

Learning Management System Evaluation and Recommendation

2011-2012



April 23, 2012

EXECUTIVE SUMMARY

Butler University completed a comprehensive evaluation of the current Learning Management System, Blackboard that included a pilot of the leading open source competitor, Moodle. The evaluation included campus-wide requirement and satisfaction surveys, focus groups with individual users, and a pilot group of Moodle users.

This report describes the details of an evaluative comparison of the Moodle Learning Management System with the University's current learning management system, Blackboard. We recommend on the basis of that evaluation that Butler University adopt Moodle as its learning management system and that the transition take place over the 2012-2013 academic year. As noted in the original project document, the plan for making the transition from Blackboard to Moodle is not a part of this document, but will be presented immediately following the approval of this recommendation.

In May 2011, the Information Management Council approved a systematic evaluation of Blackboard and simultaneous investigation of Moodle. The evaluation was scheduled to be complete in April of 2012 and expected to yield one of three results:

1. **We confirm Blackboard** as our desired LMS system. In this case the pilot ends, we issue the recommendation and the project is closed. We would continue to renew Blackboard on an annual basis.
2. **We choose Moodle** as a replacement for Blackboard. Implementation would be phased over a single year beginning with the Fall of 2012.

2012-2013: Faculty members are encouraged to use Moodle but may still use Blackboard; communities are migrated to Moodle and all courses are migrated to Moodle by the start of the 2013 academic year

2013-2014: Moodle is in production and Blackboard is retired and not available

3. We find neither Blackboard nor Moodle to be the desired LMS system and **commence a pilot with a new tool.**

Our findings affirm **option 2**, the adoption of Moodle.

The charge to the working group was to evaluate the Learning Management System against requirements gathered from the University community. This charge was carried out over 11 months and culminates in this recommendation. A summary of the project charter, literature review and market review is available at <http://blogs.butler.edu/lms/files/2011/08/executive-summary.pdf>

Pilot Findings

With support from the Center for Academic Technology, 29 full-time faculty members (and 2 support instructors) piloted Moodle with their classes during the 2011-2012 academic year. During the fall semester, 8 full-time faculty members and 60 students participated in the initial semester pilot. During the spring semester, 29 full-time faculty members (and 2 support instructors) and 1069 students

participated in the second semester pilot. NOTE: all faculty members within the pilot had previous experience with Blackboard prior to teaching with Moodle.

We administered satisfaction surveys throughout the pilot. Consistently, Moodle pilot participants ranked the ease of adding content, managing the user interface, using communication tools (such as news and announcements), and uploading files as easy or very easy to do. At the same time students found the Moodle interface straightforward, easy to navigate, and satisfactory for completing assignments.

During the spring semester (2012), 29 full-time faculty members (and 2 support instructors) participated in the Moodle pilot. From that group, 21 completed satisfaction surveys. Initial results indicated that 1) 67% were satisfied with Moodle, 2) 90% were able to easily upload files, and 3) 81% were easily able to add content. On the other hand, 62% indicated that the overall navigation of Moodle was easy to use, 50% found email easy to use (77% said the same for Messages, which is the same as Email in Moodle), and 29% found grading to be an easy process in Moodle (33% had no opinion).

During the fall semester (2011), 103 students responded to the Moodle satisfaction survey. The data indicated that 1) 81% of respondents felt Moodle was straight forward and intuitive, 2) 75% found it easy to navigate, and 3) 82% reflected that Moodle enables them to easily complete class assignments. Overall, student satisfaction after one semester using Moodle was 64% (with 26% having no opinion).

During the spring semester (2012), 293 students responded to the Moodle satisfaction survey. The data indicated that 1) 58% felt Moodle was straight forward and intuitive, 2) 63% indicated that it was easy to navigate, and 3) 62% said that that they had no difficulty in completing class assignments. Overall, student satisfaction after one semester using Moodle was 41% (with 37% having no opinion).

