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Résumé de l'article

This report is the second in a two-part series about open source (OSS) and free software (FS) systems in online education. These are rapidly emerging as alternatives to costly proprietary learning management systems (LMS) and content management systems (CMS). This report reviews two LMS systems and one CMS system, all developed on the OSS/ FS principle and available to users free of charge.

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Technical Evaluation Report

25. Open Source Software: Two learning management systems

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Abstract

This report is the second in a two-part series about open source (OSS) and free software (FS) systems in online education. These are rapidly emerging as alternatives to costly proprietary learning management systems (LMS) and content management systems (CMS). This report reviews two LMS systems and one CMS system, all developed on the OSS/ FS principle and available to users free of charge.

Introduction

Mullinix and McCurry (2003) describe the current wide range of faculty experiences with educational technologies. While some teachers develop and use advanced Web-enhanced learning materials effortlessly, others struggle to acquire basic computer literacy skills. Where previously teaching staff were divided in their ability to use word-processors and spreadsheets, today's educators are divided by their ability to create and update their online course materials. Solutions to this problem are rapidly becoming available, e.g., the online "blogging" methods that allow individuals to update educational materials without programming ability (Baggaley, 2003). The online LMS software programs now available have also reduced this gulf of understanding and ability, and are allowing more teachers to explore and experiment with online methods. Morgan (2003) found that faculty members' use of an LMS increased their instructional effectiveness, enhanced their communication with students, and allowed them to restructure their learning activities, thereby improving the pedagogy of their courses. Why then if they enhance learning environments so greatly, do some educators lag far behind in their uses of educational technology?

A major reason for the relatively slow adoption of LMS systems in education is the increasing cost of the software (see Technical Report 24). The current "digital divide" separates not only teachers (and their students), but also higher education institutions. If institutional infrastructures and support for online learning are not available, instructors may be unable to use online methods despite their personal readiness to do so. Many higher education institutions are using proprietary LMS products such as WebCT and BlackBoard, although these may be cost-prohibitive for other institutions. An alternative solution is to be found in the wide and rapidly emerging range of non-proprietary open source (OS) and free software (FS) LMS packages. The Centre for Curriculum, Transfer and Technology's website (www.c2t2.ca/) lists over 40 such packages; and the Edutools website (www.edutools.info/index.jsp) lists others.

The current report reviews two products, *Bazaar* and *Moodle*, both available at no cost under the GNU General Public License. The report also describes *Plone*, an OSS/ FS content management system (CMS) that uses a browser-based principle similar to the increasingly popular "blogging" method. All three products facilitate the creation, submission, and publication of educational content directly to a website, without the need for further development tools nor Hyper Text Markup Language (HTML) skills.

Open Source Learning and Content Management Systems

1) *Bazaar* is an LMS developed at Athabasca University - Canada's Open University. It requires an Apache Web-server and a MySQL database, and uses CPAN Perl modules. Although it has also been tested successfully on other operating systems, it runs in a Linux (Unix) environment. Version 7.05 of the product includes the following resources: a calendar, drop-box for student uploads, file uploads, discussion forum, grade sheet, guest book, HTML page, Internet Relay Chat (IRC) client, journal discussion, poll, quiz, RSS feed, references, search, sign-up sheet, URL, and a user list. Each option is selected from a drop-down menu and added to a "Category" (e.g., a course). Multiple categories can be created, each containing different resources that, in turn, can include other categories. Access to the resources is managed by the instructor, and can be restricted by individual users and user groups, or can be made publicly available.

Each resource presents its own degree of ease of use. Adding a calendar, discussion forum, or drop-box is straightforward. Creating a quiz is time-consuming, and results of completed quizzes are reported in a numeric form that may confuse users. Navigation for learners is straightforward, with a site map providing a global display of all the site's resources. If users forget their passwords, they can obtain replacements via an automated response to an email request. The system requires a site administrator to set up the initial category for each instructor. The site administrator assigns various levels of access and control to the course instructors based on pre-defined roles, and creates groupings of students at the request of instructors. Creating an HTML page presents some difficulty for instructors, especially if images are used. These must be sent to the site administrator for uploading to the Web-server. User documentation is available from the *Bazaar* website. A Frequently Asked Questions (FAQ) site provides user support. There is no help function available within the system itself.

2) *Moodle* is an LMS developed by Martin Dougiamas as a PhD in Education project. It runs in a Linux (Unix) environment supporting the PHP scripting language, and requires a MySQL or PostgreSQL database. Course home pages can be formatted in three ways: weekly, social, or by topic. The weekly format was used for this review of v1.1.1 of the product. Within each week, the course instructor can add activities including: assignments, attendance, chats, choices, dialogues, glossary, journals, quizzes, resources, and a workshop. Course content can be prepared in the form of files uploaded to the server, pages edited directly within the LMS, and external webpages that can be made to appear as part of the course materials. The instructor manages access to the course. Activities are easily created for each week, can be hidden from students until needed, and is supported by help dialogue boxes. Documents created in word-processing software can be pasted into the activity option as HTML text, maintaining their formatted features. Activities requiring text use a Rich Text HTML editor to provide a word-processor interface that includes formatting, insertion of images, tables, links, and emoticons. Chat, quizzes, and survey activities are also easily created.

Moodle is based on the philosophy of maximum instructor control and minimal administrator control. After the initial setup and creation of the course area, the instructor manages its materials with minimal (if any) assistance by the administrator. Course pages and other files

can be published directly from within the system, giving the instructor greater control. The *Moodle* website contains administrative documentation, a teacher's manual, and documentation created by other users. Other resources include a vibrant user's group FAQ. For the benefit of users and institutions that lack the server and support infrastructure to host their own online materials, a *Moodle* hosting service is available at a reasonable price.

3) *Plone* is a content management system (CMS) dedicated to browser-based document publishing and updating functions. It utilizes the OSS application server Zope and its accompanying Content Management Framework, which its developers describe as delivering "a powerful, tailored CMS in a fraction of the time of big vendors." *Plone's* potential in online education is that this tool allows instructors to format and publish their course materials without the need for Web programming skills. It has an easy-to-use interface, and utilizes style sheets to unify the "look and feel" of course websites with minimal effort on the teacher's part. Once a course account has been created (usually by a site administrator), teachers can use the software without further assistance. Although focusing on document management rather than the more varied activities of LMS systems such as *Bazaar* and *Moodle, Plone* can also serve as a useful collaborative tool between remote project partners.

Conclusion

Proprietary software is not the only available option for quality online course management. A healthy OSS/ FS movement has emerged, providing no-cost products that are as good as or even better than proprietary, commercial products. The open availability of an OSS/ FS product's source code makes it more flexible and customizable than typical proprietary software. Based on the current evaluation, the author is recommending the use of *Moodle* within his College campus. Its appealing visual design, the ease and intuitive feel with which online activities can be added, the online help and support provided by the documentation and user groups make this a superior and user-friendly LMS. It is hoped that this recommendation will assist in the development of a structured, supportive, and relatively cost-free environment at the College, in which instructors can experiment with learning technology, and can enhance their teaching activities for the student's benefit. A tool such as *Plone*, serving restricted CMS needs, may also be useful in this context in that it can be used by novice website builders for the major functions of online publishing, without the potential distractions of more elaborate LMS systems.

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N.B. Owing to the speed with which Web addresses are changed, the online references cited in this report may be outdated. They can be checked at the Athabasca University software evaluation site: http://cde.athabascau.ca/softeval/. Italicised product names in this report are assumed to be registered trademarks.

JPB. Technical Notes, Series Editor

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