REPORT
LMS Exploratory Task Force, 2010-2011
August 13, 2011

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Executive Summary

Background

Desire2Learn (D2L) was adopted as a central Learning Management System (LMS) for University of Wisconsin System in 2003. The software was licensed after a vigorous 12-month RFI/RFP process and replaced two other LMSs hosted by UWS at the time – Blackboard and WebCT. D2L is currently serving all 26 campuses, with a total enrollment of over 150,000 and over 15,000 course sections every semester since fall 2008 [see Appendix 1, pg. 26, for historical view of courses and enrollments].

The Learn@UW Utility, a unit operating within DoIT at UW-Madison, provides hosting, infrastructure, and support of D2L and integration with other enterprise services. User support is provided by Learn@UW centrally and by personnel at the local campuses. The costs for licensing D2L and for the operational services provided by the Learn@UW Utility are funded by the CSRG. The Director of Learning Technology Development at UWSA serves as the liaison between D2L, Inc., Learn@UW Utility and the UWS campuses.

D2L has experienced a steady growth in usage within UWS as a supplement to regular face-to-face courses, hybrid/blended courses, and in online courses and programs over the past eight years. The service has evolved from a content delivery focused Course Management System (primarily the posting of syllabus and course files) to a more comprehensive Learning Management System concept where learning is facilitated by online assignment collection, quizzes, grades tracking, and building of online communities via online discussion.

While as a general purpose LMS service, D2L cannot cater to the specific need of every individual student or instructor, the faculty satisfaction surveys conducted in 2005, 2007 and 2010 indicate that a majority of faculty are satisfied with both the service and the support received. [A report from the 2010 survey is available online at https://learnuw.wisconsin.edu/survey/]. Students have expressed expectations that D2L will be used as the online portal for their courses.

The service management team routinely engages with peer institutions to remain abreast of contemporary trends in LMS and supplementary service offerings. Additionally, a special eLearning Task Force was convened in 2007-2008 to review the current state of eLearning for the University of Wisconsin System.

UWS signed an initial 5-year contract with D2L in 2003, followed by a 5-year renewal in 2008. The next contract consideration will be June 2013. DOA has required that a careful study be conducted prior to a multi-year contract renewal.

In preparation for next renewal in 2013, the Learn@UW Executive Committee appointed a new group – LMS Exploratory Task Force – in August 2010 to:

- Study the status of the current LMS (D2L) at UW campuses from the faculty, student, and academic program perspectives. Assess any current

unmet needs and requirements and identify those needs most effectively addressed via the LMS product.
- Scan the current LMS environment and ascertain how D2L's current offerings and product development roadmap compare to other vendors.
- Scan the emerging technology trends and provide recommendations about the needs that should be addressed by the LMS or LMS related strategies to meet the needs of online learning in the next five years.
- Make recommendations to the Learn@UW Executive Committee and the UW System CIO on the next steps in the LMS direction.

Members of the LMS Task Force

The members average 10+ years of experience with LMSs, reaching back to the very earliest days of web-based systems. This collective experience encompasses use of an LMS in teaching, support and management of an enterprise-level service, which includes the transitioning to new systems as the platform matured. Experiences include multiple LMSs, e.g., Web Course In a Box, Prometheus, WebCT, Blackboard, etc., and administration and support for faculty at all levels.

Furthermore, campus responsibilities for the members of this group include investigation and research into emerging LMSs and other instructional technologies. This expertise was essential to the development of this study.

- Barbara Barnet, UW-Platteville, Faculty (Statistics)
- Jeff Bohrer, UW-Madison, Madison Learn@UW Team Lead
- Rovy Branon, UW-Extension, Executive Director of eCampus
- Jane Henderson, UW-Stout, Director of Learning Technology Services
- Peter Mann, Learn@UW Utility Service Manager
- Sharon McCarragher, UW-Milwaukee, D2L Site Administrator
- Andy Speth, UW-Green Bay, Manager of Learning Technology Center
- Dan Voeks, Learn@UW Utility Technical Team Lead
- Jim Winship, UW-Whitewater, Faculty (Social Work)
- Lorna Wong, UWSA, Director of Learning Technology Development, Chair

Executive Sponsors:
- Al Hartman, UW-Oshkosh, Chair, Learn@UW Executive Committee,
- Ed Meachen, UWSA, Associate Vice President and CIO

Four subgroups were formed to address the major areas of study:

- Faculty Needs Assessment – Barbara Barnet and Jim Winship, Co-Chair
- Student Needs Assessment – Sharon McCarragher, Chair
- Emerging Technologies – Jeff Bohrer, Chair
- LMS Landscape Scanning – Andy Speth and Dan Voeks, Co-Chair

The LMS Exploratory Task Force web site is available at:
http://www.uwsa.edu/olit/luwexec/projects/exploratorytask/index.html

KEY RECOMMENDATIONS

1. **An RFI should be initiated before June 2013 to assess the landscape and determine whether an RFP is desirable.**

   There are a number of reasons for proceeding cautiously in issuing an RFP. First, the market is projected to be in significant flux over the next several years, and innovative Learning Management Systems (LMS) are beginning to enter the marketplace. The specifications of an RFP, if one is deemed necessary, should reflect those innovations that clearly emerge within the market.

   Second, at present we are not experiencing any of the compelling reasons for issuing an RFP as recommended by Delta Initiative.

   Third, there are significant costs in resources and time in changing to a different LMS on the UW campuses, as well as a disruptive impact on the teaching and learning process. Moving to a new LMS should only be done when the benefits to teaching and learning clearly outweigh the implementation costs.

2. **In preparation for issuing an RFI, conduct and monitor pilots on campuses.** The UW System should provide opportunities/resources/funding for small pilots that extend the capability of the LMS. Findings should be tracked and monitored by the System-wide Learning Technology Development Council (LTDC).

3. **An ongoing UWS LMS Task Force should maintain current knowledge of the LMS landscape, track emerging eLearning practices, evaluate the needs of academic programs, and communicate this to any future RFI/RFP committee.**

4. **UW System should support and fund a periodic survey of UW students to collect data concerning the use of instructional technologies, including LMS.** This effort would be comparable to the faculty survey that is conducted biennially.

5. **Explore and improve content independence for purpose of easing reuse and any potential future LMS transitions.**

   Promote faculty ownership of data and course materials through backup, archive, export, etc. Additionally, there should be exploration of back-end export capabilities to assist any future transitions to another LMS.

6. **UW System should conduct periodic site visits to D2L's corporate headquarters to leverage our partnership to address needs and concerns identified during the UWS LMS Exploratory Task Force process.** Previous visits have occurred, but significant time has elapsed between visits. Issues of usability identified by faculty and others should be shared; additionally, attempts should be made to determine the degree to which D2L's future direction continues to be compatible with the needs of UW System.

7. **UW System should provide resources to investigate academic analytics.** The diverse needs of the broad academic community should be considered when developing a set of requirements.

LMS Landscape

Charge: Scan the current LMS environment and ascertain how D2L's current offerings and product roadmap compare to other vendors.

- Develop criteria and a set of questions for an environmental scan
- Collect information from comparable institutions that are running different products
- Assess D2L's products and roadmap, compare D2L with other LMS vendors

Members: Jeff Bohrer, Rovy Branon, Peter Mann, Sharon McCarragher, Andy Speth (co-chair), Dan Voeks (co-chair), Lorna Wong

Approach

The members of this group work extensively with learning management systems. The group conducted research on current LMSs[1] and gathered information from a variety of sources including peers, experts in the field, current publications, and online resources.

Delta Initiative[2] was engaged as an expert consultant on the use of LMSs in Higher Education and the current state of the LMS market as well as general market trends to provide a guiding framework for our exploration. Delta Initiative provided specifics about the changing LMS environment and offered expert opinion on future developments. Delta Initiative confirmed the understanding and opinions of the Task Force, in addition to offering new perspectives for consideration.

The topics covered by the Delta Initiative consultation follow.

- What are our peer institutions doing (or not doing)? What are their motivations?
- What are LMS vendors doing? How (and why) is the market likely to change in the next few years?
- What new models are emerging? E.g., monolithic vs. loosely coupled, different hosting models, etc.?

[1] LMS (or LMS-like) products not primarily focused on the higher education marketplace are not included in this report since they are not directly applicable to our needs.

[2] Delta Initiative is an independent management consulting company that serves institutions of higher learning and businesses across the country. [DI] specialize in assessing needs, researching and evaluating options, and recommending a definitive course of action for … clients. [Source: http://www.deltainitiative.com/index.php/about-us]

- How are LMS vendors adjusting products to changing user expectations? What are LMS trends regarding social media, mobile computing, web 2.0 technologies, etc?
- What emerging technology trends will be most significant to the LMS market within the next few years? What is happening with textbook publisher/LMS collaborations, academic analytics, etc?
- What is the total cost to migrate to a different LMS?

