Running head: LMS PROPOSAL FOR MOODLE

Moodle as a Viable Solution:

A Learning Management System (LMS) Selection Proposal

Diana Bang

The University of British Columbia

Preface

This LMS selection proposal is for the Co-Chairs of the Saskatchewan Health Information Resources Partnership (SHIRP), a key decision-maker in funding and providing access to the health region library's electronic resources. One of SHIRP's mandates includes the greater integration of technology in education, practice, and research to inform purchasing decisions of resources and services. Thus, I propose that Moodle is hosted by SHIRP's web server in order to fully implement an accessible, province-wide e-learning library resource for all healthcare practitioners in Saskatchewan. It will provide on-demand library training sessions for busy clinicians who are unable to attend in-person and address their learning needs particularly for those in rural locations. As part of an e-learning initiative, it is imperative that libraries offer choices and flexibility for independent and group learning opportunities. The addition of Moodle would help develop a blended learning environment by complementing the existing suite of face-to-face instruction with self-directed modules and has the potential for complete e-learning library service delivery in the future.

What is Moodle?

Moodle, an acronym for Modular Object-Oriented Dynamic Learning Environment is a popular open source LMS designed for educators to create dynamic online courses (Moodle, 2011). It is the leading open source LMS used by North American and European universities (Beatty & Ulasewicz, 2006), and there are currently 53,891 active registered sites from 211 countries with 86 language packs available for download (Moodle, 2011). Martin Dougiamas developed Moodle with constructivist learning principles, social networking and the needs of students and educators in mind (UBC Wiki, 2011). Thus, Moodle is well-suited with Web 2.0 features.

Why Moodle is the Solution

Moodle is multifunctional and its interactive features are conducive to e-learning, making it a superior alternative to traditional library resource guides. Rhodes (1999) & Wheeler (2006) state that as educational institutions increasingly utilize IT infrastructure they face mounting financial constraints due to base licensing fees, training and support required for application software (as cited in Pan & Bonk, 2007). Therefore, an open source solution is evident. Unlike proprietary LMSs, Moodle can be freely downloaded, modified, and distributed under the General Public License all without a licensing fee (Pan & Bonk, 2007). Furthermore, Moodle works without modification on any system that supports PHP including most web host providers (Moodle, 2011). Data is stored in a single database: MySQL and PostgreSQL are optimally supported, but can be used with Access, Interbase, ODBC, and Oracle (Moodle, 2011). Weber (2003) acknowledges that "as an open source product, Moodle is flexible in its customizations and its use is only limited by the knowledge, learning, resources, and innovative spirit of its users rather than by the proprietary rights of vendors" (as cited in Elias, 2010, p.114).

A significant advantage of Moodle over its leading competitors is their foundation in social constructivist pedagogy embedded in its features to support student learning (Moodle, 2011). Hartley & Fallon (2005) surveyed IT executives from 52 colleges and universities, and found that pricing and scalability were crucial factors in their

institutional LMS purchasing decisions as all were dissatisfied with the escalating cost of proprietary LMSs (as cited in Pan & Bonk, 2007). Also, with the rise of handheld PDA usage by healthcare practitioners, Moodle can be customized to address mobile learning needs. Koole et al. (2010) examined the usability, learning and social interaction of students' mobile access to Moodle course materials using a system called MobiGlam. Learners accessed their course notes and reference materials wherever they were. This example illustrates how m-learning can significantly amplify the prospects of using Moodle as part of an overall e-learning strategy.

Evaluation Method for LMS Selection

The selection of Moodle compared to other LMSs were based on an adapted course rubric from Bates & Poole's (2003) SECTIONS framework (see Appendix A, Table 1), Chickering and Ehrmann's (1996) seven principles of implementing technology as a lever, and Edutools (2011) LMS product comparison and summative decision tools. Another valuable tool was Fetaji & Fetaji's (2009) standardized e-learning indicators used to evaluate different e-learning platforms and inform successful planning. Their research also conveyed the need for close correlation of software development and e-learning pedagogy which confirmed Moodle was the most viable solution.

