Chapter XIII
Choosing MOODLE:
An Evaluation of Learning Management Systems at Athabasca

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ABSTRACT

Athabasca University—Canada's Open University evaluated learning management systems (LMS) for use by the university. Evaluative criteria were developed in order to ensure that different platforms were tested against weighted criteria representing the needs of the university. Three LMSs (WebCt, LotusNotes, and Moodle) were selected for the evaluation. Moodle was chosen with 11 first place ratings and with only one third place rating. Lotus Notes was second with five first place ratings. Moodle garnered 40% of the total weighted score with Lotus Notes getting 32%, and WebCT 29%. The first place preferences within individual criteria show the following: WebCT 6; LotusNotes 7; and Moodle 58.

INTRODUCTION

At Athabasca University (AU), a learning management system (LMS) committee was struck to report to the Academic Council composed of up to 30 faculty and staff members. The LMS committee discussed strategies for making the transition to a single learning management system as was identified in the AU Strategic University Plan (SUP) (Athabasca University, 2002 #1). In

the AU SUP developed in 2002, the university community decided that the future development of the university's learning systems required the adoption of a single learning management system. Three LMSs were proposed for evaluation, *WebCT*, *Lotus Notes,* and *Moodle*. *WebCT* was being used by faculty in the Centre for Nursing and Health Studies and in the Master of Distance Education programs. *Lotus Notes* was being used in two different formats, by the School of Business and the Centre for Innovation and Management. Another LMS, *Bazaar*, which was developed at AU and was being used by smaller groups in the Master of Arts in Integrated Studies program, was not considered, as it did not garner significant support for continuation among faculty.

The final evaluation of these LMSs was conducted through a rating system. This rating system was based on different criteria, including the university's mandate as an open distance learning institution, systems administration, initial and ongoing costs, instructional design features, and the teaching and learning tools available.

Mandate

The chosen LMS would need to accommodate the unique nature of AU's mandate as an open distance education institution. In choosing an LMS, the evaluation committee members considered the need for:

- Flexibility in start and end dates for students enrolling in courses
- Support for paced and individualized study courses
- Affordability for students
- Accessibility for students with disabilities
- Access at different connection speeds (dial-up vs. high speed)

Systems Administration

Systems administration features had to facilitate:

- Integration with current registration procedures
- Single sign on capabilities and compatibility with current authentication systems
- Flexible administration across centres and programs
- Secure access, authorization, and virus protection
- Interoperability using SCORM, IEEE LOM, and CanCore

Cost

The price tag for the system chosen was an important consideration, and included:

- Licensing fees
- Hardware and software costs
- Costs related to integration with the Banner registration system
- Cost of ongoing support (external and in-house)
- Staff training costs

Instructional Design

Most of the criteria listed under this category in the Appendices tables are self explanatory. Some require further explanation:

- *Granularity* refers to the LMS's capacity to separate content from presentation so that the content can be reused or redirected, accommodating content delivery on a variety of devices, including mobile devices and sharing learning objects across courses.
- *Templates and modularization* refers to the LMS's capacity for customizing the

look and feel of different AU Centres and programs.

- *Student Experience* refers to the intuitive logical layout in the LMS from the students' point of view, if it supports standard Web browsing, multiple platforms, systems, low bandwidth, and Java.

Teaching and Learning Tools

Criteria in this table are self-explanatory. For example, researchers evaluated whether or not the LMS had a workable assignment drop box, or whether or not it could accommodate XML and mobile device delivery. The testers also determined if the LMS had course authoring tools to create effective online quizzes or could display correct mathematical notation. Please see the tables in the Appendix for a complete list of criteria.