Raw survey data can be found at <http://blogs.butler.edu/lms/survey-data/>

Pedagogical considerations

The inherent flexibility of Moodle and its outcomes-based construction make it a powerful environment for engaging students. Overwhelmingly, students reflect that they want faculty to use the Learning Management System consistently. The growing dissatisfaction with Blackboard inhibits those conversations that might open faculty to the possibilities of the LMS. Adopting Moodle also affords the opportunity for the institution to engage in conversations about teaching and learning, particularly those that explore hybrid and distance education. Moodle originates from a social constructivist pedagogical framework. Our "Moodle-In-A-Day" sessions were successful because instructors were able to export content from Blackboard and load into Moodle within the first 10 minutes of that session. The rest of the day, they spent time redesigning their course which became the focal point of the workshop as well as discovering new ways to engage students by having them do things within their course through lessons, glossaries, and discussions. Moodle's discussion tool is powerful – faculty participants were able to construct discussion assignments such that students had to submit first before being able to read peers' responses and other flexible tools within the discussion board.

Moodle courses are constructed with activities and resources. Roughly about 20 different types of activities are available including forums, glossaries, wikis, assignments, quizzes, choices/polls, scorm

players, databases, and related tools. Each can be customized based on the instructor's teaching style or student's learning preference. The main power of this activity-based model is found in the combination of activities into sequences and groups, which can help guide students through learning paths. Thus, each activity can build on the outcomes of previous ones. Additionally, there are a number of other tools that make it easier to build communities of learners including blogs, messaging, and participant lists as well as administrative tools including grading, reports, and integration with other systems.

Accessibility

It is important to note that both Blackboard and Moodle meet 508 compliance standards, meaning they are fully accessible to individuals with disabilities, with neither system distinguishing over the other.

Financial Impact

We also considered the financial impact to the institution. Based on a total cost comparison Butler University would realize a significant cost savings by switching to Moodle. These additional funds could be invested in staff, tools, and programs to advance Butler University. Currently Butler University pays just over \$90,000 per year for our instance of the Blackboard Learning Management System and our approximate costs to adopt Moodle are just under \$40,000 per year

Summary

In summary, the pilot evaluation criteria were based on the requirements of faculty and students and the degree to which both Blackboard and Moodle satisfied these requirements; the scalability and sustainability of the system and its fiscal impact to the institution. In each of these measures, Moodle was ranked notably ahead of Blackboard. Based on faculty requirements, pedagogical and financial rationale, and collective survey results, Moodle provides comparable, and in most cases better, functionality and long term stability for the return on investment. While a transition doesn't come without additional hardship, it should be noted the relative ease at which Moodle pilot participants were able to recreate courses with less time and effort than required initially building their Blackboard courses. Regardless, the 2012-13 academic year can be successful if faculty are given ample time to transition and are provided with course "shells" that reduce faculty time in the course creating and re-creation process. Given these considerations, Moodle provides the best option to fulfill current and projected objectives within the University's instructional mission and master plan.

About Moodle

Moodle (abbreviation for Modular Object-Oriented Dynamic Learning Environment), was created by an Australian educator as a means of providing an environment with a focus on interaction and collaborative construction of content and is an outcomes-oriented learning environment. The first version of Moodle was released in 2002. As of December 2011 it had a user base of 72,177 registered and verified sites, serving 57,112,669 users in 5.8 million courses. In the first quarter of 2012, Moodle averaged just over 1600 site registrations per month. (moodle.org/stats).

USER REQUIREMENTS

Faculty and staff were asked to identify the essential and desired features for the Learning Management System. Our data collected found that the essential requirements were: the ability to create and download course backups, run grade and question analysis reports, create and organize content into folders, assess with secure quizzes/tests, add and grade items in the grade book quickly with an easy to use interface, communicate via email with the students and have the ability to post documents, links and other resources. Additional desirable requirements were also considered in the selection process. Items denoted with an asterisk indicate those that are guiding principles for the LMS.

