AC 2012-3816: AN 18-MONTH STUDY OF STUDENT EMBRACEMENT AND USE OF A LEARNING MANAGEMENT SYSTEM AT AN URBAN, RESEARCH INSTITUTION

Julie M. Little-Wiles M.S.M., Ph.D. (A.B.D.), Purdue University, West Lafayette

Julie M. Little-Wiles is a Ph.D. candidate at Purdue University's College of Technology in the Department of Technology Leadership and Innovation.

Dr. Stephen Hundley, Indiana University-Purdue University, Indianapolis

Stephen Hundley is Associate Dean for Academic Affairs and Undergraduate Programs and Associate Professor of organizational leadership and supervision in the Purdue School of Engineering and Technology, IUPUI.

Dr. Wanda L. Worley, Indiana University-Purdue University, Indianapolis
Mr. Erich J. Bauer, Indiana University-Purdue University, Indianapolis

An 18-Month Study of Student Embracement and Use of a Learning Management System at an Urban, Research Institution

Abstract

When freshman students are presented with not only a new experience called college, but also the responsibility of dealing with this event – how does a learning management system aid them in this endeavor? Do they embrace the learning management system for use within their courses and program? How frequently do they use the learning management system and its tools with their courses? And does this embracement and usage change over time?

This study examined both the embracement and usage patterns of a group of freshman students with an online learning management system in the School of Engineering and Technology at Indiana University-Purdue University Indianapolis (IUPUI) through their first 18 months. A survey was administered twice, once following the first semester of the freshman year and once midway through the first semester of the sophomore year. The survey questions focused on evaluating the amount of engagement and usage of the learning management system. Several open-ended questions concentrated on learning what students found especially difficult in navigating the environment; how they perceive they will use the learning management system throughout their time at this institution; what they like most and least about the system; and finally, how their experience could be improved with the learning management system. Researchers were also curious if students were experienced in using any learning management system before their involvement at this particular institution to determine prior bias or embracement factors that might be present or might hinder their use of the system.

Besides learning basic demographic and descriptive information about the student group, researchers gained perspective on the students' prior opportunity and their future desire for training on the learning management system. Details emerged on the frequency of use, tools used within the system, communication methods, and students' use of the system or other tools to manage their courses. These results were evaluated between surveys to understand variations that had occurred as the students progressed through their programs into their sophomore years. Final results demonstrated mixed responses from students: first with instructor usage of the learning management system within courses; and second, with the number of students who have taken online courses through this particular institution in the learning management system.

Introduction

First-time college students experience a wealth of new encounters during their initial year in their programs. Learning to balance their time, courses, work, and even family life can be challenging to the most veteran student and especially difficult for new freshman. Any type of tool that may aid them in this endeavor is most certainly welcomed by not only the students, but also faculty and administrators. One such tool is a learning management system (LMS) and is the focus of this particular study at an urban institution.

But what exactly is a learning management system? Carliner (2004)[1] explains that an LMS "refers to software that performs administrative tasks." The LMS can also perform several functions for both face-to-face and online courses as well as administrative duties such as "registration, testing, attendance, grades and providing learners a one-stop place to go for their learning needs" (p. 74). The benefit in using an LMS is that an institution may "automate some or all of the administrative tasks of an educational operation" (p. 76). This then allows for the sharing of information between the LMS and other utilities so that administrative operations become more seamless (p. 78).

As this study seeks to examine freshman commuter students at an urban institution and their experiences with the institution's learning management system, it becomes important to understand exactly how commuter students are different from traditional ones. Regardless of the institution's particular urban location, the commuter student is a growing entity and now comprises over 85% of the student population (Horn & Nevill, 2006)[2]. The common definition of a commuter student is one who does not live in any institutionally owned residence (Jacoby, 2000)[3]. Kuh, Gonyea, & Palmer (2001)[4] explain how the commuter student differs from its traditional counterpart:

> Students who drive to campus differ in some key ways from their peers who walk to class or live on campus. For example, they are more likely to be non-traditional age students, first-generation, and students of color. They also spend more time caring for dependents and work more hours off campus, which may also explain in part why they are more likely to be part time students (p. 6).