METHODOLOGY

Fourteen individual survey forms and two written submissions were used in the evaluation. Most of the forms were completed in their entirety, while some evaluators only completed the sections they felt comfortable with. Forms were sent out to all faculty who expressed an interest in the evaluation process, and 17 completed forms were returned

Data was submitted for evaluation using a standard Excel spreadsheet. The spreadsheet allowed the evaluator to enter a priority value, which was used to weight the rating for each criterion. The spreadsheet was used to total the computed values for each submission in a summary table. In cases where a zero was entered, this was removed. In all cases, an evaluation had to rate the three platforms for each criterion. If all three were not evaluated, a value of zero was given for that particular criterion.

In order to ensure that the evaluations were rated on a consistent weighting scale, the submissions were averaged. This was done by taking the values from each evaluator's priority column and placing them into the criteria weighting average table. A mean average value was then computed for each criterion labeled the average weighting index (AWE). This AWE was applied to each evaluator's individual platform rating scores, removing the potential for bias to the rating scores from a consistently high weighting by any particular evaluator. It further allows a determination of the criteria that are considered most important to the decision.

The AWE was placed into the Criteria Totals sheet in the formerly labeled priority column. The values for each criterion rating under each platform were compiled as a summation of all the rating values submitted by the evaluators.

1. The summed value was multiplied by the AWE to yield a weighted score for each criterion under each platform.
2. These weighted scores were then added up in their respective categories to give the total category weighted score for the respective platform.
3. The category scores were then added up to yield a total platform weighted score.

RESULTS

The LMS Place Preference table shows the evaluators' choices either from their numeric or their written submissions. The overwhelming choice was Moodle with 11 first place ratings and with only one third place rating from any of the evaluators. Lotus Notes was second with five first place ratings.

The criteria totals table presents the final results. Reflecting the place preferences, Moodle is clearly the group's preferred choice. Moodle

garnered 40% of the total weighted score, with Lotus Notes getting 32% and WebCT 29%. The first place preferences within individual criteria show the following:

WebCT	Notes	Moodle
6	7	58

CONCLUSION

Moodle has been selected by the group as the best choice for AU with a clear and unambiguous majority. It should be noted, however, that the characteristics of the testing group are nonrandom. Not all of the constituencies were equally represented and some, in fact, were over represented. Although, as a group, the sample of testers may be technologically adroit, they also bring biases and preferences to the testing arena, as a result of their background, that are likely reflected in the data. This may in-part explain some surprises in relation to individual criteria ratings. Nonetheless, the strength of preference of the committee for Moodle would indicate that such biases did not determine the final evaluation results and that a broad consensus was reached with regard to the selection of Moodle.

Moodle Next Steps

In order for Moodle to be implemented effectively at AU, it ought to be introduced within a controlled and coherent framework. An operating team should be established and charged with the development and implementation of a plan to commission and operate Moodle. Moodle will affect a broad range of university groups:

- Students
- Help-desk analysts/Call Centre analysts
- Tutors/coaches
- Course coordinators
- Course administrators
- Faculty
- Course producers
- Course designers
- Course materials providers
- Instructional designers
- System administration
- ITS infrastructural administration

There are also a significant number of tasks to be completed:

Commissioning
- Security
- System availability
- Authentication
- Version control
- System architecture
- Application configuration

Conversion
- Existing online courses
- Existing off-line courses

Training
- Tutors
- Help desk
- Faculty
- Designers
- System administrators

Presentation Framework
- Interface design
- Customising
- Templates
- Accessibility standards

Human Resources
- Training
- Workload assignments

Communication
1. Reporting
2. Informing

Research and Development

1. Test environment
2. Piloting methodology
3. Test procedures
4. Programming standards
5. Commissioning and upgrade procedures

REFERENCES

Selected references the group used during the LMS evaluation:

Commonwealth of Learning LMS Open Source Report. (2003, June). Retrieved March 8, 2007, from http://www.col.org/Consultancies/03LMSOpenSource.pdf

Earnshaw, A.C. *Why do large IT projects* Fail? Retrieved March 8, 2007, from http://www.infoms.com/wp-large.htm