Essential Requirements

- Course management tools:
 - Create and download course backups
 - Run grade and question analysis reports
 - Create and organize content into folders
- Assessment tools:
 - Use multiple choice, short answer, essay and calculated questions
 - Quiz/Test grades automatically entered in the grade book
 - Ability to secure access to quiz/test
- Grade book
 - Grades can be imported/exported from/to various file types
 - Total points calculated automatically
 - Instructor can customize the way total points are calculated
 - Add grades for offline assignments
 - *Grade book must be easy to use
- Assignments
 - Students can upload documents to a dropbox
 - Individual assignment grades are automatically entered
- Course Content – ease of use
 - Any type of document can be posted as content
 - Any type of hyperlink can be posted as content
 - Any type of multimedia can be posted as content
- Communications
 - Ability to email individuals or groups
 - Ability to email entire class at a single address
 - *Must be easy to communicate
- Additional Tools
 - Substantive online help throughout the system
 - Course calendar feature
 - Plagiarism detection tool
- Platforms/browsers
 - Works on both Mac and PC
 - Standard browser support (Firefox, IE)

Desired Requirements

- Course management tools:
 - Easily add and remove users from a course
 - View and perform tasks within a course as a student
 - *Interact with content as a student
- Assessment tools:
 - Import questions from multiple file types
 - Question banks shared across courses
 - Ability to randomize questions and answers
- Grade book
 - Instructor can choose to not view all grades
 - Instructor can change the grade display format, such as decimals
 - Instructor and students with permission can see basic statistics
- Assignments
 - Instructor can comment on and grade a document within the system
 - Tasks/assignments can be selectively released to students based on criteria
- Course Content
 - HTML or content editor available for creating and editing within system
 - Searchable course content
 - Develop collaborative course content (WIKI, shared doc space)
- Communications
 - Availability of social tools
 - Ability to customize how one receives messages
 - Online chat
- Additional Tools
 - Shared whiteboard
- Platforms/browsers
 - Mobile access to the LMS

USER FOCUS GROUPS

We conducted a focus group with 13 Moodle pilot participants to learn what they value most in an LMS. Three key themes emerged from that conversation:

- **The LMS should provide faculty a quick and easy process for setting up courses**
 - Should require little to no training – can't afford to spend hours on course setup
 - Features should be well-organized with easy-to-understand labels
 - Offer a guided process for common course management tasks
- **The LMS should provide flexible, customizable communication options for faculty and students**
 - Must be easy to communicate and send documents to large groups
 - Allow users to choose how they receive notifications from the system (email, text, popup, etc.)
 - Integrate university academic calendar/exam schedule
- **The LMS grade book should be simple for faculty to set up and use, yet be adaptable to a variety of grading styles**
 - Interface and options should be consistent throughout the system

SUPPORTING DATA

Hosting and Support Models

There are six possibilities for providing the LMS for Butler University.

1. Bb Learn (Self) – our current instance of Blackboard. We host Blackboard internally on our servers
2. Bb Learn (Managed) – Blackboard hosts our instance of Blackboard
3. Moodle (Self) – we would host Moodle independently of third party or consortium resources
4. Moodle+CLAMP (Self) – we would host Moodle, but rely on a consortium agreement for support, enhancements and faculty development resources
5. Moodle+JOULE (Managed) – our pilot instance of Moodle, hosted by MoodleRooms. This positions our instance of Moodle “in the cloud” and dependent on a third party, MoodleRooms, for updates and support
6. Moodle (Managed) – A third party provides an instance of Moodle that we house locally and they manage it remotely

The following chart show a combined summary of general characteristics and feature set of the two LMS products and possible hosting/location. The criteria column reflects the key requirements gathered in campus surveys. The weight is on a scale of 1 to 3 (3 means the criteria is essential; 1, not important).