As part of the initial testing phase, I developed a sample webpage and discussion forum in Moodle accessed via UBC's course site. The discussion thread's functionality was examined by posting a reply and I navigated the layouts using both UBC and Moodle's demo sites. Overall, the instructor interface was intuitive and easy to use in Moodle. One of the preferred differences between Moodle and Blackboard in terms of ease of use was the system interface which was far more superior as it could be easily modified for visual learners (Beatty & Ulasewicz, 2006).

To highlight, Moodle's cost-free, open source nature was preferred and in regards to speed, it was the clear winner over commercial systems as it enables developers from around the world to fix issues and build new components without waiting for a full release of changes. It is also possible to enlist the support of students with programming skills to help in the development without a significant cost. Although some technical proficiency with html coding is required this can be alleviated through IT support and a growing online community.

Resources Required for Moodle Implementation

Implementing Moodle will involve the collaboration of stakeholders, system administration, and long-term sustainability efforts including:

- IT support for installation, administration and troubleshooting
- Time commitment from librarians to develop content for modules
- Training and testing
- Partnerships/funding from SHIRP, health regions and other key stakeholders
- Assistance from instructional designers

Conclusion

Overall, it is easy to understand why Moodle is the most viable solution for SHIRP to implement a province-wide, accessible e-learning library resource for all healthcare practitioners. It will address the e-learning needs of clinicians by offering greater flexibility and choices for self-directed learning opportunities. Developing a blended learning environment is within reach and ultimately could lead to the future implementation of complete e-learning and m-learning library service delivery solutions.

References

Anderson, T. (2008). Teaching in an online learning context. In T. Anderson & F. Elloumi (Eds.), *Theory and practice of online learning,* (pp. 271-294). Edmonton, AB: Athabasca University.

Bates, A.W. & Poole, G. (2003). Chapter 4: A framework for selecting and using technology. In *Effective teaching with technology in higher education: Foundations for success* (pp. 77-105). San Francisco: Jossey Bass Publishers.

Beatty, B., & Ulasewicz, C. (2006). Faculty perspectives on moving from Blackboard to the Moodle learning management system. *TechTrends: Linking Research and Practice to Improve Learning, 50*(4), 36-45.

Bradford, P., Porciello, M., Balkon, N., & Backus, D. (2007). The Blackboard learning system: The be all and end all in educational instruction? *Journal of Educational Technology Systems, 35*(3), 301-314.

EduTools. (2011). CMS: Product comparison system. Retrieved June 9, 2011 from http://www.edutools.info/compare.jsp?pj=4&i=599,616,621,625

Elias, T. (2010). Universal instructional design principles for Moodle. *International Review of Research in Open and Distance Learning, 11*(2), 110-124.

Fetaji, B., & Fetaji, M. (2009). E-learning indicators: A multi-dimensional model for planning and evaluating e-learning software solutions. *Electronic Journal of e-Learning, 7*(1), 1-28.

Gibbs, G. & Simpson, C. (2005). Conditions under which assessment supports students' learning. *Learning and Teaching in Higher Education, 1*(1), 3-31.

Jensen, L. A. (2010). Extend instruction outside the classroom: Take advantage of your learning management system. *Computers in Libraries, 30*(6), 76-78.

Jonassen, D. (1999). Designing constructivist learning environments. In C. Reigeluth (Ed.), *Instructional design theories and models: Volume II*. Mahwah, NJ: Lawrence Erlbaum.

Koole, M., McQuilkin, J. L., & Ally, M. (2010). Mobile learning in distance education: Utility or futility? *Journal of Distance Education, 24*(2), 59-82.

McGreal, R., & Elliott, M. (2008). Technologies of online learning (e-learning). In T. Anderson & F. Elloumi (Eds.), *Theory and practice of online learning,* (pp. 115-135). Edmonton, AB: Athabasca University.