Summary of Findings

The LMS landscape comprises three broad categories: commercial, open source and textbook publisher options. Although there is overlap, development and activity within each category is unique enough to justify a closer look at each.

Historically, most commercial LMSs were developed by and for a college or university, e.g., Blackboard by Cornell University, Desire2Learn by University of Guelph, WebCT by University of British Columbia, etc. Blackboard has the largest market share at the present time, both based on student count and the number of institutions using it as a central LMS. Blackboard's growth is largely due to the acquisition of other LMS vendors along with their customer bases. Significant acquisitions include Web Course in a Box, Prometheus, WebCT, and most recently Angel. In each case, Blackboard's approach has been to maintain and support the acquired LMS product for a period of time and then fold the acquired product, making major efforts to retain the customer base through migration to the Blackboard platform. In many cases, this approach has led institutional clients of Blackboard-acquired products to reevaluate their options, as a transition from their existing LMS to Blackboard is a significant endeavor. Currently, WebCT and Angel are approaching end-of-life. This is significant because the decisions of these institutions are expected to dramatically shift the LMS marketplace [see Appendices 2 and 3, pp. 26-27].

D2L is the only other commercial LMS with significant market share[3]. In recent years, D2L has benefited from the perception of many that Blackboard is too expensive, provides poor customer service, and exhibits predatory business practices. These factors provide added incentive for institutions to make a switch, especially if their LMS was purchased by Blackboard and is approaching end-of-life. Those institutions unhappy with the thought of migrating to Blackboard but interested in staying with a commercial LMS have in large measure selected D2L.

The number of viable commercial LMS vendors has sharply decreased due to the aforementioned acquisitions by Blackboard. There have not been any significant new commercial LMS products developed in the past ten years, with the recently emerging exception of Instructure Canvas. This product presents a

[3] *The 2010 Campus Computing Survey*, produced by The Campus Computing Project® [Source: http://www.campuscomputing.net/summary/2010-campus-computing-survey]

radical departure from traditional LMS offerings in the user interface and incorporation of Web 2.0 technologies.

Instructure was founded in 2008 and funded/developed with venture capital. Instructure obtained its first large client in December 2010 when a consortium of Utah colleges and universities selected Canvas for their 138,000 students and faculty. The company recently announced that Canvas would move to a "dual-licensing" scheme, under which the product's source code would be freely available under an open source license (AGPL[4]) as an alternative to the commercial license. Instructure will continue to offer product support (and provide SIS integration) only for the commercially-licensed non-free version.

Moodle is the largest open source LMS, both in terms of the number of institutions using Moodle and student count, and has also benefited significantly from the wave of departures from Blackboard. Until recently, there was uncertainty about the scalability of Moodle as a central LMS for large institutions, but improvements have been made to the product and several large universities are successfully using it. The attraction of Moodle for some is the perception that open source products entail lower up-front costs (e.g., licensing) and freedom from the vagaries of a commercial LMS.

Sakai is another significant open source LMS, but its numbers are small when compared to Moodle and D2L. The pending release of Sakai Collaborative Learning Environment v.3 is expected to provide enhanced interoperability with other instructional tools and may emerge as a more significant option.

Pearson, which acquired eCollege in 2007, is the most visible textbook publisher engaged in the LMS marketplace to offer an established LMS product. Their LMS market share among public institutions is relatively small, however their user count among students is comparable to both D2L and Moodle, as it is used predominantly in private institutions.

A significant development in the publisher-LMS sphere is the partnership between McGraw-Hill and Blackboard. The two companies are creating sophisticated course content that deeply integrates with the LMS environment. The courses being developed are primarily entry-level courses with high enrollments. A pilot is underway (spring 2011) with 20 institutions and this service will be available on a larger scale beginning in the summer 2011.

Additional notes - Analytics

Analytics are successfully implemented in LMS products targeted at for-profit institutions, but to a much lesser extent for higher education LMSs. For-profit institutions have the advantages of dedicated course developers, common curricular elements, and consistent design in their classes, which contrasts the varying cultures within a traditional Higher Education environment.

[4] Affero General Public License [Source: http://www.gnu.org/licenses/agpl-3.0.html]

Mobile device offerings created by or for the established LMS products are an emerging area of interest. Currently, they remain immature and roughly at parity across the LMS marketplace. LMS vendors are investing resources to enhance access via mobile devices to improve the user experience.

Other services, e.g., Google applications, PeopleSoft, etc., can include many of the tools commonly included in an LMS but an enterprise-level solution is yet to emerge.

The key criteria recommended to weigh in the decision to transition to a different LMS are:

- Status of contractual relationship with the current vendor, i.e., how many years are in the contract and is an RFP required
- Cost considerations
- Degree of dissatisfaction with the current LMS

Delta Initiative advised the task force that perceived "unmet needs" ought not be a significant consideration when deciding whether to conduct an RFP, in light of the high degree of feature parity across the LMS marketplace at present.

Recommendations/Next Steps

Interesting and highly significant developments in the LMS market space are just beginning to appear on the horizon: new LMS products show promise and are certainly worth following closely; textbook publisher collaborative initiatives may have significant impact [see Appendix 4, p. 29, for a graphical representation]. It is crucial to engage with D2L to articulate and address our needs and concerns, and work to shape their roadmap to benefit the UW educational community.

1. UW System should initiate an RFI only after these potentially game-changing developments have clearly emerged within the market. This will provide a better opportunity to craft our investigation to effectively incorporate those developments.
2. UW System should encourage, promote and support a variety of small alternative LMS pilots (including campus-specific pilots), as a means to effectively assess emerging LMS technologies. We recommend that the LTDC engage in monitoring and evaluating the outcomes of these pilots.
3. A UW System LMS task force should reconvene on a regular basis to continue the efforts of this Task Force and leverage the outcomes of this study to inform a future RFI process,
4. In the interests of making faculty course content independent of any one LMS, UW System should explore strategies to improve and promote faculty ownership of course materials.
5. We recommend periodic site-visits to D2L corporate headquarters by key UW System stakeholders. UW System has considerable investment in our relationship with D2Land should leverage that partnership to address

needs and concerns identified through the work of this Task Force. Face to face meetings have been most effective in the past for this purpose.

Faculty Needs Assessment

Charge: Summarize the current LMS status from the faculty view, including unmet needs and requirements[5].

- Assess the ways in which faculty/instructors use D2L
- Detail faculty concerns about this Learning Management System
- Discover the reasons for limited use or non-use of D2L by faculty/instructors

Members: Barb Barnet (co-chair), Jane Henderson, Peter Mann, Sharon McCarragher, Jim Winship (co-chair), Lorna Wong

Approach

The primary source of data was the "UW System Faculty/Academic Staff Survey of Online Teaching, Learning and Services" that was administered during the 2009-2010 school year (a full report is available online at https://learnuw.wisconsin.edu/survey/). To supplement this and to get the perspective of those who support faculty members using D2L, we surveyed the members of the Learning Technology Development Council (LTDC)[6] to obtain an additional perspective on perceived needs (and unmet needs) of minimal and non-users and the factors that would lead more faculty to utilize D2L. This survey was completed by eleven of the fifteen institutions.

Summary of Findings

Over 35,000 courses are active on the UW D2L system during the 2010-2011 academic year [see Appendix 1, p. 26, for growth over the past eight years].

[5] The original charge included the study of the unmet needs and requirements of academic programs. We were unable to pursue this due to the lack of available information and the effort required to collect meaningful data.

[6] The LTDC brings together learning technologists, instructional designers, and faculty technology support professionals on all UW campuses in their quest to support faculty and students to integrate instructional technology with the goal to improve student learning outcomes. The mission of the LTDC is to encourage System-wide collaboration and individual campus efforts that promote professional development in the effective use of learning technologies and explore new teaching and learning applications of existing and emerging technologies. [Source: http://www.uwsa.edu/olit/ltdc/]

While there is broad acceptance and satisfaction with D2L, specific unmet needs for certain disciplines continue to emerge. An indication of this is the more than 300 Moodle courses at UW-Madison.

The results from the faculty survey were generally positive about D2L (see table below).

Evaluation of LMS Experience[7]

	Overall positive experience	Recommend LMS to colleagues	LMS made managing courses easier
Strongly Agree	23.6%	25.7%	33.9%
Agree	56.5%	47.8%	45.8%
Neutral	11.2%	15.9	12.6%
Disagree	5.8%	6.9	5.2%
Strongly Disagree	2.8%	3.7%	2.5%
Total	**1,475**	**1,466**	**1,392**

The LTDC members were asked what current users of D2L like about the system. Major reasons listed by LTDC members were:

- Functionality that is easy to use, especially having a central source for distributing class materials, making announcements, and posting grades. These reduce requests for information from students.
- These features—content, discussion, dropbox, quizzes and gradebook—were commonly mentioned, although faculty members have ideas on how these can be improved.
- For face-to-face instructors, use of D2L maximizes class time for other purposes, with quizzes and discussions held online outside of the class periods.
- Students like the use of D2L in classes.

