

LMS Assessment Report

Winter '08

Overview:

Technology is changing at a rapid pace with vendors competing to add new functionality on a continuous basis. Within this environment, there is the tendency to select the Learning Management System (LMS) *du jour*. This approach, however, places both the University and faculty members in the unenviable position of constantly retooling and migrating from one system to another – as we try to keep up with the inevitable software modification and upgrades. The use of a particular LMS solution (aka product) is not as important as the features that can be incorporated into an LMS-based environment.

As the campus's use of an LMS increases, it is essential that we understand the functional, technical, and support needs of faculty members and students. This information is vital for us to plan, to select the appropriate software packages that meet the needs of the faculty members, and to institutionalize the prerequisite support structures to promote an effective Learning-Centered Environment.

During the fall semester and winter break, CSUN conducted an LMS Assessment among faculty. The assessment was geared to ascertain three major things:

1. A list of features or tools that faculty members are currently or will soon use to deliver their instruction
2. A prioritization as to the importance of these features or tools
3. A understanding of the type of support faculty members need to better utilize an LMS to support their curriculum goals

As part of the assessment process, information was collected via three major vehicles

1. Three survey tools were conducted to obtain structured information from faculty members
2. Three open forum discussions were conducted to obtain information from a semi-structured format to allow faculty members to raise issues that were important to them
3. Feedback generated from survey and open-forum reports, coupled with information from on-going conversation, was collected

In this report, we provide some observations and an associated set of recommendations. These recommendations are offered to address some issues raised by faculty and to move forward on short-term goals. In addition, we conclude this report with some overarching remarks that are offered from a strategic perspective. This perspective can be used to guide the short-term direction and help to lay a foundation to plan appropriately for the future.

Observations:

During the assessment process, several observations were made that have influenced the recommendations of this report. In this section, we provide some of the more important data culled from the surveys and other key observations.

- As with all surveys and assessments, our conclusions are based heavily on input received from participants. The type and amount of participation in each of the three surveys and focus groups was approximately the same. Participation ranged greatly by College and Department. Moreover, the range of technical expertise and years of experience using technology to support pedagogy was small and weighted towards more technology savvy faculty. Hence, it should be noted that the information received via the assessment process might not be a predictor of the needs for all faculty members that need to use academic technology.
- The first two surveys (on features and on prioritization) had a high percentage of faculty respondents that self-identified as being moderately facile or experienced with technology. For the first survey, the percentage was 71.1% (135 respondents) and, for the second survey, the percentage was 83.7% (103 respondents).
- 68.8% of survey respondents that stated they are not facile or experienced have only been working with technology to deliver their instruction for less than 2 years. Consequently, support structures need to have a respectable focus on providing startup support.
- Four general categories were identified by faculty members as having a high priority. We present these categories in Table 1, along with the percentage of faculty members that agreed with the high priority rating. The response count is the number of individuals that rated the category as having a high priority over the total number of individuals that responded.

Rank	Description	Percent Agreement	Response Count
1	Collaboration and Communication	86.4%	95/110
2	Assessment, Surveys, Quizzes	81.1%	90/111
3	Course-Material Creation Tools	79.6%	86/108
4	Linkages between LMS environment and other systems ¹	68.1%	62/91

Table 1: General categories that received “High” priority classification

- Faculty members are using a wide-range of software components, with each of these components providing equivalent functionality. This diversity of solution and similarity of functionality strains the support structure, since the limited number support personnel must become more knowledgeable on an ever-growing set of solutions. The same functionality can be provided via a small set of standardized modules that are part of the LMS framework. Under this approach, limited number of support personnel can specialize on specific modules deemed important to faculty.

¹ The integration of the LMS environment with the MyNorthridge portal was a separate question and it received a 63.3% agreement on having a high priority.

Collaboration and Communication:

- Within the collaboration and communication category, four main features have been identified as being high priority to faculty members. (Refer to Table 2.) These features exist within a large number of vendor-provided and open software solutions. Moreover, these features are also provided by numerous application service providers (e.g., Google). Hence the University is in ideal position to select a solution that can address both financial constraints and accessibility (ADA compliance) concerns.