Method

With all of this in mind, researchers wanted to explore the use and embracement of the LMS by freshman students for an 18 month period at the School of Engineering and Technology at IUPUI. Of particular interest was how the students' use of the system changed over time, and if it did indeed aid them in their learning.

Beginning in the fall of 2010, freshman students were invited to participate in this study. Out of a population of 1271 students, 252 participants responded to the initial survey. One year later during the participants' sophomore year, members of the cohort of 252 initial respondents were invited to participate in the second survey resulting in 71 participants.

Each survey took the students approximately 10-15 minutes to complete depending on the length of some of their answers. The surveys were available for a period of approximately one month and were strictly voluntary; students were given the option to enter a drawing for two tuition prizes to be awarded and used in future semesters after the final survey was completed.

Results

Results are categorized by demographic information first, followed by LMS basics, then tools/features students used, and finally, short answer questions of what students liked most, least, and how their experience could be improved within the LMS.

Demographics

In both surveys, at least two thirds of the respondents were male compared to only one third female. Interestingly in the initial survey, then freshman students answered that 37% of them were not working outside of their studies; with the second survey, this dropped to 13% during their sophomore year. A greater percentage of students (32%) in the second survey were then working part-time, 11-20 hours per week. Researchers noted that almost every category of work hours had increased from the initial survey to the second, so students were working more hours by their sophomore year and attending school at the same time.

The age range on both surveys was as follows:

Table 1. Student Ages

Age Range	Survey 1(Freshman - 252)	Survey 2 (Sophomore - 71)
18 - 22	59%	39%
23 - 30	21%	29%
31 - 40	14%	22%
41 - 50	5%	9%
51 & older	1%	1%

Student GPAs remained relatively similar on both the initial freshman survey and the follow-up sophomore survey:

Table 2. Student GPAs HS vs. College

GPA	Survey 1(Freshman - HS)	Survey 2 (Sophomore- Current)
3.5 - 4.0	47%	48%
3.0 - 3.4	32%	25%
2.5 - 2.9	16%	24%
2.0 - 2.4	4%	3%
1.9 or lower	0%	0%

LMS Basics

When questioned if students had taken any training on the LMS in the initial freshman survey, only 17% responded with "yes" and 83% with "no." During the second survey, a similar question was asked of the then sophomore group and results were also comparable with only 8% answering "yes" and 92% at "no." Both times (freshman and sophomore) students agreed that the training was beneficial, but researchers noted that when asked if additional training should be offered, the freshman survey answer was divided with 55% at "yes" and 45% at "no," while during the sophomore survey, the answer of "yes" increased to 60% leaving 40% at "no."

How often students logged into the LMS did not fluctuate considerably between their freshman and sophomore years, although there was a slight increase in the number of students never logging into the LMS. See Table 3.

Table 3. Student LMS Log-In Rate

Log-In Rate	Survey 1(Freshman - 252)	Survey 2 (Sophomore - 71)
Once or more daily	81%	75%
3 or 4 times a week	13%	15%
2 times a week	2%	6%
1 time a week	1%	0%
1 or 2 times a month	2%	1%
Never	0%	3%

But did students actually use the LMS to help manage their courses? During the initial survey during their freshman year, 88% responded "yes" and 12% "no," and during their sophomore year, these numbers remained stable with 90% at "yes" and only 10% with "no." Respondents did reveal if they were not using the LMS, they were often using some type of personal calendar such as "Outlook" or even a "pocket calendar" to manage their courses.

