

AC 2010-791: DESIGNING AN ONLINE LEARNING MANAGEMENT SYSTEM FOR A GROWING STUDENT POPULATION: THE URBAN, COMMUTER STUDENT

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Designing an Online Learning Management System for a Growing Student Population: the Urban, Commuter Student

Abstract

What can we do as university administrators and educators to ensure our commuter students are provided with the same opportunities as traditional students in regards to course instruction and collaboration efforts? How do we enhance a commuter student's academic experience and provide a sense of community to them? What elements need to be present in an online learning management system to benefit commuter students in an urban setting?

This study will examine an online learning management system in relationship to an urban, commuter undergraduate college student in the School of Engineering and Technology at Indiana University-Purdue University Indianapolis (IUPUI). The student population in the United States that is commuting to urban campuses has rapidly increased at many colleges and universities in recent years, and this study will focus on how to design and facilitate an online learning management system that would best aid this particular student population in their academic pursuits. Specific tools were identified and evaluated by stakeholders, and researchers were able to distinguish vital elements that urban, commuter students were especially receptive to and required in an online learning environment.

Key results included recommendations to guide administrators and faculty in developing an online learning environment that will enhance and promote urban, commuter student success. How best to facilitate a learning environment to support commuter students will be discussed. Finally, the minimum tools necessary to create a stimulating and valuable learning environment for commuter students in an urban setting are outlined.

Introduction

Traditional four year undergraduate students have long had a "sense of community" within their campus, school and department. They have enjoyed an information network within the walls of their institutions enabling them not only to be informed but also to be involved in their academic settings. Through the last ten years a slow transformation has begun at more urban academic locations in which the commuter student has emerged in greater numbers than ever and now comprises over 85% of the student population (Horn & Nevill, 2006)⁴. Why? Some may cite the reasons of cost and convenience with more working adults and those labeled as "non-traditional" students attending college for either the first time or returning once again. Some may also comment that it is an easy way for many institutions to expand their programs with very little facility or structural cost while meeting those students needs. Whatever the reason, the urban, commuter student's academic experience needs to mirror that of their on campus, traditional colleague for greater engagement.

A closer look at these urban, commuter students and what type of learning opportunities and learning management system they are provided at the School of Engineering and Technology at IUPUI was the goal of this study. Several key questions guided the research such as:

1. How do administrators plan for this type of student and best accommodate their learning?
2. How do we create that “sense of community” for commuter students as we have done so well with traditional on-campus students?
3. What type of learning environment would best benefit an urban, commuter student with his/her academic pursuits?
4. What key elements or tools need to be present to ensure that these students receive the maximum amount of support from their instructors and staff?

Literature Review

What is an urban, commuter student?

To begin our examination of how best to benefit commuter students in an urban college setting within a learning management system such as OnCourse (IUPUI’s commercially purchased learning management system similar to other available learning management products like Blackboard), we must first define the commuter student. There have been a variety of definitions for commuter or non-traditional students by various researchers but most agree that this student is one that does not live on campus or in any institutionally owned residence (Jacoby, 2000)⁵. “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” (Kuh, G. D., Gonyea, R. M., & Palmer, M., 2001)⁶.

For the purposes of this study, commuter students comprised 90% or exactly 374 of the respondents in the survey from the School of Engineering and Technology at IUPUI which is consistent with the percentage of commuter students on campus currently. It should be noted that for this study there was no differentiation made between the various types of commuter students such as those living with a parent or relative and those living independently, etc.

What is online learning?

Now that we have defined our subject, the commuter student, we must look at our context and what exactly is online learning. Carliner (2004)¹ defined online learning to be “learning and other supportive resources that are available through a computer” (p. 1). He further explains that “the basic form of online learning” consists of “some text, simple graphics, and a limited amount of interaction” while “more complex online learning will involve a larger amount of intentional

interaction than hyperlinks” (p. 3). Online learning similarly is described as “learning that takes place partially or entirely over the Internet. This definition excludes purely print-based correspondence education, broadcast television or radio, videoconferencing, videocassettes, and stand-alone educational software programs that do not have a significant Internet-based instructional component” (Means, B., Toyama, Y., Murphy, R., Bakia, M., and Jones, K., 2009)⁷.

It then becomes important to understand what a Learning Management System (LMS) is and how it can be used. Carliner (2004)¹ explains that LMS “refers to software that performs administrative tasks” LMS can also perform several functions for both online and classroom courses and administrative functions such as “registration, testing, attendance, grades and providing learners a one-stop place to go for their learning needs” (p. 74). The advantage to using learning management systems is that you may “automate some or all of the administrative tasks of an educational operation” (p. 76). This allows for easy sharing of information between the LMS and other systems so that administrative tasks become more seamless (p. 78).

