LMS Discovery Sub-Committee Report

Introduction

The Academic Technology Advisory Committee (ATAC) met for its first meeting on January 24, 2012. A key initiative was presented to the ATAC membership by Mr. Anwar Karim, CIO, in keeping with President Jones’ vision: the consideration of the potential of a strategic move to an open source, in-house learning management system (LMS) solution. Committee members were asked to consider the following statement:

*There is a competitive advantage of having control over the strategic direction/development of our LMS solution based on an open source platform.*

Following open discussions, the ATAC members were unanimous in support of pursuing an open source platform investigation.

Full discovery will include information from three sources:

1) the development of a sub-committee to investigate functionality,
2) technical validation by the Director of Application Solutions, and
3) financial modeling by the CIO.

LMS Sub-Committee Formation

The LMS Discovery Sub-Committee was formed to consider and recommend LMS functionality. ATAC members were given opportunity to serve on the sub-committee and/or to recommend additional members. The following individuals agreed to serve:

Julie McElhany, (ATAC Member), Chair  
Bob Folden (ATAC Member)  
Robin Reid (ATAC Member)  
Adam Haney (ATAC Member)  
Dongwon Choi (ATAC Member)  
Stephanie Pinckard  
Melinda Schlager

LMS Discovery Process

The LMS Discovery Sub-Committee met regularly over a three month period to develop a functionality document containing key components/functions they deemed important in an LMS in order to investigate if the same functionality was available in open source solutions.
Ray Buehne, Director of Application Solutions, also attended these meetings in that he would report his findings on the technical considerations. In addition, information generated by surveys of faculty (Appendix A) and Student Senate members (Appendix B) concerning the functionalities they wished to see in an LMS was considered.

The sub-committee began by considering the functionality available in the current LMS used by the university—Pearson Learning Studio (eCollege). A document was prepared by the sub-committee to outline the functionality considered important. The document was structured based on a three-year time frame for considered roll-out of desired functionality should the decision to move to an open source solution be confirmed. Functionalities not available in the current LMS were added to the document (generated by the sub-committee and drawn from the surveys distributed to faculty and Student Senate members) (See Appendix C).

Then, the sub-committee evaluated the two largest open source options, Moodle and Sakai, against the functionality list that was generated. Moodle and Sakai are the two best established sources, each with established communities, strong forums, and histories of development. While other open source options exist, they are smaller, newer, and lack an established history of development.

The sub-committee members independently reviewed both Moodle and Sakai materials in preparation of the functionality document and in preparation to participate in reviews hosted by universities using these two open source solutions (See Appendix C).

The sub-committee members each used the functionality document as a checklist of available functionality when attending the Moodle and Sakai reviews. The Moodle review and open-question session was hosted by Our Lady of the Lake College, Baton Rouge, Louisiana. The Sakai review and open-question session was hosted by Chadron State College, Chadron, Nebraska.

The sub-committee met following each review to consolidate their independent checklists into a master document (See Appendix C). Additionally, following each review session/demonstration, the sub-committee members were asked to submit their comments regarding the open source solution. A summary of those comments are included in this report.

The sub-committee members met to review and discuss their findings and to draft their formal recommendation for presentation to ATAC. The findings and recommendation are included in this report.
Findings - Functionality

MOODLE

The primary areas (from the master document) that the sub-committee evaluated in Moodle included:

Content
Assignments
Exams
Communication Tools and Threaded Discussions
Gradebook
ADA Compliance

The demonstration showed that Moodle provided most of the capabilities identified by the LMS Discovery Committee as needed in the first year of use.

PROS

Moodle's functionality off the shelf includes many of our year 1, 2, and 3 items without too much customization or add-ons, including:

Content

1) Ability to link to various types of multi-media
2) Ability to create unique course designs

Assignments, Exams, Threaded Discussions

Fine granular control of functionality by faculty.

1) Ability to link to rubrics while grading
2) Direct editing of work in the platform rather than having to download assignments to grade
3) Ability to integrate test banks, randomization of test questions, varied exam types.
4) Usable and customizable threaded discussion formats that have good qualities of the existing online forums and social networking spaces that are familiar for both students and faculty.

Communication Tools

Has a built in messaging system for class announcements.

Gradebook
1) Flexible Gradebook features, including the ability to access rubrics by faculty and students.
2) Will drop lowest score in grade category
3) Options for faculty to be able to assign group participation and or discussion grades

**ADA Compliance**

Moodle has a standard statement that it is ADA Compliant, but it is not elaborated and seems to cover minimum required by law.

**Miscellaneous**

The sub-committee sees these additional elements as positive aspects relating to the choice of Moodle in addition to the functionalities noted above and in the master document (Appendix C).

1) The large Moodle community enables easy access to a big template pool. This access means instructors do not have to invest a large amount of time to develop a course-specific template which can be a time-saver.
2) Ability to log into multiple courses at the same time in multiple browser windows for both faculty and students.
3) Ability to be easily linked to University portal making overall web-interface more user-friendly
4) Context dependent help via mouse hover.
5) Mobile access to LMS is in early stages of development
6) Calendar linked to announcements also in early stages of development.
7) Faculty can view course from student view with toggle button.
8) Flexible file sharing options for both students and faculty.