Rank	Description	Percent Agreement	Response Count
1	Email	92.2%	106/115
2	Document Sharing	79.8%	87/109
3	Message Boards & Threaded Discussions ²	75.5% & 71.0%	83/110 & 71/100
4	Interactive Chat	60.6%	66/109
5	<i>Peer Grading</i>	33.0%	33/100

Table 2: Collaboration and Communication categories that received “High” priority classification

Assessments, Surveys, and Quizzes:

- The second highest priority is that of assessments, surveys, and quizzes. This particular category is least generally applicable outside of the LMS space. Hence, the University might have less choice to provide such features. However, via our environment scan, many vendors and open-software projects are providing modules that can be integrated into a variety of LMSes. For example, plagiarism-checking software can be integrated both into WebCT and Moodle. Additionally, many universities are participating in LMS consortiums to influence and to help create appropriate software modules to address this need.
- From the data contained in Table 3, we infer that faculty members are using quizzes and other tools to provide enrichment to students via a self-paced method. In addition, many faculty members would like to have quizzes automatically graded – both to reduce the administrative task of grading and to provide timely feedback to students on their progress.

Rank	Description	Percent Agreement	Response Count
1	Instant feedback to self-assessments	71.1%	81/114
2	Instant grading of quizzes	67.6%	73/108
3	Suggest reading, etc.	55.4%	56/101
4	Guided answers	54.5%	54/99
5	<i>Full multimedia support for questions</i>	48.6%	52/107

Table 3: Assessment, Survey, and Quiz³ categories that received “High” priority

² Blogs and Wikis were identified as low priorities but may be accommodated by the same solution that provides message boards, etc.

³ The assessment team presumed that having rich set of question types (multiple choice, T/F, narrative, etc.) was a given a high priority.

- Although assessment questions were included in the surveys, additional questions should have been probed to better determine faculty member’s needs. As such, a follow-on assessment that focuses attention on just course assessment is warranted. Moreover, with a greater interest by faculty members for online and hybrid courses, there is a growing need on how best to assess these types of courses.

Course-Material Creation Tools:

- There is a great diversity in the tools that are used by faculty members to create content. A follow-on assessment that focuses attention on only content-creation tools is warranted.
- In this assessment, we were able to determine that the majority of faculty members are using common, general-purpose tools to create content. Within Table 4, we provide data points associated with content creation tools.

Rank	Description	Percent Agreement	Response Count
1	Text Documents (e.g., MS Word)	91.4%	96/105
2	Slide Presentation (e.g., MS Powerpoint)	86.2%	94/112
3	HTML Editing	66.7%	68/102
4	ADA/ATI Compliance Support	60.6%	57/94
	<i>Programming and Scripting Support</i>	<i>49.0%</i>	<i>47/96</i>
	<i>Database Support</i>	<i>41.1%</i>	<i>37/90</i>

Table 4: Course-Material Creation Tools that received “High” priority

Moreover, specialized software tools, such as SoftChalk, were not commonly used by faculty (over 80% indicated that they have never used either software package). Additionally, SoftChalk were identified as having over a 62% low priority.

- Although audio and video streaming did not have relative high-priority percentages (57.8%) via the survey tools, these services should receive appropriate support since many faculty members are interested as borne out by the open forum and follow-on discussion. Moreover, the number in Table 5 suggest that the majority of faculty members are more interested in delivering content that they have than they are in creating new content.

Rank	Description	Percent Agreement	Response Count
1	Format support for both Quick Time and Windows Media	71.3% & 62.9%	72/101 & 61/97
2	Podcasts	52.1%	49/94
3	Video Editing Tools	50.0%	52/104

Table 5: Audio/Video support tools that received “High priority

Linkages:

- Many faculty members are using individual software components that are not integrated into either the technological or support fabric of the LMS environment. On the technological integration front, faculty members identified this integration as their 4th highest priority (Refer to Table 1). Table 6 provides additional data points on integration priorities.