How many of the instructors in the School of Engineering and Technology at IUPUI were consistently using the LMS in their courses, in the students' opinion? The numbers did vary and researchers could not determine the precise cause of the variance within this survey framework. Researchers speculate it could be attributed to the variety of courses offered in the vast amount of different departments within the School of Engineering and Technology, or perhaps an increase in school specific (or major) courses the students were taking their sophomore year versus general courses outside of the school their freshman year. See Table 4.

Table 4. Instructor Use of LMS (Students Opinions)

Rate	Survey 1(Fresh)	Survey 2 (Soph)
Yes, all of my E&T instructors use Oncourse	59%	72%
Yes, some of my E&T instructors use Oncourse	40%	28%
No, none of my E&T instructors use Oncourse	2%	0%

The majority of students did find the LMS easy to navigate as 90% indicated so in both surveys. When asked what the students found difficult in navigating the LMS, answers included "only using functions internal to" the LMS, not being able to use the browser back function, not all courses set up the same with tools and features, either labels or locations of tools/features not intuitive to students, and the "functionality doesn't always work properly."

The final question in this area was if students had utilized an LMS prior to attending the School of Engineering and Technology. Answers were similar between both surveys as 37% answered "yes" in the freshman survey, while 34% did in the sophomore survey. When asked what specific system they used, responses ranged from "Angel" to "Blackboard" in "high school" or at "Ivy Tech."

Tools/Features

Questions within the area of Tools/Features were concerned with what specific tools or features the students used within the LMS and how much this usage had changed during the timeframe examined.

Students were first asked to identify which tools they used within the LMS and were able to choose as many as applied. Results were comparable with most categories slightly changing percentages. See Table 5.

Table 5. Student Tool/Feature Usage

Tool	Survey 1(Freshman - 252)	Survey 2 (Sophomore - 71)
Messages	92%	92%
Gradebook	95%	99%
Announcements	84%	80%
Chat	30%	24%
Forums	39%	42%
Calendar	29%	25%
Resources	87%	92%
Assignments	96%	97%
Syllabus	91%	87%
Podcasts	7%	8%
Web Content	8%	7%
Other, please specify	4%	4%

Do students read the announcements posted on the main page of the LMS by either the University or the School? These announcements may concern various issues from registration information for courses, campus closures, deadlines or special events, etc. Answers reflected a slight increase from 42% in the freshman year to 48% in the sophomore year. Unfortunately, though, this demonstrated that at least half of the students are still not reading these announcements despite both the University and School's efforts to inform them.

One area where there was significant change was in the use of the LMS for communication purposes. In the initial survey, 77% of the students indicated that they did, in fact, use the LMS to communicate with other students and faculty; this increased to 97% by their sophomore year. Likewise, alternative means of communication was considerably reduced by the sophomore year. See Table 6.

Table 6. Student Alternative Communication Means

Tool	Survey 1(Freshman - 252)	Survey 2 (Sophomore - 71)
Email	91%	50%
Facebook	53%	0%
Twitter	3%	0%
Skype	12%	0%
None	0%	50%

Messages remained the most popular tool for communication within the LMS, recording a 96% reply on both surveys in a follow-up question. Forums (or online discussions) recorded the largest increase from 28% to 44%; this was followed by the Chat Room tool that experienced a decreased response from 29% to just 15% use during the sophomore year.

Students were then asked if they were taking an exclusively online course. Researchers noted an increase in the number of students taking online courses in their sophomore vs. freshman years. In the freshman survey, only 37% answered that they were taking a fully online course, while this number grew to 66% by their sophomore year. There was an agreement between surveys, though, of how conducive the LMS environment was for their course with 91% agreeing their freshman year and 93% their sophomore year.

Student Perceptions

One question asked only in the second survey was if students had become more comfortable with using the LMS during the last year. Ninety-four percent of the respondents replied with "yes" and those that did not were asked to explain why. Answers were minimal, but ranged from "every instructor uses it differently" to the "testing module changed" and "it has a clunky interface."