Within LMS, collaboration becomes an important element that can be very beneficial to both traditional and commuter students. Harasim, Hiltz, Teles, and Turoff (1995)³ defines collaboration as “... any activity that in which two or more people work together to create meaning, explore a topic, or improve skills.” Collaboration used in a LMS environment should be viewed as “an essential ingredient in the recipe to create an ‘effective learning environment’ as it provides learners with the opportunity to discuss, argue, negotiate and reflect upon existing beliefs and knowledge. The learner is “involved in constructing knowledge through a process of discussion and interaction with learning peers and experts” (Harasim 1989, p.51)².

What tools are necessary to support online learning?

According to Zhang, Zhou, Briggs, and Nunamaker, Jr. (2006)⁸, it is more important how an online learning environment is used versus students simply having access to it. With this in mind, there are several categories of tools necessary for facilitating an online learning management system such as communication, information, assessment and interaction tools. Communication tools such as email, messaging and blogging can provide students with a means to not only communicate with their instructor, but also with each other which can help foster better collaboration in projects or assignments. Information tools consist of places where the syllabus is posted and where supplemental administrative and course materials may be loaded. Online quizzes, tests, and surveys are examples of assessment tools which an instructor or an administrator can use to determine the amount and quality of student learning. Finally, chat and discussion forums as well as file sharing provide opportunities for collaboration and are interactive type tools.

Carliner (2004)¹ makes the point that “in some situations, the learning is intentional; the learners must master the objectives, including training and education. In other situations, learning is a coincidental outcome, and learners will acquire new skills and knowledge as they work on more familiar tasks, such as knowledge management and performance support. Whether learning is

intentional or coincidental affects the way in which people design online learning experiences and the way these people plan for learners to acquire new skills” (p. 17).

Methodology

Data collection was conducted via an electronic student survey of undergraduate students in the School of Engineering and Technology at IUPUI. The survey was a voluntary activity and available for student participation for exactly three weeks. A participation rate of 17.2% was recorded from all 2,418 potential respondents (undergraduate population of the School of Engineering and Technology for fall semester 2009.) Researchers determined this was an adequate representation for the purposes of this study.

The survey consisted of four categories of questions (1) instructor usage, (2) student usage, (3) general questions on the learning management system (OnCourse), and (4) individual student identifiers so that researchers were able to discover multiple findings involving the data. The survey took students approximately ten to fifteen minutes to complete and there were both multiple choice and fill-in-the-blank questions. All of the fill-in-the-blank questions were for the purpose of extracting additional explanation or details relevant to the study. Students were able to “skip” over some of the questions, passing on to the next question, but there were some required ones such as the individual identifiers.

Under instructor usage, questions were intended for an understanding of how much the instructors chose to utilize the capabilities of OnCourse, the learning management system. Do the instructors post their syllabus on OnCourse? Do they use the Gradebook feature to post mid term and final grades? Do the instructors use any communication tools within OnCourse for regular course communication?

To determine student usage of OnCourse, questions were directed toward their desire to access their grades and to make use of various tools within OnCourse such as messaging, assignments, the syllabus, and resources such as supplemental reading materials or presentations. Students were also asked if they had taken an exclusive online course and if yes, what was their experience with the course and would they recommend it to others.

General questions were more opinion based asking what students liked most and least about the OnCourse site as well as if they felt their instructors were using the site effectively. Students were then given the chance to submit their comments on how best to improve the site and usage by their instructors.

Common individual identifiers were also incorporated into the survey asking students for their gender, ethnicity, current class standing, and specific program of study under the School of Engineering and Technology. Additional information was requested to better understand the current equipment students may have available (laptop) to use during both online and on campus engineering and technology courses. These questions were asked for purposes outside of the study and will be used to further develop a better understanding of the current student population and their needs at the School of Engineering and Technology at IUPUI.

Analysis of Findings

The survey revealed answers relevant to three categories of users: instructors, students, and administrators and IT professionals. So we will examine the results by each category and report the findings for each type of user.

Instructors

Students were asked as series of questions related to their instructor's usage of the OnCourse system in their engineering and technology courses. Students were first asked if their instructors posted their course syllabus in OnCourse. 63% of students responded that *all* of their instructors posted the syllabus; while 36% answered that *some* of their instructors posted the syllabus. Only 1% or 4 students responded that *none* of their instructors posted the syllabus.