Rank	Description	Percent Agreement	Response Count
1	Plagiarism checking software	84.5%	93/110
2	Email functionality	84.4%	92/109
3	Submission drop box	84.1%	90/107
4	Solar grade reporting	74.5%	79/106
	<i>Video Conferencing Capabilities</i>	42.7%	44/103

Table 6: Linkages to the LMS environment that received “High priority

- At present, the vast majority of faculty members have not started to integrate “course packages” into their curriculum (55.7% assigned a low priority to this item). There is, however, an increasing amount of conversation about publishers providing material and how this material can be leveraged as part of the Reusable Learning Object repository.
- Many faculty members expressed concerns about placing their content within a particular LMS/system without having an easy migration path available. One possible solution to mitigating this issue is via a Reusable Learning Object (RLO) repository.⁴ Although, the RLO repository received a relatively low prioritization (49.5%), we believe that it should play an important role within the LMS environment. We speculate that this low prioritization is due to lack of awareness of the potential benefits of a RLO repository.

Recommendations:

In this section, we provide a set of recommendations. During our assessment, many faculty members have commented on various technology and support issues. Some are very eager to jump in and start using new technology, whereas others are concerned about deploying technology for technology sake. We provide these three cautionary points as part of our overall recommendations:

- The first consideration must be faculty members and student support. Deploying technology without a well-defined support structure will only frustrate faculty members and thwart our collective efforts to deliver instruction to our students.
- Prior to adopting new “technology” and/or “software,” a thorough understanding of the benefits of the proposed solution must exist. All too often, the technologists and the folks starving to be served pin their hopes on the new “stuff.” They believe that the next version will address their problem and are then disappointed that the solution is not quite right.
- Some faculty members will want to explore and dabble in new technological approaches.

⁴ A RLO repository provides a storage location for electronic course material that is independent of the presentation layer. The presentation layer can be provided by a web environment, an LMS (e.g., WebCT), a Portal, etc.

Although these faculty members should be supported via a sandbox,⁵ adoption of a new solution for general use should only occur after appropriate consultation and vetting has occurred. Such consultation will ensure that a fit-gap analysis determines the support requirements as well as the appropriateness of adopting the technology.

Over the course of the assessment, many of the observations have been discussed in many forums and, consequently, several of the following recommendations have been or are being put into place:

1. Due to the fragmented support structure for academic technology, a single support structure should be created to provide a focal point for academic technology support. This focal point should be a one-stop-shop that provides support for Instructional Design and ADA compliance, LMS-related applications (e.g., WebCT) and media (e.g., video streaming), classroom technology, and emerging technologies.
2. Content creation is a major factor in developing both online and hybrid courses. Many faculty members have expressed concerns about the daunting task of making their material ADA compliant, and there is a 60% agreement that ADA support is a high priority (see Table 4). Additional head-count should be allocated as part of the growing ATI support being provided by the University, this head-count would also help to booster the instruction design efforts, which is emerging as part of the Faculty Technology Center.
3. A variety of support approaches (e.g., online documentation, brown-bag and affinity groups, workshops, and one-on-one support) needs to be encouraged. All such approaches need to be coached within the pedagogical vernacular and not via technical jargon.
4. As part of the new Faculty-Hiring process:
 - a. A survey should be performed to identify the expectations of new faculty members regarding technology expectations and support needs
 - b. A component of Faculty Orientation should be developed to provide initial awareness of the available Academic Technology support and technical offerings. Such awareness should not be limited to providing names and phone numbers for future contact.
5. A follow-on assessment that places greater focus on content-creation tools should be conducted. One desirable outcome of the follow-on assessment is to determine the minimum set of modules that are required to perform the requisite functionality.
6. A follow-on assessment that places greater focus on course assessment for online and hybrid courses should be conducted. One desirable outcome of the follow-on assessment is to develop a shared understanding of meaningful assessment criteria for both online and hybrid courses.
7. A major effort needs to be put into place to integrate LMS-related functionality into the LMS environment and the MyNorthridge portal. Many faculty members are using various software packages that require different usernames and passwords. This integration will ease the administrative burden placed on faculty members and students to manage an ever-increasing

⁵ A sandbox is a virtual space in which software or Web sites can be tested, evaluated, or developed before being made generally available.

set of identities and passwords.

