

Chapter XLIX

Open Source

E-Learning Systems: Evaluation of Features and Functionality

Phillip Olla

Madonna University, USA

ABSTRACT

E-learning applications are becoming commonplace in most higher education institutions, and some institutions have implemented open source applications such as course management systems and electronic portfolios. These e-learning applications initiatives are the first step to moving away from proprietary software such as Blackboard and WEBCT toward open source. With open source, higher education institutions can easily and freely audit their systems. This chapter presents evaluation criteria that was used by a higher education institution to evaluate an open source e-learning system.

INTRODUCTION

Techniques for delivering educational material are constantly evolving to keep pace with new technologies and society habits. Educational content can be created in a variety of formats, such as video, online courses, telecourses, and podcasts, which are just a few of the alternatives to the traditional brick-and-mortar classroom environment. These alternative formats are creating a paradigm shift that is exemplified by the term *e-learning*, which is sometimes called online education or distance learning. The growth in e-learning is compounded by the confluence of Web-based technologies, advances in digital

storage, processing and media, and the ongoing boutique approach to software development. This convergence of technologies facilitates education and learning that become ubiquitous and more engaging for both students and educators (Koochang & Harman 2005). E-learning relates to all activities relevant to instructing, teaching, and learning using various types of electronic media. The electronic delivery conduit could be the Internet, intranets, extranets, satellite TV, video/audiotape, and/or CD-ROM.

There is a variety of software applications and platforms that can be used for e-learning. They are defined using a variety of terms, including educational knowledge portal (EKP), learning

management systems (LMS), virtual learning environments (VLE), education via computer-mediated communication (CMC) or online education. They might also be called a managed learning environment (MLE), learning support system (LSS), or learning platform (LP). This chapter presents a list of criteria that need to be considered when an organization is considering the implementation of an e-learning system.

E-learning applications are expected to reduce institutional expenses and increase institutional revenues (Harvey, 2004; Moallem, 2004; Porter, 2003). Some higher education institutions are considering the use of open source e-learning applications. Open source software products are freely available for delivering education online (Coppola & Neelley, 2004). Siemens (2003) proposes that the benefits of using an open source model are increased quality, greater stability, superior performance, improved functionality, reduced vendor reliance, reusability, reduced costs, auditability, reliability, and quick bug fixes.

This chapter is structured as follows: The first section provides an introduction to open source software (OSS), followed by an overview of the features and functionality that can be incorporated in any e-learning system. This is followed by evaluation criteria that can be used to evaluate open source e-learning systems.

BACKGROUND

Open Source E-Learning Software

There are various interpretations of OSS (Fuggetta, 2003); however, generally open source refers to a software's source code that is freely available to anyone who wishes to extend, modify, and improve the code. Examples of open source projects include Linux (<http://www.linux.org>), Apache (<http://www.apache.org>), Mozilla (<http://www.mozilla.org>), and OpenOffice ([\[openoffice.org\]\(http://openoffice.org\)\) \(Koohang & Harman, 2005\). The GNU project \(<http://www.gnu.org>\) defines free software as "a matter of the users' freedom to run, copy, distribute, study, change and improve the software." There are four elements that are emphasized by the GNU: \(1\) the freedom to run the program for any purpose, \(2\) the freedom to study how the program works and adapt it to your needs, \(3\) the freedom to redistribute copies, \(4\) the freedom to improve the program and release your improvements to the public so the whole community benefits \(freedom 3\). The open source model encompasses a set of principles and values that ensures the integrity of OSS. One of the prominent organizations that advocates open source projects is the Open Source Initiative \(OSI\) \(<http://www.opensource.org>\). OSI is a not-for-profit organization that recommends the following 10 guiding rules that are widely accepted by the open source community:](http://www.</p></div><div data-bbox=)

1. Free redistribution
2. Source code must be included
3. Derived works; allow modifications
4. Integrity of the author's source code
5. No discrimination against persons or groups
6. No discrimination against fields of endeavor
7. Distribution of license
8. License must not be specific to a product
9. License must not restrict other software
10. License must be technology-neutral

E-learning applications are becoming commonplace in most higher education institutions, and some have implemented open source applications such as course management systems and electronic portfolios. These e-learning applications initiatives are the first step to moving away from proprietary software toward open source. With open source, higher education institutions can easily and freely audit their systems. There is a view that open source systems are open and

9 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/open-source-learning-systems/21222

Related Content

A Multi-Step Process Towards Integrating Free and Open Source Software in Engineering Education

K.G. Srinivasa, Ganesh Chandra Dekaand Krishnaraj P.M. (2021). *Research Anthology on Usage and Development of Open Source Software* (pp. 389-397).

www.irma-international.org/chapter/a-multi-step-process-towards-integrating-free-and-open-source-software-in-engineering-education/286584

Optimization Driven Constraints Handling in Combinatorial Interaction Testing

Ram Goudaand Chandraprakash V. (2019). *International Journal of Open Source Software and Processes* (pp. 19-37).

www.irma-international.org/article/optimization-driven-constraints-handling-in-combinatorial-interaction-testing/238008

Code Clone Detection Using Machine Learning Techniques: A Systematic Literature Review

Amandeep Kaur, Sandeep Sharmaand Munish Saini (2020). *International Journal of Open Source Software and Processes* (pp. 49-75).

www.irma-international.org/article/code-clone-detection-using-machine-learning-techniques/260973

Data Mining User Activity in Free and Open Source Software (FOSS)/ Open Learning Management Systems

Owen McGrath (2011). *Free and Open Source Software for E-Learning: Issues, Successes and Challenges* (pp. 120-131).

www.irma-international.org/chapter/data-mining-user-activity-free/46311

Open Educational Resources in E-Learning: Standards and Environment

Ricardo J. Rejas-Muslera, Alvaro J. García-Tejedorand Olga Peñalba Rodriguez (2010). *International Journal of Open Source Software and Processes* (pp. 1-12).

www.irma-international.org/article/open-educational-resources-learning/53874