As in the Faculty Survey, a range of features that need to be addressed by D2L was elicited in the LTDC survey. Responses included the lack of Web 2.0 tools (e.g., collaboration tools such as wikis), and the need for usability improvements (e.g., better sort and search functions).

One commonality between the Faculty Survey and the LTDC survey arose when asked about why some faculty do not use D2L; the most common response on both the faculty and LTDC surveys was “time” – the faculty do not have the time to learn how to use it or they do not have the time to set up their courses. One LTDC member stated:

[7] *REPORT Faculty Staff Survey of Online Teaching, Learning and Support*, Learn@UW Executive Committee, 2010, p. 11. [Source: https://learnuw.wisconsin.edu/survey/]

> *"so many instructors teach the same way year after year, it is sometimes difficult for them to introduce new elements. And despite our attempts to promote, encourage, etc., they simply do not see enough of an incentive to justify the perceived time investment…interestingly I have [recently] seen more instructors approach me wanting to learn D2L, because they have felt pressure from the students…."*

This statement supports a trend of today's students seeking opportunities to access learning materials anytime and anywhere. This comment also highlights a natural tension that occurs when faculty time is required to acclimate, adopt, and effectively use new tools.

When the LTDC members were asked why minimal users do not use D2L more, the consensus was that these users already have established ways of accomplishing certain tasks (such as using Excel as a gradebook) and they don't have or want to take the time to switch over to D2L, as they perceive their current method works fine. The feature set of an LMS may not attract faculty who have existing solutions that meet their immediate needs. An analysis of the faculty survey results concerning the reasons for not using D2L yield ed no significant findings, regardless of the number of years of teaching experience.

According to the LTDC members, the areas in D2L that instructors seem to have the most difficulty learning to use are the gradebook, quizzes, and setting up groups/discussions. This is consistent with the results of the faculty survey. Although faculty were generally satisfied with the people providing support, they felt that increased support is needed to assist them with learning these functionalities. The LTDC members believe that the best training experiences occur in one-on-one or small group sessions. This mode of support, while effective, would add to the workload of the Learning Technology Center (LTC) staff on the campuses. As pointed out in the 2008 Learning Support Infrastructure Workgroup Report[8] study:

> *Faculty who are currently using an LMS are now using it more fully, developing complex content requiring special training on specific features that went widely unused before. This trend is increasing with the current technology, however the number of support staff on campuses have remained largely unchanged.*

The 2008 study made a recommendation to **"Review campus learning technology support resources regularly to ensure adequate support as technology increases."**

It will be prudent for campuses to recognize the support need for faculty to be successful in using the LMS or any other technology to its fullest extent.

Answers to "*What would lead more faculty members on your campus to use D2L?* " also varied. The most common answers seem to be to make D2L more user-friendly and intuitive, and to have a greater level of support.

[8] The full report is available at http://www.uwsa.edu/olit/luwexec/projects/elwg.

Recommendations in this area include more face-to-face training, especially in Winterim and early/late summer and personal outreach to specific audiences such as departments and adjunct faculty.

It is the unanimous view of the Faculty Needs Assessment subgroup that a switch to a new LMS would be negatively received and disruptive to UW faculty, as satisfaction with D2L is high and faculty members in both surveys complain about not having the time to learn THIS system. Having to learn a new system, without a compelling reason, would lead to decreased effectiveness in the use of a course management system and could affect the number of users of the course management system.

The consultant from Delta Initiative, Phil Hill, reported that D2L has a high level of user satisfaction compared to the other LMS's currently available. This is congruent with the findings of both the Faculty Survey and the smaller LTDC Survey that University of Wisconsin System faculty are generally satisfied with D2L. There are unmet needs that the faculty have – for example a more intuitive interface, easier to use features (e.g., gradebook), and a better way to set up and manage group areas. There are also a few disciplines with needs that would not be met by any existing LMS, such as the fine arts and mathematics.

Given what faculty have expressed as needs, given Delta Initiative's projection with respect to the changing LMS landscape in the next few years, and given the current D2L implementation at UW System is a robust service with high satisfaction rates, this is not an appropriate time to change the system in our judgment. However, we encourage continued exploration of alternative products that may better suit the needs of the UW educational community.

Recommendations/Next Steps

At the present time there is no single product available that will meet the diverse needs of the faculty. This group supports the conclusions and recommendations presented in the "LMS Landscape" section of this report.

1. We recommend continuing our relationship with D2L.
2. We recommend continued exploration of the LMS market to evaluate the products that are expected to emerge, which may better meet current and future needs.
3. We recommend that key UW System stakeholders embark on a site visit to D2L corporate headquarters to share the findings of the faculty survey. UW System should leverage the relationship with D2L to inform them of the needs expressed by faculty and provide input to improve the current product.
4. We recommend that UW System encourage, promote and support a variety of small alternative LMS pilots (including campus-specific pilots), as a means to effectively assess emerging LMS technologies. Monitoring and evaluation of these pilots can be best accomplished via the LTDC.

Student Needs Assessment

Charge: Determine needs and expectations of students, related to their learning, which can be facilitated by a Learning Management System (LMS).

Members: Barbara Barnet, Jane Henderson, Sharon McCarragher (chair), Lorna Wong

Challenge: Students are a diverse population, with widely varying needs and expectations. UW System campuses serve populations that include both non-traditional students – based on age, geographic location, program completion, accreditation demands, connectivity access and technical skills – and traditional students who are juggling course load, work, co-curricular and extra-curricular demands.

The LMS extends the classroom to anywhere/anytime, addressing our students' demand for access to courses/instruction 24/7 in a variety of formats to match their diverse learning styles. The LMS allows for the flexibility through an array of features, while providing a standard interface for consistency.

Approach

Examining existing data collected on student use of technology provided useful information and was an effective method to meet our needs. Comparing the findings at a national level and a UWS campus level offered better insight into the commonalities and specific needs of the UW students.

- Review collected data from various surveys administered locally at UW campuses, as available (see References at the end of this section).
- Reviewed data collected from national studies that UW campuses participated in
    - *The ECAR Study of Undergraduate Students and Information Technology, 2010*[9]
    - *UW System Results – Highlights from the ECAR Study of Undergraduate Students and IT, 2010*[10] (8 UWS campuses)

[9] Shannon D. Smith and Judith Borreson Caruso, with an introduction by Joshua Kim. *The ECAR Study of Undergraduate Students and Information Technology, 2010* (Research Study, Vol. 6). Boulder, CO: EDUCAUSE Center for Applied Research, 2010. [Source: http://www.educause.edu/ecar]

[10] Caruso, Judith Borreson, *UW System Results – Highlights from the ECAR Study of Undergraduate Students and IT 2010*. (Participating UW Campuses: Eau Claire, La Crosse, Madison, Milwaukee, Oshkosh, Parkside, Superior, Whitewater.)

Summary of Findings

It was discovered that collecting definitive data concerning the student use of an LMS was not easy. Many UW campuses have consistently tracked students' technology satisfaction and usage, but these surveys usually have a broader scope inclusive of hardware, peripherals, software applications and support. These data do not focus exclusively on the impact of the LMS on the student learning experience. Several campuses participate annually in the EDUCAUSE Center for Applied Research (ECAR) Study of Undergraduate Students and Information Technology. This well-respected national survey, coupled with data available from the UW campuses, guided the formation of the following findings related to students and an LMS.

- UWS students find the D2L LMS useful and valuable in support of their learning experience, especially to get course information (e.g., assignment details, announcements) and feedback about their progress (e.g., grades, instructor feedback).
    - High user satisfaction (overall positive or very positive experience) is reported on UWS campuses, which conducted local surveys of students who had a course that used an LMS.
        - UW-Green Bay: 81%
        - UW-Madison: 89%
        - UW-Stout: 86%
        - UW-Whitewater: 84%
    - Overall, students from UW campuses that participated in a national survey are satisfied with the LMS, with 94.5% reporting a positive or very positive LMS experience (see Appendix 5, pp. 30-33, for additional information).
- An increasing number of UWS students continue to expect that an LMS will be utilized in all their courses, including face-to-face, which increases the pressure on instructors to use the LMS.
- Students expressed a desire for more consistency in their instructors' LMS use across their courses.
- On UW campuses where more than one LMS is used, students expressed a strong preference to have all courses in one LMS.
- Almost half of students expressed a perception that their instructors may not have adequate IT skills to carry out instruction; student satisfaction would improve if course content were presented in a more organized manner.
- Over half of UW System students surveyed own an internet-capable handheld device, and over 60% of students desire to use LMS functions via a mobile device. Our assessment is that student expectations for robust, feature-complete mobile LMS access will significantly expand.