Students then were asked if their instructors used the "messages" tool in OnCourse as the primary means of communication. 166 students or 40% replied that *all* their instructors used the messaging tool while 54% reported that *some* of their instructors used the communication tool. 6% or 26 students replied that *none* of their instructors used the messages tool at all.

The third question that students were asked was more specific to which tools of communication do their instructors use in OnCourse and they were asked to check all that applied so multiple answers were given. Results were as follows:

1. Messages	381	92%
2. Announcements	345	83%
3. Chat	86	21%
4. Forums	137	33%
5. Calendar	73	18%
6. None	10	2%
7. Other	46	11%

The next question concerned if instructor's distributed course materials via OnCourse such as PowerPoint's, lecture notes, videos, readings, etc. creating a centralized point for students to access all materials in the course. 189 students or 45% responded positively with *all* of their instructors and 52% replied that *some* of their instructors loaded supplemental materials on OnCourse. Only 2% or 10 students reported that *none* of their instructors loaded additional materials into the system.

Question five asked students to check the specific methods or tools that their instructors used to distribute materials in OnCourse to them.

1. Resources	385	95%
2. Messages	174	43%
3. Announcements	160	40%

4. Calendar	42	10%
5. Assignments	304	75%
6. Podcasts	16	4%
7. Web Content	47	12%
8. Other	7	2%

Students were then asked if instructors used the Gradebook or Post'em tools in OnCourse to first deliver assignment or project grades and to next deliver test grades. 43% of students responded that *all* of their instructors used these tools to report assignment or project grades with a slightly higher response of 44% to the test grades. 52% responded that *some* of their instructors report their assignment or project grades on OnCourse while 50% answered for test score reporting. 5% (assignment or project scores) and 6% (test scores) were also reported by students with *no* instructors using these tools in OnCourse.

Finally, students were asked how important they felt it was to have access to their grades online in the OnCourse system on a scale of "1" to "5" with "1" being *extremely important* and "5" being *not important*. The majority of students, 285 or 69%, responded overwhelmingly that having access to their grades on OnCourse was *extremely important* to them. This was followed by 22% that answered it was *very important* to them. A combined 9% responded to the last three categories of *important, somewhat important and not important*.

Students

Student questions centered on if their instructors used various tools in OnCourse effectively, how they would then rank the tool's usefulness in the system. Students ranked each tool from "1" to "5" with "1" being *extremely useful* to "5" being *not useful*. Tools included the syllabus, resources, messages, the gradebook and assignments.

The syllabus was reported by 54% or 225 students to be *extremely useful*, followed by 26% that reported it *very useful*. 17% responded that the syllabus on OnCourse was *useful* and only 3% reported that it was *somewhat to not useful* at all.

Resources on OnCourse were stated by a combined 86% to be *extremely to very useful*. 11% of students felt that resources were *useful* and a combined 2% felt they were *somewhat to not useful*.

The messages tool received 49% and 30% for *extremely useful* and *very useful*, respectively. 14% of students ranked this tool as simply *useful* and a combined 6% found it to be *somewhat to not useful* the bottom two categories.

The gradebook feature in OnCourse received a large response of 71% or 291 respondents that felt that it was *extremely useful* followed by 21% that ranked it as *very useful*. A small percentage or 6% felt that this tool was *useful* while 2% reported it as *somewhat to not useful*.

Finally, assignments were given a response of 69% for *extremely useful* and 24% for *very useful*. A smaller percentage of 6% reported having assignments available in OnCourse as *useful*, the middle category. A mere 1% combined reported this tool as *somewhat to not useful*.

Administrators and IT Professionals

The survey included several questions relevant to both administrators and IT professionals for continued improvement of the system and to address possible user issues as well. Several of the questions provided students with the opportunity to personalize their responses to the questions.

Students were first asked if they felt their engineering and technology instructors were using OnCourse effectively overall. 32% responded that *all* of their instructors were, while 63% reported that *some* of their instructors were effective in using the system. A smaller percentage, 5%, felt that none of their instructors were effectively using OnCourse in regards to their courses.