8. Currently the LMS, SOLAR, and Email environments are separate of each other. Course provisioning is performed via an *ad-hoc* method, faculty members must manually enter final-grade assignments, and faculty members must manually create their own class-based email list. Appropriate integration should be performed to allow each of these systems to leverage the capabilities of the other and to minimize faculty members course administrative activities associated with courses.
9. Further refinement of the Campus Identity Management solution is needed. This refinement should allow campus-managed identities to be utilized by the growing number of external service providers. As a consequence, the campus would be able to maintain purview of its data (i.e., identities) while at the same time derive benefit from the services provided by these external entities. In addition, this refinement should allow the creation of both formal and *ad-hoc* groups. Such groups will further enhance the utilization of the LMS environment, for example tutoring groups and group-based projects can be more easily supported.
10. A development strategy should be established to determine the best way to package and publish CSUN-specific content within a variety of frameworks. The strategy would also enumerate and prioritize the most appropriate components to be packaged that add value to delivering instruction.
11. A renewed emphasis on video and audio streaming should be undertaken. This emphasis would provide direct support for faculty members to integrate existing content into the curriculum and to develop new content, as appropriate. The numbers culled from the second survey suggest that majority of faculty members are more interested in reusing available content and its effective delivery than they are in the development of new content (Refer to Table 6).
12. The Learning Object Repository is an important component for the further development of online and hybrid courses. After the appropriate business processes and policies associated with the repository have been developed, emphasis should be placed on the rollout of the system and its support strategy. Two of the major policy issues that may be affecting the low prioritization of the repository relates to copyright and intellectual property. As such, discussions on copyright issues need to be addressed.
13. The interest in using course packages in the curriculum is growing. In addition, many faculty members provide hard-copy course material (e.g., via Quick Copies). A strategy needs to be developed that allows faculty members to integrate this material into the LMS environment in an easy way. This strategy may require working with publishers to provide the content electronically, directly or indirectly,⁶ and to ensure ADA compliance.
14. An experiential Moodle (<http://moodle.csun.edu>) environment has been setup within a sandbox environment. Sixteen (16) faculty members and thirteen (13) classes currently utilize this

⁶ The framework that has been highlight in the summary section of this document is one vehicle where such vendor-provided content can be provided indirectly. Students would obtain the information via the LMS environment.

environment. Additionally, several faculty members are utilizing Moodle hosted elsewhere to support the delivery of their instruction. Unfortunately, data points associated with this environment was not factored into this assessment. Given this factor, that this sandbox environment has not been promoted widely on campus, and additional faculty members have interest in Moodle, more formal assessment on Moodle should be conducted with greater participation campus faculty members.

15. A software selection process should be initiated to ascertain which LMS software solution is best for our needs. The criteria that should be employed as part of the selection process should place emphasis on:

- Providing basic features for enhancing collaboration (Refer to Table 2)
- Providing growing support for quizzes and assessment (Refer to Table 3)
- Providing the ability to integrate other services into the LMS environment within a module approach (Refer to Table 1 and 6)
- Ensuring accessibility concerns (ADA compliance) are met
- Reducing the overall cost to address increasing financial concerns

In additional, the following secondary criteria should be factored into the process:

- The ability to leverage software modules created by other Universities
- The ability to have other Universities leverage software modules that are created or enhanced at CSUN

Given the recent developments that Blackboard/WebCT may not be supported via a Master Enabling agreement via the Chancellor's Office, WebCT's current non-ADA compliance, and growing concerns related to University Budget concerns, this selection process should be initiated forthwith.