Students indicated that their learning could be enhanced were the LMS to address specific needs including the ability to: receive notifications (email or text "alerts") to indicate there is something new to access in the LMS (e.g. grades

posted, quiz availability, discussion messages); handle larger files related to course work assignments and projects; and access the LMS via mobile devices.

Recommendations

1. UW System should provide a single LMS in support of students' desire for consistency.
2. UW System should conduct a periodic survey of students to monitor the LMS satisfaction and emerging needs (comparable to faculty survey).
3. UW System should remain abreast of developments in the new generation of LMS by exploring functionality of tools/features that more closely match the user experience that students are accustomed to with Web 2.0 technology.
4. UW System should leverage the relationship with D2L to develop and improve features that address the needs of students, such as access via mobile devices.

References:

UW System Campus data:

- UW-Green Bay:
  - *2008 UW-Green Bay Student Technology Survey Results*
- UW-Madison:
  - *2011 UW-Madison Student Computing Survey Results*
  - *2010 UW-Madison Student Computing Survey Results*
  - *2009 UW-Madison Student Computing Survey Results*
- UW-River Falls:
  - Jani, A. (2010, July). *Comparing student and faculty usage and perceptions of Desire2Learn features.* Fusion 2010 Desire2Learn Users Conference, Chicago, IL. (See Appendix 6, pp. 34 - 35, for more information.)
- UW-Stout:
  - *Fall 2009 DLE Survey Results*
  - *Fall 2008 DLE Survey Results*
  - *Spring 2009 Student Learning Survey Results*
  - *Spring 2008 Student Learning Survey Results*
- UW-Whitewater:
  - *2011 UW-Whitewater D2L Home Page Redesign Student Survey Results (publishing pending)*

Emerging Trends

Charge: Scan the emerging technology trends and provide recommendations about the needs that should be addressed by the LMS or LMS-related strategies to meet the needs of online learning in the next five years.

Members: Jeff Bohrer (chair), Rovy Branon, Sharon McCarragher, Andy Speth, Dan Voeks, Jim Winship, Lorna Wong

Approach

The group conducted research on current and emerging eLearning trends from a variety of sources including peers, experts in the field, current publications, and online resources. We identified emerging trends and newer technologies and explored their potential impact on the LMS. Specific examples were identified and discussed, and current literature was reviewed. We also attempted to identify the likely timeline the LMS would experience the impact of these trends and technologies.

Summary of Findings

Six significant trends were identified that originated outside the usual boundaries of the field of higher education LMS but will likely have significant impact on the academic, professional, and personal lives of the LMS user community as well as the future directions of online teaching and learning systems.

1. Textbook Publishers' Changing Landscape

In recent years, textbook publishing companies have been refocusing their business models in order to adapt to new technology and market realities. One example is the emergence of partnerships between textbook publishers and LMS vendors. A number of corporate partnerships and acquisitions have occurred:

- Moodlerooms - Cambridge Global (Cambridge U Press, Reuters, Corbis), 2011
- Blackboard - McGraw Hill, 2010
- New York Times acquired majority share of Epsilen, 2008
- Pearson acquired eCollege, 2007

These partnerships introduce several new capabilities, including:

- Students and instructors can search for (and potentially purchase) publisher content through LMS interface
- Users can potentially move seamlessly between LMS and a specific publisher's content through the use of single sign-on solutions
- Integration with LMS gradebook and other assignment tools (1)

Furthermore, textbooks themselves are undergoing radical changes as more instructors and students are considering the value of electronic texts. The emergence of eReader devices such as Amazon's *Kindle*, Barnes and Noble's *Nook*, and similar functionality available for tablet devices and smartphones have created a new market for creating and consuming textbook-related content. Flat World Knowledge has created a different business model by offering free and open textbooks (under a Creative Commons license) in a variety of formats (print, PDF, Kindle, iPad, etc.) available for purchase.

Some publishers are developing sophisticated technologies that have the potential to disrupt the current LMS landscape. Three current examples are:

McGraw-Hill's *Connect*[11] system focuses on the development of content-rich assignments, quizzes, self-study activities, student progress reporting, and is consistently aligned with textbook (printed and/or electronic) content. McGraw-Hill's *LearnSmart* module within *Connect* contains robust assessment and adaptive learning capabilities, including the assessment of the students' metacognitive skills. Personalized reports are then made available to the student and instructor.

In 2011, McGraw-Hill partnered with Blackboard to integrate *Connect* into the Blackboard *Learn LMS*, though both companies state that they remain independent from the other and their products are "partner-neutral".

Students who purchase certain Pearson[12] textbooks have access to accompanying *MyLab* resources and technologies. Pearson has designed subject-specific online learning systems such as *MyItalianLab*, *MyLogicLab*, *MyPolySciLab*, *MyStatLab*, and many more. These online sites are designed to be either a supplement to traditional courses or act as an entirely online course. MyLabs include online videos, texts, tests, quizzes, research databases, and tutorials. Reporting capabilities allow instructors to track student progress.

Cengage[13] (Gale) Learning's *MindTap* purports to take online textbook supplements to another level by providing an app-based personalized learning environment that is LMS- and device-agnostic. *MindTap* combines rich content with discussion and assessment features and also provides an assortment of apps for instructors and students to expand its core capabilities. These three examples show not only the future, but the present.

The corporate strategy of D2L in pursuing these types of partnerships with textbook publishers is not immediately apparent. D2L lists a number of content providers in its "partner network" including McGraw-Hill, Pearson, and Cengage.

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[11] [Source: http://connect.mcgraw-hill.com]

[12] [Source: http://www.pearson.com]

[13] [Source: http://www.cengage.com]

However, little is known about the nature of these relationships. This should be an area to explore further with D2L.

2. Mobile technology

"Mobile" refers to the presentation of LMS (or complementary) tools and functionality on a small, portable, handheld device connected to the Internet. In most cases, this means a smartphone but tablet devices should be included as well.

There are two broad approaches for achieving mobile LMS presentation: "native" applications and mobile-optimized websites.

With the native application approach, custom applications are created for specific mobile platforms (e.g. iOS, Blackberry, Android) to facilitate mobile access to functionality within and/or complementary to an LMS. Blackboard Mobile uses this approach, as does Joule mobile and MoodleRooms.

The mobile-optimized website approach presents LMS website content to be consumed by standard mobile browsers (e.g. Mobile Safari). It is generally the case that mobile devices are automatically recognized, triggering delivery of the mobile-optimized version. Moodle Mobile, Sakai, Pearson Learning Studio and D2L's current releases all offer this approach.

D2L has pursued both approaches. Earliest efforts focused on the native app approach (e.g. the Blackberry application "*Desire2Learn 2Go*"). Current versions of D2L LMS offer mobile-optimized website functionality "out of the box". Additionally, D2L has continued to pursue the native application approach with its recently released *CampusLife* product for iOS, Android and Blackberry.

There are advantages and disadvantages to each approach and LMS vendors that focus strictly on one or the other. The market is not set on which approach is better. Spending on mobile development by established LMS vendors is growing and there is significant promotion and hype; mobile for LMS seems to be an immature but rapidly evolving technology at this time.

One implication of widespread penetration of mobile devices among LMS users is the potential (and growing expectation) for users to receive real-time notifications about activities taking place in the LMS (grades posted, new content posted, status of quizzes, assignment due dates, etc.). Additionally, data from student assessments indicate that students value feedback to support their learning experience. Mobile-optimized applications will support this student desire.

Furthermore, students now make significant use of text messaging for communications, and expectations are growing that notifications can be delivered in this way. In support of this emerging trend, LMS should support flexible notification options, including text messaging.

LMS vendors must continue to invest in making systems more mobile-friendly as users' ownership of mobile devices continue to increase. Users will come to expect their mobile device to be a fully functional workspace, including their interaction with the LMS. Mobile LMS functionality will need to allow instructors and students to do work: post and share content, submit assignments, enter grades, take attendance, and manage calendars, among others.

3. Social networking

The previous decade saw an explosion of modern web-based applications that transformed the Internet from a hyperlinked web of static pages to a dynamic and social world where people go to interact with each other, share media, conduct business, manage resources, work collaboratively, and get instantly updated on the happenings of friends, acquaintances, and news-makers. Communication changed as millions engaged in messaging, posting, commenting, liking, rating, updating, and "friending".

The market-leading LMS products have been slow to adopt social networking functionality. It wasn't until 2009 when Blackboard integrated a robust instant messaging tool inside its core LMS. And it wasn't until 2010 when Desire2Learn introduced the basic display of user profile images across multiple tools in its core learning environment.

A significant gap has emerged as the differences between LMS and modern web technologies such as Google, Facebook, Twitter, YouTube, Blogger, LinkedIn, and Wikipedia. Other less mainstream web applications have introduced and easy-to-use interfaces (such as Mint.com), useful niche applications (Evernote, Doodle), and a combination of both (UW Credit Union).