A series of short answer questions were next on both surveys to discover how students felt about the LMS. The first question was what students liked *most* about the learning management system. Responses were consistent between the two surveys and included such comments as "it is easy to use," "the ability to check assignments and grades," "everything is all in one spot," "resources and communication with students and instructors," and "it is accessible from anywhere 24/7."

What did students like *least* about the LMS? Again, remarks were similar in both surveys and included such comments as "inconsistent usage by instructors," "at times it is slow to respond" or even goes down, and "some of the navigation is a little odd."

But how could the students 'experience using the LMS be improved? Student observations comprised a wide range of ideas such as "eliminate down time," "a better organizational layout," "improve calendar tool," and "more consistency of use among instructors."

Finally, how might students use the LMS during their time at the University? Researchers discovered that students had embraced the system between the first and second survey, and

would continue to use it for their courses and communication. One student reported using the LMS as a holistic tool: "I will continue to use it as my primary communication resource with classmates and professors and the main location where I can check on my grades, upcoming homework, and resources shared by the professors."

Conclusion and Recommendations

The results of this study suggest that incoming freshman will embrace a learning management system for their studies. Researchers also learned that in this particular group of students, workloads had increased by their sophomore year while GPAs had decreased somewhat from their reported high school GPAs.

There was a slight increase in the interest of additional training with the LMS between the initial survey during the freshman year and the follow-up survey during the sophomore year. Researchers noted that a little over one third of students had been exposed to an LMS prior to their experience at the School of Engineering and Technology at IUPUI giving student responses even more merit.

The tools or features students used consistently between time periods were the syllabus, gradebook, resources, assignments, announcements, and messages. Tools less used were chat, podcasts, calendar, forums, and web content. A major reason for this result could be that instructors do not use these tools well within their course environments, resulting in less student use.

One major area of change was that of communication as more students used the LMS in their sophomore year than freshman year to converse with fellow students and instructors. There is significant instructor advantage to this as the LMS records all correspondence and can be referenced later if required, for instance, in the use of grade change requests. There was also a substantial variation in the number of students taking online courses within the school between their freshman and sophomore years. As the School of Engineering and Technology at IUPUI offers online courses at various levels, researchers would have to assume at least part of this increase could be attributed to the students becoming more comfortable with the LMS.

It was evident that students liked that the LMS brought convenience and organization to their courses, but at the same time wanted the system to be more reliable and stable. Students also wanted instructor use of the LMS environment to be standardized. Administrators should address these two areas to capture further and future embracement of the system. This becomes particularly important in an urban institution where a large majority of the students are commuting to campus and their only connection to faculty and other students is often the learning management system. As Kuh et al. (2001)[4] discovered, "...it appears that the further away from campus (walking distance, driving distance) the less likely a student is to take advantage of the educational resources the institution provides" (p.5). It is then up to administrators, IT professionals, and instructors to engage urban, commuter students and provide them with as similar an experience to their traditional counterparts as possible.

Planned next steps to this research include the continuation of this study and this cohort group into their senior year as well as launching a new study with a new group of freshman cohorts in order to compare results. In addition, it would be advantageous to expand this work to other institutions, such as one in a traditional campus environment, for comparable results.

Bibliography

1. Carliner, S. (2004.) *An overview of online learning* (2nd Ed.) Amherst, MA: HRD Press.

2. Horn, L., & Nevill, S. (2006). *Profile of undergraduates in U.S. postsecondary education institutions: 2003–04: With a special analysis of community colleges students*. Retrieved December 27, 2011, from http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2006184.

3. Jacoby, B. (2000). Why Involve Commuter Students in Learning? *New Directions for Higher Education*, (109), 3. Retrieved December 27, 2011, from Professional Development Collection database.

4. Kuh, G. D., Gonyea, R. M., & Palmer, M. (2001). *The disengaged commuter student: Fact or fiction?* Retrieved December 27, 2011, from: http://nsse.iub.edu/pdf/commuter.pdf.