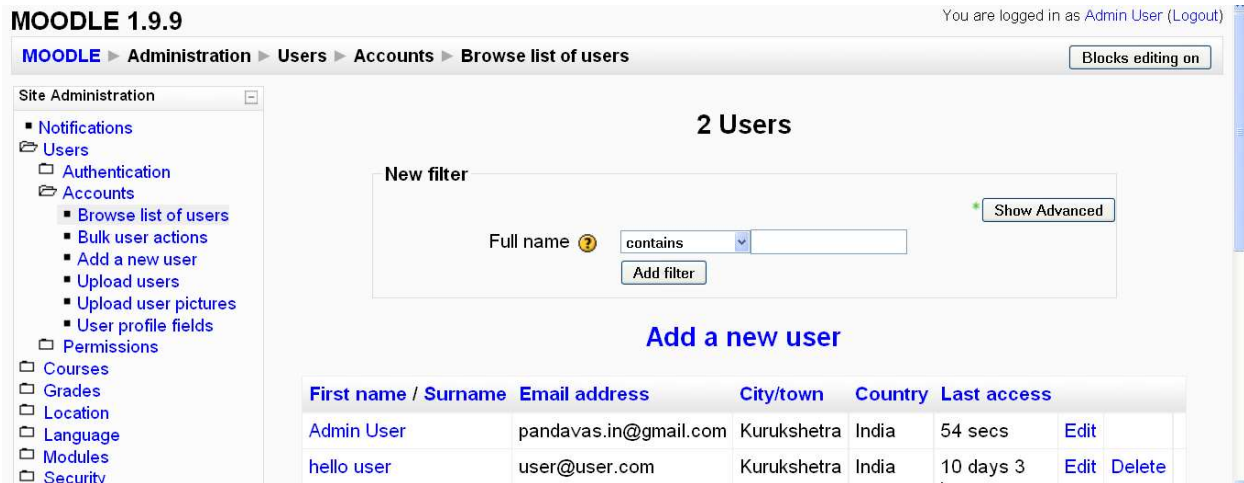


Figure 3: User Management

Moodle has number of excellent features and modules. The Quiz Activity Module in Moodle LMS is one of the modules capable to design and set quizzes consisting of a large variety of question types, including multiple choices, true-false, and short answer questions. The questions are kept in the Question bank and can be re-used in multiple tests. The quiz module can display feedback and scores at different times during the quiz, using the review options.

### Question Import Formats in MOODLE

- GIFT
- Moodle XML
- Aiken
- Blackboard
- Blackboard V6+
- WebCT format

### Conclusion



The learning management systems are having numerous features which are required to deploy the e-learning products and modules in the academic institute. However, hundreds of e-learning software products are available in the software industry, MOODLE is still on top and possess almost every feature which is required in an excellent learning management system. The development, customization, implementation and deployment of open-source software products is a promptly growing route and in the near future, the academe will get great premium from these products.

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