LMS users bring their experiences with these consumer technologies to campus. One of the frequent criticisms of the LMS is its lack of user-friendliness (e.g., too many clicks, unclear buttons, inconsistent behavior). These criticisms are exacerbated by the rapid and continual evolution of today's web applications.

The opportunities for an LMS to improve its social networking capabilities are significant. Some possibilities include:

- Students posting images, articles, links, or videos and having their peers and instructors add comments, questions or ratings.
- Students seeing which of their classmates are online and initiating an online chat.
- Students forming a study group on their own initiative and creating an online space for that group's communication and collaboration.
- Instructors posting an event online and asking students to sign-up by clicking a single button.
- Instructors or students creating their own to-do list within the LMS.
- Instructors or students finding other peers with similar academic interests and connecting with them for future interactions, building out a larger virtual network.

Although many LMS users prefer to maintain separate spheres for personal social networking and academic-oriented use of web tools, expectations for interface paradigms and functional capabilities are heavily shaped by these experiences. If today's mainstream LMS products do not reinvent themselves to be more congruent with expectations created by social networking tools, vendors and universities run the risk of users deeming the LMS irrelevant and simply making use of alternative tools. Recently, two student-led efforts (Stanford's *ClassOwl*[14] and University of Pennsylvania's *Coursekit*[15]) have produced LMS-like technologies that improve course-based social networking features as well as leverage the power of crowd-sourcing for the sharing of course information and materials.

4. Student generated digital content

The use of digital media creation for course assignments is steadily increasing as faculty are becoming more aware of their impact for learning and as the tools are becoming easier to use. Students are entering the university with media-creation experiences from their K-12 years and from their participation in these activities for entertainment and social purposes.

Although these assignments and activities primarily occur outside of the LMS, there are aspects of these activities such as storage consumption and privacy implications that directly impact the LMS. The LMS is a likely choice for hosting digital media as it meets the requirements for fair use protections, student privacy protections, and as a bounded space for safe feedback. As use of the LMS for hosting media increases, the platform will have to become flexible to effectively manage and deliver media content.

5. Open Source

"Open source" refers to a methodology of software application development, production and support that focuses on the open sharing of source code among a large community of developers and (in some cases) the unrestricted distribution of the final product. This contrasts with the mostly centralized development of commercial software applications and the sale of the final product.

Open community-based processes, including support, can be considered a positive factor or not depending on the concerns of the customer. Some customers value it; others are more comfortable with the perceived accountability inherent in a commercial product. Some customers value the independence of

[14] [Source: http://www.classowl.com]

[15] [Source: http://www.coursekit.com]

being free of commercial software companies while others prefer the stability of contractual arrangements established with them.

Costs for open source and commercial products vary. Generally, open source requires significantly higher initial implementation costs in staff resources compared with commercial offerings, which may be offset by long-term cost savings on licensing and contract fees. A full accounting should take comprehensive staffing requirements into consideration, including development, integration and technical support staff.

An open source LMS can give institutions more ability to directly customize a system to address the diverse needs of their instructors, students, and administrators. Instructional tools can be developed and integrated that create new ways to teach and learn.

One example of this type of innovation is the *Feedback Manager* tool developed at UW-Madison and added on to existing Moodle installations. Instructors of large courses identified the need to provide personalized written feedback to open ended responses in mass quantities. The Feedback Manager[16] tool allows instructors to efficiently respond to students' narrative responses and better understand students' thinking. This tool was built to extend the capabilities of the existing online quiz engine in Moodle. The open source nature of Moodle allowed technologists to build a new tool, based on exact requirements from instructors, and integrate it into the existing quiz mechanism in Moodle.

Moodle and Sakai are the two predominant open source LMS products. Instructure's *Canvas* is a newcomer with its dual-licensing scheme. These were discussed in greater depth previously in this report (p. 8).

Open source LMS solutions have matured to where they can potentially offer a viable option for large, enterprise installations. We should continue to monitor developments and stay in contact with our peer institutions currently utilizing open source LMS implementations.

6. Learning Analytics

Learning analytics can be defined as the collection and analysis of data related to student learning. This can be regarded as a facet of the broader area of academic analytics whereby the types of information are unique to a specific function of the institution and the data is used in decision-making processes. Both can be considered as implementations of business intelligence concepts as applied in an academic environment.

The understanding of the word "analytics" means something quite different to individuals in different areas of academia, depending largely upon role and area of responsibility. The needs of the Provost will vary from those of the Chancellor,

[16] "Feedback Manager". University of Wisconsin-Madison. [Source: http://www.cals.wisc.edu/moodle/feedbackmanager]

Advisors, and Faculty. Any initiative related to exploring analytics must consider the broader needs of administrators and instructors and acknowledge the diversity of requirements and objectives. It is imperative to identify the specific and unique questions, issues and needs at stake, and assess the methods by which data can be collected, sifted, winnowed, and shared. This will help ensure the realization of thoughtful answers, solutions, and knowledge.

Some LMS vendors have recently developed solutions intended to provide academic analytic capabilities. We expect additional players to emerge in the future. D2L offers an analytics architecture intended to deliver an extensible platform upon which data from additional sources can be incorporated as the instructional technology ecosystem evolves and expands. The D2L solution warrants further examination in the context of a broader investigation into analytics.

The area of analytics is moving at a rapid pace. Malcolm Brown (Director of EDUCAUSE Learning Institute) has stated that learning analytics, "are moving faster than any of us realize."[17] It is imperative that UW System stays abreast of the emerging and development landscape.

Recommendations

1. Key UW System stakeholders should embark on a site visit to D2L corporate headquarters to discuss the aforementioned trends. UW System should leverage our relationship with D2L to learn about their plans and how UW System may prepare for the near-term and future developments.
2. UW System should provide resources for the further study and investigation of academic analytics. The diverse needs of the broad academic community should be considered when developing a set of requirements.

References

1. Feldstein M. "LMS/Vendor Textbook Publisher Partnerships". e-Literate [Blog]. 2011 February 7 [cited 2011 April 11]. Available: http://www.mfeldstein.com/lms-vendortextbook-publisher-partnerships/

[17] Malcolm B. Brown, EDUCAUSE Learning Institute, *Learning Analytics: The Coming Third Wave* [Source: http://www.educause.edu/Resources/LearningAnalyticsTheComingThir/227287]

Acknowledgement

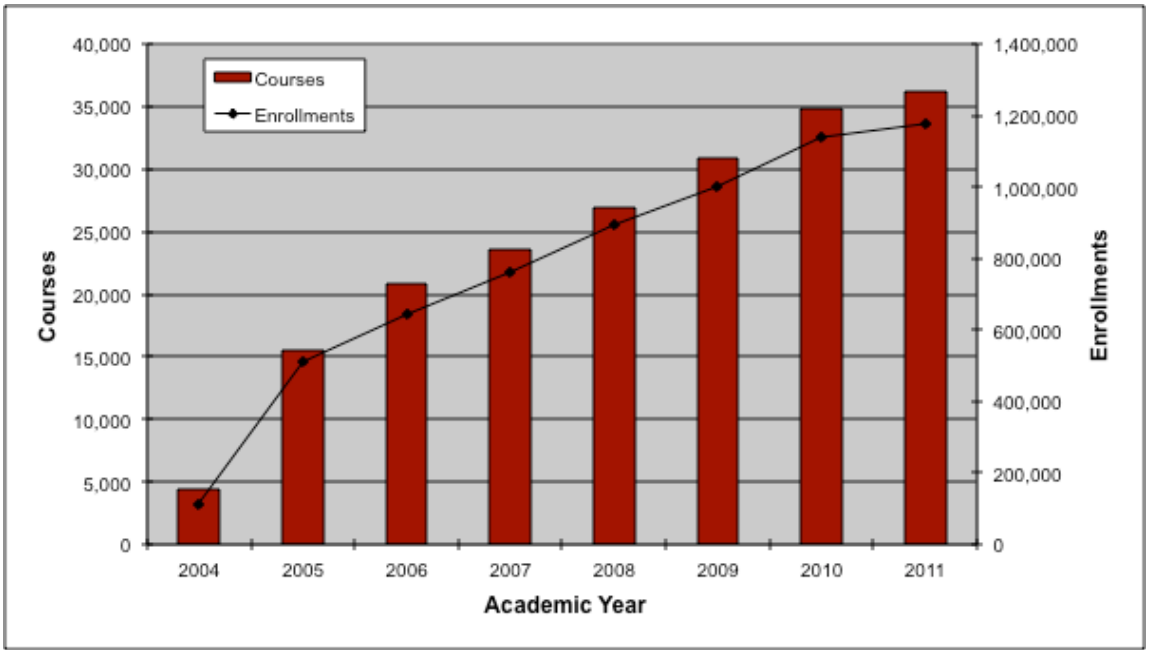
The members of the LMS Task Force sincerely appreciate the time and effort of the participants that shared their experiences and expertise with using technology in the instructional setting. The LTDC representatives were instrumental in providing additional perspective on the needs (and unmet needs) of both faculty and students.

