Handbook of Research on Instructional Systems and Technology

Volume II

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Chapter XXXVIII
Student and Faculty Satisfaction with Enterprise CMS

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ABSTRACT

Course management systems (CMSs) are becoming widespread in colleges and universities that offer distance learning courses and programs. As a result of high costs involved in deploying course management tools, it is important to determine student and faculty satisfaction with these systems to justify continued use and pedagogical value. A study was conducted in the business school of a large university to determine student and faculty satisfaction with the enterprise version of Blackboard course management tool.Results of the survey found that faculty and student satisfaction with the CMS is high, the system is mainly being used as a convenience tool to distribute course materials, faculty training is needed that goes beyond tool use and incorporates pedagogical issues, and use of a portal should be further encouraged among students and faculty. Results of this study should be useful to educators interested in deploying enterprise CMSs in their institutions.

INTRODUCTION

The use of the Internet and World Wide Web has become an integral part of distance learning. Distance learning is gradually being accepted as an important component for attracting and retaining students in degree-granting institutions. This type of alternate learning medium benefits students who may not be able to attend "traditional" on-campus programs. Older students are going back to school to keep up with the demands of training for current or new occupations (Bryant, Kahle, & Schafer, 2005). For colleges and universities, online distance education is one way to reach

populations that would otherwise not attend a traditional classroom, and it offers a cost-effective way to enroll students without expanding their campuses.

With student enrollment in online courses increasing each year, educational institutions are implementing enterprise wide CMSs (such as WebCT and Blackboard) to provide a single uniform Web-based interface across courses. Advantages of deploying one system in all courses includes having a standard user interface for students and faculty, better training in use of these systems, effective support structure, and integration of academic and administrative functions such as registration, grading, access to library resources, and so forth. Because of the cost and complexities of deploying enterprise-wide CMSs, administrators are also interested in determining the satisfaction of students and faculty with course management tools. This is also being done to justify existing and future investments, as well as to calculate return on investment on capital intensive course management tools that often use a high cost licensing model for pricing.

A CMS provides an instructor with a way to create and deliver content, monitor student participation, and assess student performance. Technology-enhanced learning as an adjunct to classroom teaching has shown to benefit students by creating a virtual community of learners and providing an area for student dialog outside the classroom (Berge, 1997). A CMS may also provide students with the ability to use interactive features such as threaded discussions, video conferencing, and discussion forums. Use of such tools can promote collaborative learning, enhance critical thinking skills, and give students equal opportunity to participate in classroom discussions. Research has found that online courses can be as effective as traditional teaching methods (Heffner & Cohen, 2005; Moore, 2003). With sound pedagogical design, Web-based instruction can create meaningful learning environments by engaging students in the active application of knowledge, concepts, and give them an opportunity to control pace and monitor learning, which will help them grow and evolve as the course progresses (Hazari, 1998).

Despite these enormous benefits, there are certain disadvantages to course management tools. Some faculty and students are intimidated by the technology, which results in low usage. Students who are not highly motivated have difficulty completing an online course. A higher dropout rate has been noted for students enrolling in an online course compared with traditional courses. Other students have issues with the quality of an online course where they felt "shortchanged" with the online experience (Sauers & Walker, 2004). From the college or university perspective, the greatest disadvantage is the high cost involved with implementing and maintaining a CMS. It is important to assess the quality of service, technical as well as pedagogical issues that contribute to success (or failure) of Web course tools. With the increasing cost of maintaining a CMS and evidence of low use by faculty, research must be done to evaluate the effectiveness of course management software. Educational technology research is needed to justify the continuing investment required for a technology infrastructure (Roblyer & Knezek, 2003).

When enterprise course tools such as Blackboard and WebCT were initially introduced, colleges paid a few thousand dollars a year for these products. Within the last couple of years, the course management software providers have substantially raised their prices and are asking tens or even hundreds of thousands of dollars for the latest systems. Blackboard and WebCT maintain that the price increases reflect the increasing complexity of their product including research and development costs. Both companies offer scaled-down versions of their newer, more expensive

system (Young, 2002). As an alternative, some colleges are even designing their own version of course management software to help control the rising cost of the commercial products (Young, 2004). Higher-end versions of course management tools offer advantages such as integration into the administrative system and portals, which many colleges find very useful.