**CONS:**

Moodle's functionality lacks:

1) Ability to autosave answer on multiple-choice questions
2) Built-in email system.
3) Symbol recognition (affects science, math, and linguistics).
4) eTextbook interface capability
5) Group assignment options (wiki-like group work) management capability
6) Compatibility with multiple browsers (is template dependent).
7) Strong ADA compliance

**MOODLE CONCLUSIONS**

There were no critical deficiencies presented and no technical deficiencies were identified.

The proven and tested ability for Moodle to be easily linked to the new University portal would make the navigation between the portal and a new LMS seamless.
The primary areas (from the master document) that the sub-committee evaluated in Sakai included:

Content
Assignments
Exams
Communication Tools and Threaded Discussions
Gradebook
ADA Compliance

The demonstration showed that Sakai provided most of the capabilities identified by the LMS Discovery Sub-Committee as needed in the first year of use.

PROS

Sakai’s functionality off the shelf includes many of our year 1, 2, and 3 items without too much customization or add-ons, including:

Content

1) Ability to link to various types of multi-media
2) Ability to create unique course designs

Assignments, Exams, Threaded Discussions

Fine granular control of functionality by faculty.

1) Linking to rubrics during grading (as an attachment)
2) Randomization of questions, test banks (limited to single courses) varied delivery types
3) Autosave answers in exams
4) Threaded discussion: ability to link to outside sites.

Communication Tools

1) Can link to university email
2) Announcement area

Gradebook

1) Stable viewing format.
2) Ability to assign participation and discussion grade points.
ADA Compliance

Sakai has a standard statement that it is ADA Compliant, but it is not elaborated and seems to cover minimum required by law.

Miscellaneous

The sub-committee sees these additional elements as positive aspects relating to the choice of Sakai in addition to the functionalities noted above and in the master document (Appendix C).

1) Ability for faculty to enable students to create content for workshopping and other interactive (among students) options.
2) Flexible file sharing options for both faculty and students.
3) Faculty can view course through student view.

CONS:

Sakai’s functionality lacks:

1) Spell-checking and grammar.
2) Direct linking to rubrics.
3) Ability to automatically create hyperlinks in threaded discussions.
4) Ability to reformat discussions to view in different layouts (threaded, chronological, author, etc.).
5) Some gradebook functionality in that students don’t populate in grade book until they complete an assignment, and the inability to drop the lowest grade.
6) Option to send out automatic announcements (link to calendar by mobile devices).

SAKAI OAE CONCLUSIONS

There were no critical deficiencies presented and no technical deficiencies were identified.

Based upon available information, the ease of integration between Sakai OAE and the new university portal was not clear.

Findings – Technical

Ray Buehne, Director of Application Solutions attended each of the LMS Discovery Sub-Committee meetings as well as the reviews held with institutions using Moodle and Sakai. The following are his findings from these sessions as well as independent review of technical considerations for each open source solution.
Technical comparison between Moodle and Sakai

Databases:
Moodle – MySQL, PostgreSQL are the primary development databases. Other supported databases are Oracle, MSSQL, SQLite.
Sakai – MySQL and Oracle only.
**Conclusion:** There is no significant difference in this category.

Operating System:
Moodle – Linux and Windows.
Sakai – Linux and Windows.
**Conclusion:** There is no difference in this category.

Web Server:
Moodle - Apache, or IIS.
Sakai – Apache
**Conclusion:** Moodle gives us the option of using IIS, however since Apache is supported by both systems this is only a slight advantage for Moodle.

Development language:
Moodle – PHP
Sakai – Java 2 Platform Standard Edition 5.0 (J2SE 5.0) only.
**Conclusion:** Java is a more widely used language by the development community than PHP so finding this skillset in developers may be easier than finding PHP developers. However since PHP is also a common development language this is only a slight advantage for Sakai.

Support considerations

Moodle has a much larger user base than Sakai. The technical advantage of this large user base is that resolutions to problems can be shared among the user base. If we have a problem with Moodle, the odds are very high that someone else is having the same problem and that a solution has already been found.

Similarly, the number of add-ins that has already been developed with Moodle is much greater than with Sakai. Installing an existing add-in rather than developing something new saves development time.

Summary

There are no compelling technical reasons for selecting one product over the other. Both are capable of supporting the number of courses needed by the university in the foreseeable future. The only technical advantage is the much larger user community for Moodle.
**Recommendation**

The original charge was the ATAC Committee’s unanimous agreement upon the principle that:

*There is a competitive advantage of having control over the strategic direction/development of our LMS solution based on an open source platform.*

The sub-committee has determined that the two open-source programs considered are largely similar in their functionalities. Both offer the opportunity for timelier customization based on the university’s needs.

However, based on Moodle’s larger community/support base and the proven technical ease of integrating with the new university portal, we believe it would be the more strategic choice.

After the process of evaluating Moodle and Sakai, the Sub-Committee therefore recommends moving forward to an open source program with the additional condition that Texas A&M University-Commerce commit sufficient financial and human resources to create, implement, and maintain the program in order to capitalize upon the strategic advantage of such a move.