We appreciate the leadership and support of the Learn@UW Executive Committee and trust that the findings in this report will provide valuable input as the Committee continues their efforts with strategic planning and advocacy for LMS technologies that address the needs of the UW educational community, both at present and in the future.

The members of the Task Force unanimously concur that this endeavor was informative, valuable, and collaborative. We strongly encourage support to continue the work with exploring and assessing the needs of academic programs as part of the original charge to the Task Force, and more in-depth and systematic study of students LMS needs. The task force hopes to stay in tune with the ever-changing eLearning landscape and continue to contribute to the on-going effort in defining the future direction of LMS use at the UW campuses.

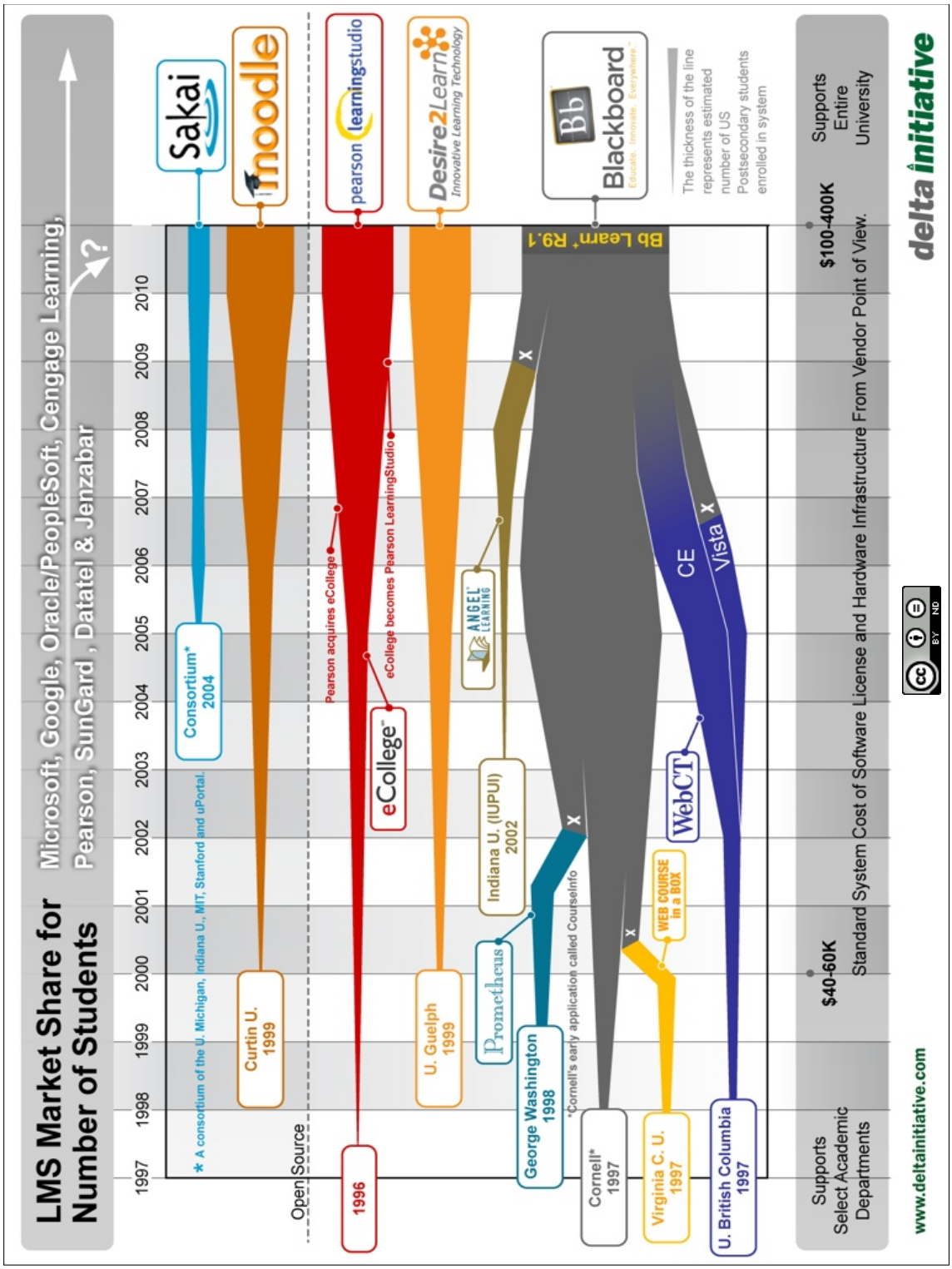
Appendix 1 – Learn@UW Usage

The use of Learn@UW/D2L continues to increase, depicted in the following graph that includes a historical view of courses and enrollments. The Learning Management System is an integral part of the educational process within the UW System.



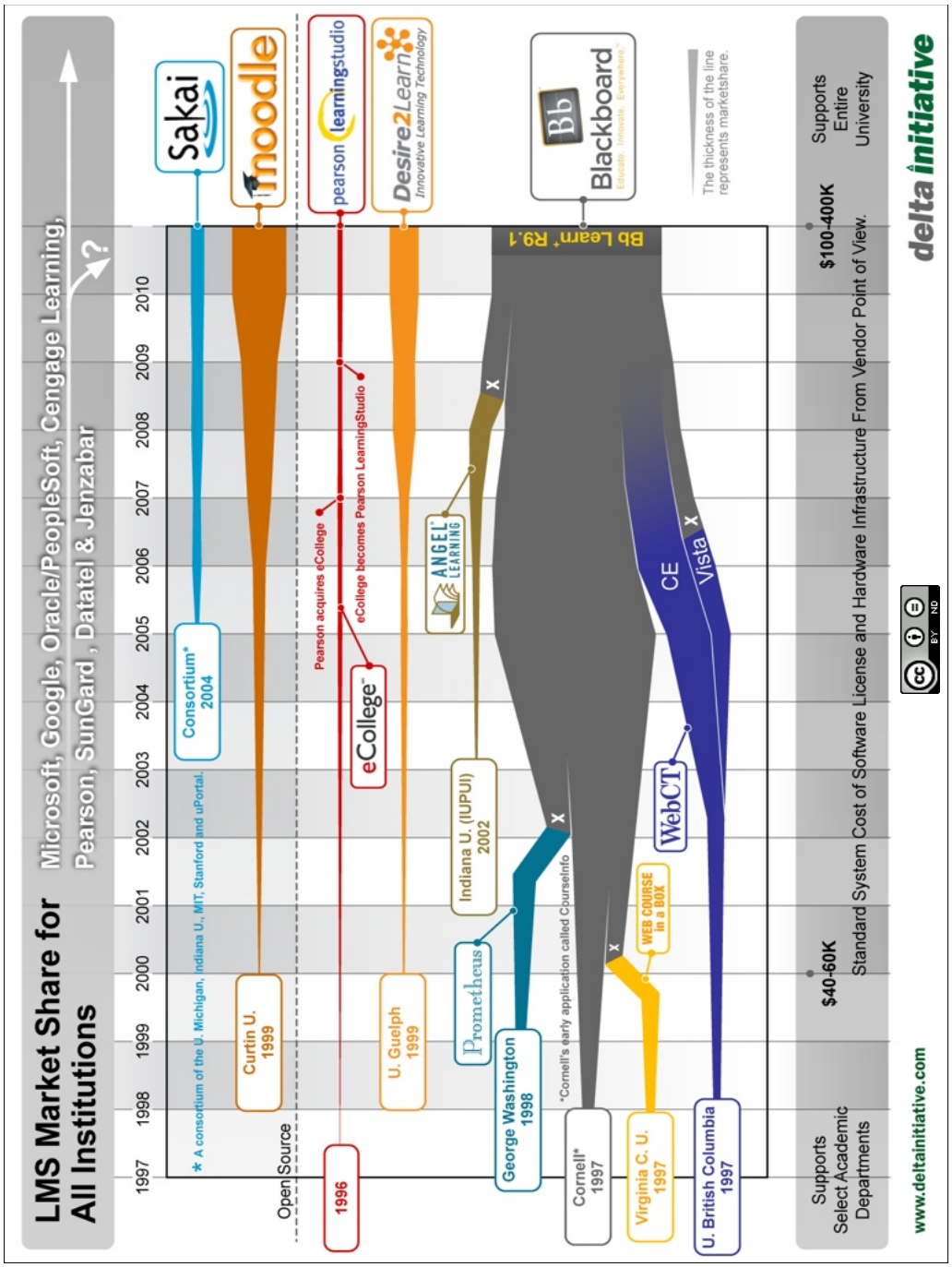
Appendix 2 – LMS Market Share for Number of Students

(Source: Delta Initiatives, Inc.)