E-learning Accelerator Online Course Inventory List. Retrieved March 8, 2007, from http://intra.athabascau.ca/discussion/accelerator/

Western Consortium for Educational Technology (WCET) LMS Comparison Web site. Retrieved March 8, 2007, from http://www.edutools.info/course/compare/compare.jsp?product=142,176,235

Web Sites about Moodle

A list of articles about Moodle:

http://moodle.org/mod/resource/view.php?id=102/
Humboldt State University Web site Moodle introduction:
http://learn.humboldt.edu/login/index.php
A Blackboard Moodle comparison:
http://www.humboldt.edu/~jdv1/moodle/all.htm
Lotus
Basic corporate page:
http://www-306.ibm.com/software/lotus/
School of Business demo page:
http://sb.athabascau.ca/course/demo.nsf

WebCT VISTA (note, at AU, we currently use the CE version)

Main corporate Web page:
http://www.webct.com/

APPENDIX A. LMS EVALUATION PROVISIONAL RESULTS

Results

For presentation purposes, the identity of the evaluators as it relates to the weighting index have not been included. The development of the average weighting index (AWE) was an open and collaborative exercise allowing transparency in developing a metric for determining the university's needs as they relate to an LMS. Individual criteria rating preferences have been withheld, as they are believed to be representations of a personal viewpoint and are private to each evaluator.

The LMS place preference table shows the choices of the evaluators either from their numeric or their written submissions. The overwhelming choice of the evaluators was Moodle, with 11 first places and never lower than a second place rating from any of the evaluators. Lotus Notes was second with five first places.

The criteria weighting average table shows the calculation of the AWE. As stated above, the AWE is a mean average of all the submitted values for each criterion. The AWE values are in bold, while values of 9 and above have also been highlighted, indicating the criteria of most concern to the group. The high proportion of 9 values in the Systems Administration and Mandate indicate common views on the importance of these criteria. The lower AWE values in the Instructional Design and the Teaching and Learning demonstrate a broader range of opinion on the value of each of the criteria.

The potential weight figure is the maximum value the category could obtain if all categories were valued at 10. This is to indicate the relative importance the survey form gives to each category. The actual weight for the category is the realized weighted value for the category after the evaluator's submissions. The highest actual potential was the Mandate, while Teaching and Learning and Instructional Design were the two lowest.

The criteria totals table presents the final results. The values under each platform have been calculated as stated above. Reflecting the place preferences, Moodle is clearly the preferred choice of the group. Moodle garnered 40% of the total weighted score, with Lotus Notes getting 32% and WebCT 29%.

The first place preferences within individual criteria show the following:

WebCT	Notes	Moodle
6	7	59

Moodle was overwhelmingly seen to provide the best fit for these.

The percentage value to the right of the total weighted score column represents the final proportion of the weighted ratings that were attributed to the respective category. For example, 6% of all scores were attributed to the Mandate category. This can be taken to mean that of the total consideration given to the acceptance of a new LMS, 6% was based on our mandate. Given this, the 41% attributed to teaching and learning would seem appropriate, as it represents the highest category on which the evaluation is based.

The percentage values to the right of each of the LMS totals shows the proportion of the total weighted score gained by the respective platform. Thus, Moodle attained 44% of all scores for the Mandate category. Moodle achieved a higher share in all categories, resulting in a total of 40% of the total weighted

scores. Interestingly, the lowest value for Moodle was 37% in the Teaching and Learning category. This may again reflect the divergence of opinion on requirements and capabilities within this category.

Decision

Moodle has been selected by the group with a clear and unambiguous majority. It has apparently been seen to offer the best choice among the three options. While there are some surprises in relation to individual criteria ratings, there can be little doubt that there is a consensus in regard to the selection of Moodle.

This work was previously published in International Journal of Distance Education Technologies, Vol. 5, Issue 3, edited by S. Chang and T. Shih, pp. 1-7, copyright 2007 by IGI Publishing (an imprint of IGI Global).