Criteria	Weight	Bb Learn (Self)	Bb Learn (Managed)	Moodle (Self)	Moodle+CLAMP (Self)	Moodle+ JOULE (Managed)	Moodle (Managed)
Features & Functionality	3	1.94	1.94	2.09	2.12	2.18	2.09
Cost of Ownership	3	3.00	3.00	4.00	4.00	4.00	4.00
Maintainability	3	3.00	4.00	4.00	4.00	5.00	4.00
Usability & Support	3	3.00	3.00	4.00	4.00	4.00	4.00
User Adoption	3	4.00	4.00	4.00	4.00	4.00	4.00
Openness	2	4.00	4.00	5.00	5.00	4.00	4.00
Standards Compliance	2	4.00	4.00	4.00	4.00	4.00	4.00
Integration Capacity	3	4.00	4.00	4.00	4.00	4.00	4.00
Learning Object Metadata Integration	1	3.00	3.00	4.00	4.00	5.00	5.00
Reliability & Effectiveness	3	4.00	4.00	4.00	4.00	4.00	4.00
Scalability	3	3.00	3.00	5.00	5.00	4.00	4.00
Security	3	4.00	4.00	4.00	4.00	4.00	4.00
Hardware & Software Considerations	2	4.00	4.00	4.00	4.00	4.00	4.00
Multilingual support	1	4.00	4.00	5.00	5.00	5.00	5.00
Combined Score	35	120.82	123.82	140.27	140.36	139.53	136.27
Ranking		6	5	2	1	3	4

COST ANALYSIS

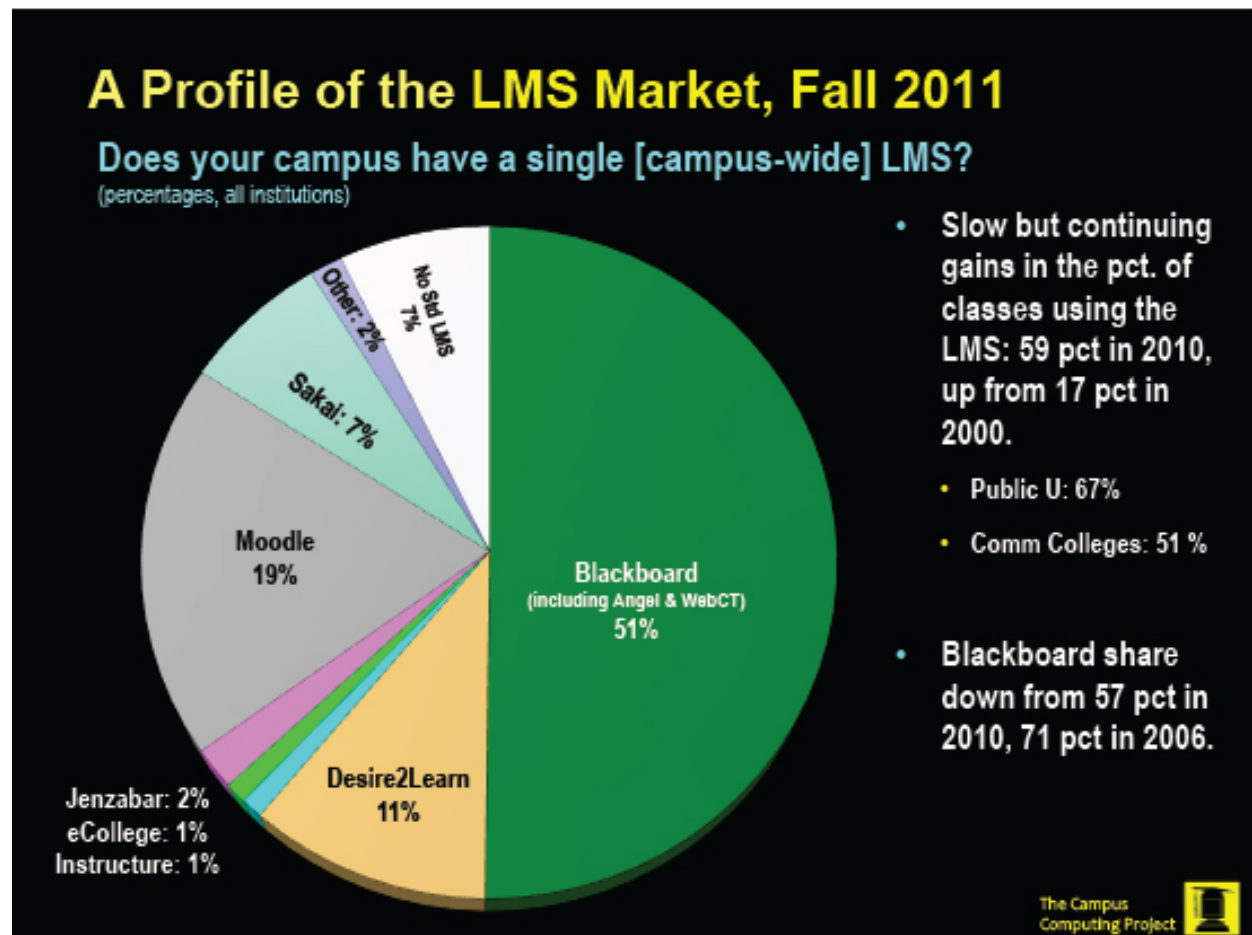
The two highlighted columns below represent an “apples to apples” comparison of our self-hosted version of Blackboard and our recommended self-hosted instance of Moodle. The other columns are above-described hosting solutions we evaluated in order to identify the most effective solution. Based on data compiled from existing contracts with Blackboard, quotes from Blackboard and Moodlerooms, and Information Technology ongoing costs, Butler University has the potential to realize a cost savings of approximately \$77,000 annually (\$50,000 annually if we do not provide the Blackboard Mobile solution. We currently do not provide this and it would be an additional expense incurred to match the functionality available within Moodle.). During the 2012-2013 academic year, we will support both systems. Server and storage costs are an ongoing cost, support FTE costs reflect time spent by current IT staff and presume no additional staff. Turnitin is a plagiarism detection tool that has an annual license fee of \$10,000.