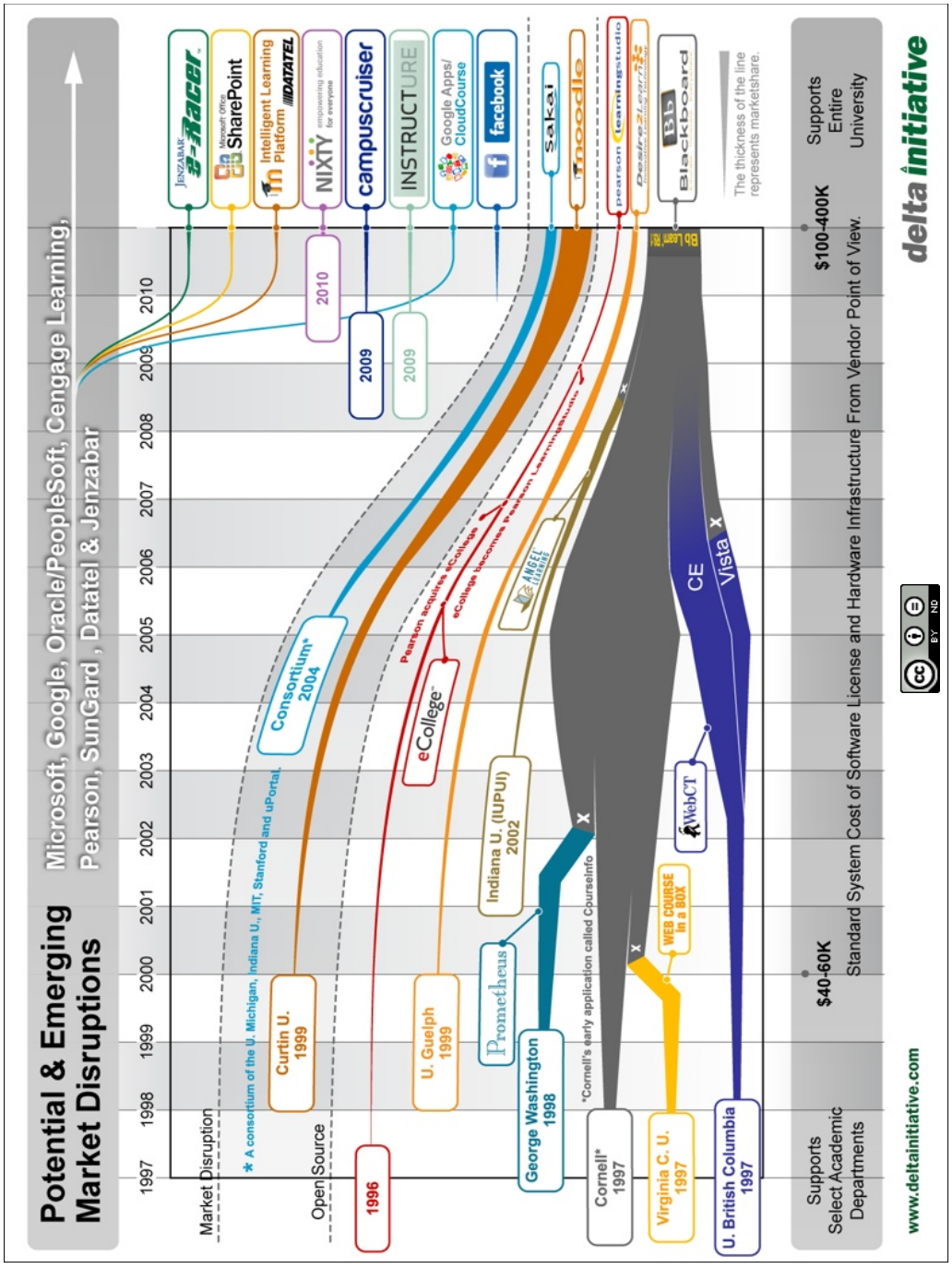
Appendix 3 – LMS Market Share for All Institutions

(Source: Delta Initiatives, Inc.)



Appendix 4 – Potential and Emerging Market Disruptions

(Source: Delta Initiatives, Inc.)



Appendix 5 – UW System Results – Highlights from the ECAR Study of Undergraduate Students and IT 2010

(Source: Caruso, Judith Borreson. Participating UW Campuses: Eau Claire, La Crosse, Madison, Milwaukee, Oshkosh, Parkside, Superior, Whitewater)

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UW System Results –

Highlights from the ECAR Study of Undergraduate Students and IT 2010

Judy Borreson Caruso
University of Wisconsin-Madison

Who participated?

- Eau Claire
- La Crosse
- Madison
- Milwaukee
- Oshkosh
- Parkside
- Superior
- Whitewater

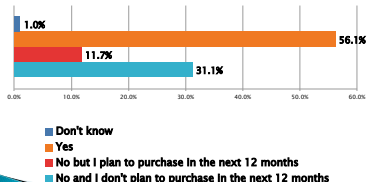
Who responded?

- 84% aged 18-24 years old
- 64% female
- 48% senior; 37% freshmen and 16% other
- 90% full time
- 63% off campus
- 19% Life/biological sciences and 19% business

Own an Internet-Capable Handheld Device

A. 42%
B. 70%
C. 36%
D. 56%

Ownership of Internet-capable Handheld Device



Use of Internet Handheld Device *

	E C	Lax	Mad	Milw	Osh	Park	Super	-WW	Total
Never	27.5%	24.8%	23.7%	20.9%	22.2%	27.9%	31.4%	22.0%	24.0%
Once per year	3.5%	1.2%	1.2%	0.9%	0.0%	1.5%	2.5%	2.4%	1.5%
Once per qtr/sem	2.8%	3.1%	3.0%	3.7%	5.6%	2.9%	5.4%	1.9%	3.5%
Monthly	6.3%	8.5%	5.3%	8.2%	11.1%	7.4%	8.7%	5.7%	7.8%
Weekly	12.0%	12.8%	11.2%	9.6%	11.1%	13.2%	9.1%	8.6%	10.6%
Several times /wk	14.8%	17.1%	16.0%	13.1%	19.4%	14.7%	9.1%	17.2%	14.5%
Daily	33.1%	32.6%	39.6%	43.6%	30.6%	32.4%	33.9%	42.1%	38.2%

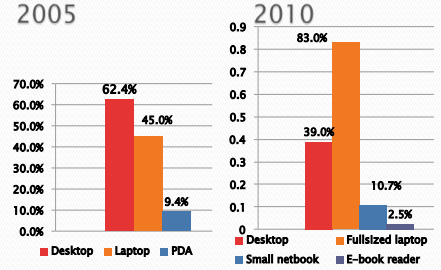
*Only includes those who own

1

Internet Activities–Handheld Device*

	EC	LaX	Mad	Milw	Osh	Park	Sup	WW	Total
Check information (news, etc.)	79.6%	85.8%	86.8%	84.9%	89.3%	89.8%	75.9%	82.2%	84.0%
Use social networking websites	81.6%	84.5%	83.7%	82.0%	67.9%	73.5%	76.5%	79.8%	81.5%
E-mail	71.8%	74.5%	82.9%	80.8%	71.4%	79.6%	70.5%	85.3%	78.1%
Use maps	57.3%	63.4%	68.2%	70.4%	50.0%	69.4%	62.0%	60.1%	65.6%
Download/stream music	34.0%	33.2%	36.4%	33.4%	28.6%	26.5%	33.1%	29.4%	32.9%
Instant message	19.4%	28.1%	32.6%	36.1%	35.7%	28.6%	35.5%	33.7%	32.4%
Conduct personal business	29.1%	24.2%	28.7%	37.2%	25.0%	46.9%	33.1%	27.6%	31.7%
Download/watch videos online	27.2%	28.6%	27.9%	28.0%	21.4%	24.5%	19.9%	31.3%	27.4%
Download or play games online	17.5%	20.6%	23.3%	27.7%	25.0%	16.3%	19.3%	27.6%	23.8%
Use Internet photo sites	6.8%	14.9%	17.1%	18.3%	17.9%	18.4%	15.1%	16.6%	16.2%
Follow or update micro-blogs (Twitter, etc.)	11.7%	12.4%	15.5%	20.5%	21.4%	22.4%	9.6%	22.7%	16.9%
Read or contribute to blogs	3.9%	8.8%	9.3%	14.8%	10.7%	14.3%	9.6%	11.7%	11.4%
Watch mobile TV	3.9%	13.7%	5.4%	12.0%	7.1%	12.2%	6.6%	11.7%	10.7%

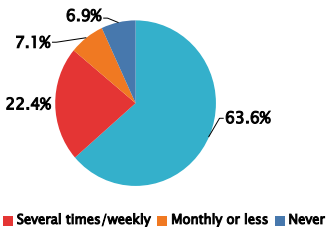
Ownership of Technologies 2005 2010



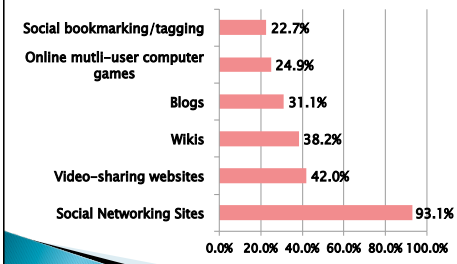
How many use Social Networking websites daily?