Concluding Remarks and A Strategic Perspective:

A Learning Management System (LMS) is a key component in the delivery of course material within an online environment. Currently, WebCT 4.1 is the primary LMS system for the campus, with Blackboard used by the College of Extended Learning, and with some faculty members experimenting with other LMS solutions (e.g., Moodle). In addition, various software packages have been integrated into our WebCT environment (e.g., Respondus), whereas other sundry software packages have been provided as standalone solutions (e.g., Elluminate) to augment our LMS environment.

Many faculty members are using various LMS-related features to support their delivery instruction and to provide supplemental material. There is, however, no uniform or prevalent approach to which faculty members prescribe. Moreover, many of these software packages that faculty members wish to use have not been integrated into support fabric of the LMS environment. Consequently, one of the major questions that arose during the assessment is "Why an LMS?"

Our assessment has concluded that the focus should not be centric to any particular individual software package or suite (ala LMS). In the short-term, however, the University will need to select a particular software package to provide the most common LMS-related functionality.

Moving forward, a new approach should be undertaken that is based on a toolkit approach. Under this approach, various tools can be integrated into a dashboard like framework. Traditionally, this framework has been provided via the LMS software, e.g., WebCT – but only tools provided or sanctioned by the vendor can be integrated. This framework, however, could be provided by various Portal systems and, potentially, by other network-based services (e.g., social network services.⁷)

Hence the focus of the “LMS environment” for CSUN should be placed on individual tools that can be placed within the dashboard, i.e., those that provide additional value to the instructor and students, and on integration technology that allows such tools to be placed within a variety of frameworks/dashboards. This approach has numerous benefits, which include the following:

- Technology and support resources can focus on specific tools that provide greater amount of value to instruction.

Currently, many campus resources are expended on providing various frameworks to access a small set of tools. These frameworks include WebCT, MyNorthridge, and Campus Email. Using existing frameworks that are freely available or that can be provided by a third-party would allow CSUN resources to focus on components that provide the greatest value to the institution.

- Existing and emerging frameworks can be leveraged more readily, thus relieving us from the LMS *de jour* conundrum.

The utilization of integration technology will allow the individual tools developed to be integrated into other frameworks more easily. Hence the migration of both data sets (via reusable learning objects) and specific tools can be more easily facilitated.⁸

- Students can choose from various dashboard frameworks, based upon their preference.

Historically, CSUN has attempted to drive students to use campus resources – with limited success, such as Campus Email and Portal environments. By focusing attention on providing CSUN-specific content, and publishing this content to multiple frameworks, students will have greater choices on how to consume content that suits their needs. (Hence, there will be a greater amount of penetration of services to students.)

In addition, our assessment has concluded that the focus should not be centric to what has been traditionally thought of as an LMS, but on a holistic approach that incorporates features from LMS, LCMS (Learning Content Management Systems), and other systems. This approach will provide a greater variety of tools and facilitate the use of various frameworks. In particular, an underlying focus needs to be placed on:

1. The development and use of reusable learning objects that transcend specific products

⁷ Faculty members have identified social networks as something they want to explore and to utilize.

⁸ Currently, there are developing standards that will allow content providers to publish their modules across multiple frameworks, e.g., OpenSocial.

2. The streamlining of business processes that leverage datasets contained within the ERP system
3. The advancement of support structures to assist faculty members in a variety of pedagogical approaches (regardless of the amount of technological integration)

Through the assessment process, the fundamental question of “What is an LMS?” was scrutinized. The most appropriate definition that most closely aligns itself to our needs is:

- An LMS is a system through which learning content is delivered and managed. The system is comprised of physical, virtual, and organizational structures and facilities to support students and faculty within a learning-centered environment.

Given this definition, the campus should have a robust LMS environment to ensure that instruction can be delivered via the diverse pedagogical approaches utilized by our faculty members within the most cost effective manner possible.

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