Projected costs for 2012-2013

Criteria	Bb Learn (Self)	Bb Learn (Managed)	Moodle (Self)	Moodle + CLAMP (Self)	Moodle+Joule (Managed)	Moodle (Managed)
Annual Cost (Based on Yr. 2)	\$116,415	\$242,800	\$30,615	\$39,015	\$134,626	\$73,070
Core Build/License	\$76,800	\$76,800	\$0	\$0		
Other Costs		\$160,000	\$0	\$400	\$111,576	\$49,750
Turnitin			\$10,000	\$10,000	\$10,000	\$10,000
Servers	\$2,421	\$0	\$2,421	\$2,421	\$0	\$0
Storage	\$2,194		\$2,194	\$2,194		\$270
Support FTEs Needed	\$14,000	\$6,000	\$16,000	\$24,000	\$6,000	\$6,000
Social Tools					\$3,750	\$3,750
Test Environments					\$3,300	\$3,300
Mobile Access	\$21,000	\$21,000	\$1,600	\$1,600	\$10,000	\$10,000
	In order to provide mobile access for Blackboard, we would need to spend an addition \$21,000 for Blackboard Mobile. Mobile access is free in Moodle.					
	Pricing below reflects additional functionalities to support synchronous delivery of content, third party training solutions and implementation costs for these add-ons. They are not being considered for purchase in 2012-2013 and are for cost comparison only.					
Add Alt. Pricing	\$170,700	\$191,700	\$108,700	\$110,300	\$27,500	\$17,500
Synchronous Tools (WebEx)	\$98,700	\$98,700	\$98,700	\$98,700	\$1,500	\$1,500
Outcomes	\$31,000	\$31,000				
Training/Support					\$6,000	\$6,000
Implementation Costs	\$41,000	\$41,000	\$10,000	\$10,000	\$10,000	\$24,350
Grand Total	\$287,115	\$434,500	\$139,315	\$149,315	\$162,126	\$90,570