Moodle. (2011). *About Moodle*. Retrieved from http://moodle.org/about/

Moodle. (2011). *Language packs*. Retrieved from http://download.moodle.org/lang16/

Moodle. (2011). *Registered Moodle sites*. Retrieved from http://moodle.org/sites/

Open Source Initiative. (n.d.). *Mission*. Retrieved from http://www.opensource.org/

Pan, G., & Bonk, C. J. (2007). The emergence of open-source software in North America. *International Review of Research in Open and Distance Learning, 8*(3), 1-17.

Panettieri, J. (2007). Addition by subtraction. *University Business, August,* 58-62. Retrieved from http://www.universitybusiness.com/viewarticle.aspx?articleid=845

Perkins, M., & Pfaffman, J. (2006). Using a course management system to improve classroom communication. *Science Teacher, 73*(7), 33-37.

UBC Wiki. (2011). *Moodle*. Retrieved from http://wiki.ubc.ca/moodle

Table 1: Detailed Evaluation Rubric for the Selection of a Learning Management System*

*(adapted from ETEC 565A group assignment by Alison Baillie, Diana Bang, Leslie Dawes, Kirklan Lum, Deborah Schell)

Name of LMS Evaluated: *Moodle*			Date: June 7, 2011		
Criteria based on SECTIONS framework by Bates and Poole (2003)	**Does Not Meet Expectations (1)**	**Meets Expectations (2)**	**Exceeds Expectations (3)**	**Score (1-3) or N/A**	**Additional Comments**
(S) Students	Students are unable to access the site 24/7 due limited connectivity.	Students have access most of the time and elements account for some differences in student demographics and language.	Students have access 24/7, can work completely independently, all elements account for differences in student demographics.	3	Students can access the course site 24/7 via the Internet. Moodle is designed with constructivist principles in mind to meet students' diverse needs.
(E) Ease of Use and Reliability	Restrictions on access to information, e.g. frequent crashes, LMS rarely available. Upgrades are frequently required for both administrators and users.	Time investments in technology are needed to understand the affordances. Upgrades are occasionally required for both administrators and users.	Students have unlimited access to all information without restrictions. Upgrades are rarely required for both administrators and users.	2	Interface is easy-to-use as it showed the instructor what the student would see in addition to a common set of editing tools Moodle works without modification on any system that supports PHP including most web host providers.
(C) Costs	Cost per student is too high.	Usage costs are reasonable and per student ratio is manageable.	Is cost effective.	3	No cost for use, licensing fees, training, and support.

Criteria based on SECTIONS framework by Bates and Poole (2003)	Does Not Meet Expectations (1)	Meets Expectations (2)	Exceeds Expectations (3)	Score (1-3) or N/A	Additional Comments
(T) Teaching and Learning	One-shot instructional sessions cannot be used as an assessment tool.	Assessment methods could permit use of one-shot instructional sessions.	Assessment methods would permit use of one-shot instructional sessions.	3	One-shot instructional sessions or full-length courses can be created and information can be organized to include links to catalogues, search strategies, tutorials, etc.
(I) Interaction and Interactivity	Materials are completely static, e.g. students are only able to download and read.	Dynamic materials, such as videos and audio, but few opportunities to interact with other students.	Offers tools such as automated feedback, discussion boards, and software to simulate manipulation of problems.	3	Calendar, quizzes, announcements, chat widgets, RSS feeds, and discussion forums can be used. Customized content is available as assignments can be uploaded, and linked to instructional videos.
(O) Organizational Issues	Technical assistance to support users is not available when needed.	Technical assistance to support users is partially available when needed.	Technical assistance to support users is readily available when needed.	3	Moodle's online community provides support and technical assistance can be sought from the IT department.
(N) Novelty	Program does not appeal to learners and is out dated. Program is new and has not been tested.	The program appeals to learners. The program is fairly current.	Program is appealing, engages and motivates students. The program is current and in demand.	3	It is the leading open source LMS used by North American and European universities (with more planning to convert from proprietary LMSs).
(S) Speed	Technology makes it difficult to update course materials for changes.	Technology is somewhat flexible when updating course materials for changes.	Technology allows the flexibility to update course materials easily to incorporate changes.	3	Developers can fix issues and build new components without waiting for a full release of changes.
			Total Score =	**23**	Moodle is a viable solution.