One of the first questions students could submit a more personalized response to was to ask in what ways their engineering and technology instructors could use OnCourse more effectively. The majority of the responses indicated that the communication tools were the first concern and area that improvement could be most beneficial to them. Statements such as “utilize the calendar (tool.) Only one of my courses actually uses it and I find it very helpful to keep track of upcoming homework, quizzes, tests, etc.” and “all of them could use the messages (tool) through OnCourse more often.” Students also wanted their instructors to use the gradebook tool, assignments tool and post the syllabus and any other relevant material they need for the course. “One or two of my professors use it very well, while others do not seem to use it at all” was a continued theme throughout the 306 responses. Suggestions of using more of the available tools such as the chat and forum features were also given.

Students were then asked what they liked *most* about using OnCourse. Overall communication (announcements, messaging, and chat/forum tools) was again a majority response from students. They also felt that organization, navigation and access were important with this system and several comments reflected this fact. “It is centralized and I can communicate with the instructor and others in my class. It is a one-stop-shop for my courses.” “I rather enjoy the culmination of course materials in one central location.” and “Ease of use. Organization. I can access all of my classes in one area.”

Students then responded to the opposite question of what they liked *least* about using OnCourse. Several reported that the OnCourse system itself can be unpredictable, shutting down unexpectedly for different periods of time. There were also comments that some of the tools could be slow at various times and also cumbersome to use such as the chat tool, “the email text editor is difficult to use”, “email layout” and “you have to go to each classroom section to see if there is a message sent instead of looking at you’re my workspace section and it telling you that you have messages.” Several students also responded that it was harder to navigate since it was so different from using the web or a Windows based application. Lack of instructor usage was also a reoccurring answer.

Next, students answered how their experience using OnCourse be *improved*. Various responses included accessibility with iPhones, “keeping the material from previous classes available”, and promoting consistency in usage among instructors for various tools. Training on the OnCourse system was also reported to be an issue for both students and their instructors. “Required training for instructors” and students need “more training as freshmen so they know more about it before actually beginning classes” were stated. Downtime and having the system respond faster to commands were also given for reasons for improvement. Students also requested online chat or discussion times with their instructors regularly throughout the duration of their course.

Finally, students were asked if they had taken an exclusive online course with 54% responding that they had and 46% as *no*. A combined 51% was *very to extremely satisfied*, 30% was *satisfied*, 10% was *somewhat satisfied* and 9% reported *not satisfied* with the online course experience. When asked if the students would recommend online courses, 77% responded *yes* and 23% *no*.

Conclusion and Recommendations

The results of this study suggest that urban, commuter students will embrace a learning management system (LMS) to aid them in their educational pursuits and provide them with similar opportunities that traditional on campus students’ experience. The key findings were that the system must contain the necessary tools that students require to support their courses and study. Communication tools were one of the largest factors identified as a necessary component to a beneficial system and one that provides a sense of “community” to students. The posting of messages, the syllabus, assignment and project details, grades and supplemental materials required for the course were the most requested communication tools. Students also had the desire to have chat and discussion forums (collaboration tools) available as well as a regularly scheduled time to “talk” to their instructors online in some manner.

Simply purchasing or enabling a LMS is not enough. Administrators and IT professionals need to realize that students and instructors require an adequate amount of training on the system to not only be comfortable with it, but to also fully utilize its capabilities. A good suggestion from one student in the study was that IT professionals provide (and administrators require) a standardized version of the LMS to each instructor including a standard set of tools with the option to add tools where necessary based on each course. This would provide the “consistency” among courses that students so greatly desired in the study. This enables students and instructors to learn a LMS system more rapidly so that it also becomes easier to navigate for all involved.

Consolidation is also crucial to a successful LMS according to the study results. Urban, commuter students have less time to spend on campus searching for offices or resources. A well managed and detailed LMS can enable these students to do a variety of tasks that they normally would be required to do in person on campus – all located in one online location. Setting up the LMS to allow for registration, bursar payments, courses, transcripts, university messaging, opportunities, etc. can provide urban, commuter students with all of the same resources traditional on campus students’ benefit from.

Next steps to further expand upon this research could be the use of focus groups, surveying of instructors, and benchmarking with other institutions. Focus groups could be held to determine more specific features students like and dislike about the LMS and what improvements need to be made to better develop that “sense of community” with students. Instructors could also be surveyed to determine their limitations with the system as well as their capabilities. This could provide administrators with more detailed information when designing training or a standardized version of the LMS. Finally, taking time to benchmark with other institutions can give a better sense of where peer institutions are in regards to utilization of LMS products and student engagement.

As Kuh et al. (2001)⁶ 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 up to administrators, IT professionals and instructors to engage those urban, commuter students and provide them with the same opportunities their fellow on campus colleagues can access.

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