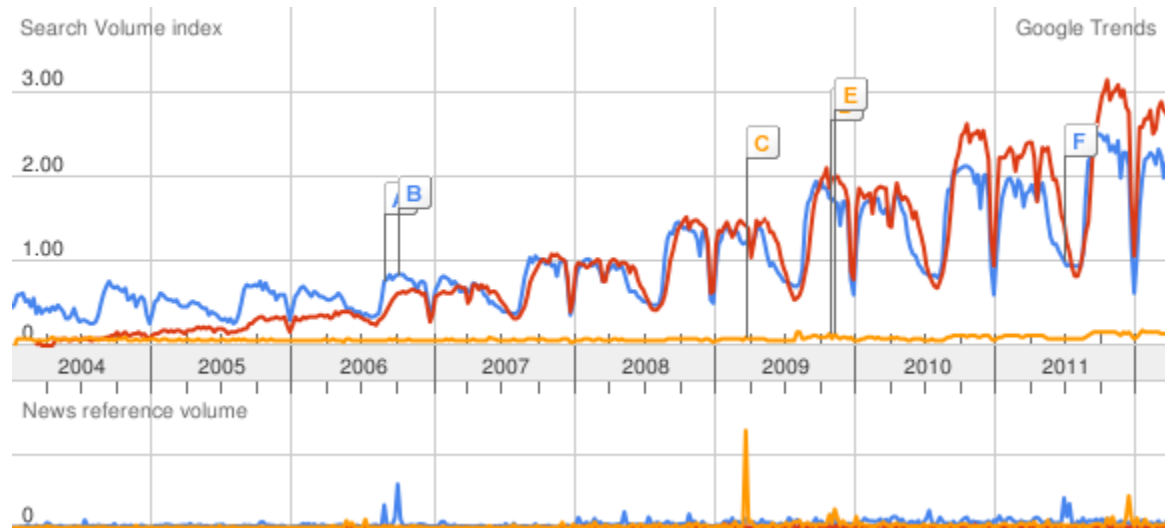
CONTINUING SHIFTS IN THE LMS MARKET

The 2011 Campus Computing survey data document an increasingly competitive campus market for Learning Management Systems (LMS). The proportion of survey participants reporting that their institution uses various versions of Blackboard (including Angel and WebCT) as the campus-standard LMS fell to 50.6 percent in 2011, compared to 57.1 percent last year and down from 71.0 percent in fall 2006. Concurrently, Blackboard's major LMS competitors – Desire2Learn, Moodle, and Sakai - have all gained share during this period. Additionally, several new LMS providers, including Instructure (Canvas), Loudcloud, and Epsilen (among others), are generating significant interest and beginning to sign campus clients, but have a considerably small market share.



The Campus Computing Project is the largest continuing study of the role of information technology in American colleges and universities. The annual survey is completed by Senior IT officers representing 523 two- and four-year public and private/non-profit colleges and universities across the United States.

Worldwide, Moodle continues to trend over Blackboard, as it has done since 2007.



Blue=Blackboard Red=Moodle and Orange=Sakai

LMS EVALUATION PARTICIPANTS

Project Team

Project Lead: Julianne M. Miranda

Executive Steering Committee: Information Management Council

Core Technical Team (Information Technology): Deryl Botta, Eric Esterline, Rob Hartman, Nate Partenheimer, Kenton Smith, Craig Stanley, and Tamra Thomas

Moodle Pilot Testers (teaching with Moodle Spring 2012):

Allison Harthcock Communications CCOM

Brooke Kandel Education COE

Catherine Pangan Education COE

*Cathy Hargrove Education COE

Carriann Richey-Smith (Susan Morton supporting) Pharmacy Practice COPHS

*Jennifer Snyder Physician Assistant Program COPHS

*Jennifer Zorn Physician Assistant Program COPHS

*Elizabeth Mix Art JCFA

*Penny Dimmick Music Education JCFA

Tim Brimmer Vocal Jazz/Multisensory Learning JCFA

Adam Azman (Julie Barrett supporting) Chemistry LAS

LuAnne McNulty Chemistry LAS

Shannon Lieb Chemistry LAS

Joe Kirsch Chemistry LAS

Chris Bungard Classical Studies LAS

Jason Goldsmith English LAS

John Ramsbottom GHS LAS

*Stuart Glennan Philosophy and Religion LAS

Chris Wilson (left pilot after 2/28) Mathematics LAS
Karen Holmes Mathematics LAS
Kathie Freed Mathematics LAS
Lacey Echols Mathematics LAS
*Michelle Stigter MFL – German LAS
Steve Schubert MFL – Spanish LAS
Terri Carney MFL – Spanish LAS
Craig Auchter Political Science LAS
*Robin Turner Political Science LAS
Robert Dale Psychology LAS
James McGrath Religion LAS

*Denotes instructors who piloted Moodle during Fall 2011