A. 64%
B. 78%
C. 53%
D. 47%

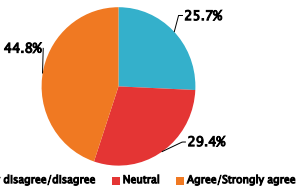
How often Social Network?



Engagement with Cloud



When I entered college, I was adequately prepared to use IT as needed in my courses



Mad – 52% agree; LaX and Superior – 41% Agree

Technologies Used in Courses During the Quarter/Semester of the Survey

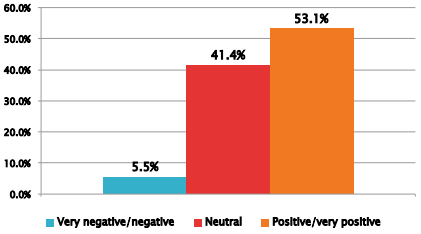
Core Technologies Used This Qtr/Sem

	Overall	High	Low
Library website	71.9%	77% - Lax	68% - Mad
Presentation software	69.6%	80% - Lax	53% - Mad
CMS/LMS	59.2%	74% - Parkside	56% - WW
Spreadsheets	43.4%	53% - Lax	35% - Superior
Clickers/SRS	21.0%	31% - EC	9% - Oshkosh
E-books or e-textbooks	19.7%	28% - Mad	13% - Lax
Lecture podcasts/videos	18.9%	28% - WW & Mad	10% - EC and Park

Web-based Technologies Used this Qtr/Sem

	All	High	Low	Other 4 year
Social Networking	31.4%	36% - Ww & LaX	26% -Mad	30.0%
Wikis	30.1%	32.0% - Milw/ Mad	23% - Osh/Park	34.0%
Web-based word processor, etc.	29.7%	34% - Osh	27% - Park	37.0%
Video-sharing sites	25.6%	30% - Ww	19% - Park	25.0%
Review/opinion sites	24.6%	36% - LaX	4% -Super	30.0%
Publisher websites	21.8%	30% - Park	17% = Super	26.0%
Citation/bib tools	16.4%	23% - Oshkosh	13% - Park and Ww	18.0%
Web-based calendars	11.3%	16% - Milw	7% - LaX	18.0%
Blogs	9.7%	13% - Milw	6% - Park	12.0%
Study support	5.7%	11% - Super	3% - Lax	12.0%

Your Overall Experience with Course or Learning Management



How many of your courses this qtr/sem are entirely online?

	EC	Lax	Mad	Milw	Osh	Park	Sup	Ww	Overall
None	89.2%	90.3%	90.0%	71.5%	83.1%	88.8%	73.3%	77.1%	81.0%
Some	9.6%	9.2%	9.0%	24.1%	12.3%	9.3%	13.0%	19.0%	15.3%
All	1.2%	0.5%	1.0%	4.3%	4.6%	1.9%	13.7%	3.9%	3.7%

Myth? I skip classes when materials from course lectures are available online

	EC	Lax	Mad	Milw	Osh	Park	Super	Ww
Strongly disagree/ disagree	68.9%	67.6%	64.3%	59.5%	75.0%	77.8%	61.7%	63.0%
Neutral	18.3%	15.9%	18.2%	18.6%	14.1%	12.0%	24.4%	22.2%
Agree/strongly agree	12.8%	16.6%	17.5%	22.0%	10.9%	10.2%	13.8%	14.8%

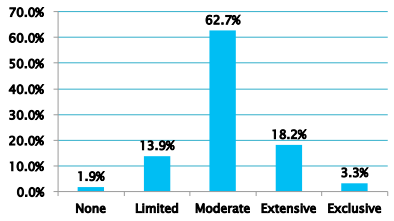
My institution's IT services are always available when I need them for my coursework.

	EC	Lax	Mad	Milw	Osh	Park	Super	Ww
Strongly disagree/ disagree	10.9%	12.3%	10.7%	9.1%	9.4%	17.8%	12.4%	9.4%
Neutral	38.8%	31.9%	33.8%	33.8%	29.7%	31.8%	36.0%	33.4%
Agree/strongly agree	50.4%	55.8%	55.5%	57.1%	60.9%	50.5%	51.6%	57.2%

Instructors and IT in Courses

Most/Almost all	EC	Lax	Mad	Milw	Osh	Park	Super	Ww
Use information technology effectively	38.8%	46.6%	50.7%	50.9%	46.2%	40.7%	37.8%	47.9%
Provide students with adequate training for the IT the instructor uses in course	28.6%	36.0%	33.4%	37.7%	30.7%	40.2%	30.4%	36.9%
Have adequate IT skills for carrying out course instruction	38.3%	47.8%	51.2%	49.2%	49.2%	52.3%	43.0%	43.0%

I prefer taking classes that use information technology



Summary

- Increased mobility and engagement in cloud
  - Personal
  - And courses
- Student training
- Instructor training

Appendix 6 – "Comparing student and faculty usage and perceptions of Desire2Learn features"

(Source: Dr. Arpan Jani, UW-River Falls, Assistant Professor of Computer Science and Information Systems)

7/7/11

Comparing Student and Faculty Usage and Perceptions of Usefulness of Desire2Learn Features

ARPAN JANI
UNIVERSITY OF WISCONSIN – RIVER FALLS

Survey of faculty and students at a regional mid-western university

Participants

- 386 Students (350 complete responses, 36 partial responses)
- 95 Faculty (84 complete responses, 11 partial responses)
- Data collected during the last two weeks of the spring semester this year

Student Survey Results

Why do students use the Desire2Learn LMS?

• Check scores for assignments, quizzes or exams	96%
• Submit assignments to the dropbox	89%
• View assignment details posted by the instructor	88%
• Read the news items/announcements posted by the instructor	63%
• Read the articles posted on the content page	55%
• Other	18%

Respondents could select as many reasons as applicable.

What features would students like the instructors to implement in a D2L course?

- Post scores for assignments, quizzes and exams 89%
- Post lecture slides/notes online 81%
- Post assignments 77%
- Allow students to submit homework assignments to the dropbox 76%
- Provide feedback/comments on assignments or exams 74%
- Allow students to take a quiz/exam electronically 70%

What features would students like the instructors to implement in a D2L course?

- Post news/announcements related to the course 63%
- Post class attendance data 50%
- Provide links to other websites relevant to the course content 48%
- Provide online reading materials (other than the textbook) 43%
- Create online discussions 26%

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Rank Ordering of D2L Features by Students

1. Viewing scores for assignments, quizzes and exams
2. Submitting homework assignments to the dropbox
3. Accessing assignments posted
4. Accessing lecture slides/notes online
5. Taking a quiz/exam electronically rather than using paper
6. Getting news/announcements related to the course

Note: Student participants of the survey were asked to sort ten D2L features in the order of importance to them. Feature sorted on top was given a value of 1 and feature on the bottom was assigned the value of 10. Scores were added and lower score indicates higher importance.

Rank Ordering D2L Features by Students

7. Getting instructor's feedback/comments on assignments or exams
8. Participating in online discussions
9. Accessing reading materials online
10. Monitoring class attendance
11. Accessing links to other websites relevant to the course content

Note: Student participants of the survey were asked to sort ten D2L features in the order of importance to them. Feature sorted on top was given a value of 1 and feature on the bottom was assigned the value of 10. Scores were added and lower score indicates higher importance.

What things students liked the best about D2L?

Content Analysis of Open Ended Questions

- Access to grades - mentioned 218 times
- Access to assignment details and uploading assignments to dropbox – mentioned 84 times
- Access to content (lecture notes, syllabus) - mentioned 82 times
- Convenience – mentioned 43 times
- Ease of use - mentioned 39 times
- Taking quizzes/exams – mentioned 32 times
- Being able to contact other students - mentioned 31 times

What things students like the least about D2L?

Content Analysis of Open Ended Questions

- Instructors not using D2L – mentioned 107 times
- Online discussions – mentioned 42 times
- User interface – mentioned 30 times
- Posting of other announcements on D2L (e.g. information about other courses, university announcements) 14 times

Other aspects mentioned

- No e-mail notification about changes/updates to the content page or news
- Concerns about instructors' ability to monitor what content students have viewed