This study is an evaluation of the Blackboard CMS, which was implemented as an enterprise tool to integrate with administrative systems in a nationally ranked business school at a large research university in the eastern region of the United States. The purpose of this study was to identify issues, advantages, disadvantages, problems, and impact that the Blackboard course tool is having on faculty and students in the school and explore benefits of linkages of this course management tool to the school portal. Web-based surveys were used to collect data. Forty-three faculty and 296 students responded to the survey that was administered online. Satisfaction with technical and pedagogical aspects of the tool was addressed in the survey. Findings of this survey should be of interest to faculty who are trying to adapt to teaching using a new medium, and by using interactive features available in course tools. This study should also be useful to administrators who are trying to determine results of investments in technology such as enterprise Web course tools.

BACKGROUND

Distance education can be defined as education that takes place between teacher and learner who are separated by time and/or space. In the past, this gap was bridged by the postal service that delivered class work to the learner who completed the lesson, then returned it to the teacher via mail. This type of distance learning, the correspondence course, marked the beginning of distance education. The first correspondence courses can be traced back as early as the 1700s (Jeffries, n.d.; Zirkle, 2003). In the late 1800s, the University of Wisconsin and the University of Chicago both began correspondence programs. In 1881, the Chautauqua Correspondence College was founded in New York (Moore, 2003; Nasseh, 1997; Zirkle, 2003). Correspondence courses continued to grow and thrive into the 20th century.

Newer technologies began to appear and in 1910 radio broadcasting licenses were issued to colleges and universities. Unfortunately, by 1940 educational programs by radio failed to develop and were discontinued. Instructional films also emerged and were used for educational purposes. The State University of Iowa began experimenting with transmitting instructional courses seven years before television was introduced at the Worlds Fair (Jeffries, n.d.; Williams & Nicholas, 2005). Due to World War II, television broadcasting for education was lessened, but the military used instructional courses for training purposes. After the war, television frequencies were allocated and educational television began and continued to expand into the 1960s (Nasseh, 1997; Zirkle, 2003).

With these new distance learning technologies, researchers began to study the success of correspondence courses used in conjunction with television instruction (Zirkle, 2003). In 1956 the Correspondence Study Division of the National University Education Association (NUEA) studied the effectiveness of television being used to support distance education. They recommended further research and with a grant from the Ford Foundation, Gayle Childs continued researching this area. Childs concluded that television was not an instructional method, but an instrument for transmitting instruction (Jeffries, n.d.; Nasseh, 1997).

With concern growing as to the quality of instructional programming, attention soon turned to public television. The Corporation for Public Broadcasting was established and soon 140 television stations were interconnected to create a national public television system (Jeffries, n.d.; Moore, 2003; Zirkle, 2003). The University of Texas, the University of Maryland, and Ohio University established networks to reach students both on and off campus. During this time, Great Britain was having success with their Open University. This leader in distance learning innovation was one of the first fully autonomous degree-granting institutions. This ushered in a trend for colleges and universities to search for alternatives to traditional higher education. The success of the Open University also spurred further research into distance education and was a model for the development of open universities in other countries (Jeffries, n.d.; Nasseh, 1997; Zirkle, 2003).

Distance education universities opened throughout the world and flourished with further advancement in instructional technologies including videotape and other audiovisual devices such as films, slides, and microwave technology. These distance teaching universities were dedicated solely to the distance learning approach. In the United States, Nova University of Advanced Technology and the Empire State College in New York were one of the first institutions to offer degree programs at a distance. By the end of the 1980s distance education universities were opened in countries such as China, Iran, Spain, and Turkey (Moore, 2003).

Cable and satellite television came onto the educational scene in the 1970s and 1980s. This new medium was experimented with and many telecourses were offered by universities either alone or in consortia. The National Technological University and the Mind Extension University are examples of universities that offered degree programs that could be accessed though downlinks in 500 locations. These collaborative efforts were available through corporations, government agencies, private sectors, and other universities. Audio conferencing and video conferencing were also developed in the 1980s and the National University Teleconference Network (NUTN) grew to include more than 250 organizations offering over 100 programs. With further development of cable television, more than 200 college level telecourses were available through universities, private producers, and other commercial broadcasting stations by the mid 1980s (Moore, 2003; Zirkle, 2003).

Also, in the 1980s corporate continuing education became a huge industry. Training programs via satellite were being accessed throughout Fortune 500 companies. For companies that did not have their own satellite network, they could uplink to other business satellite networks. The Public Service Satellite Consortium, which represented many telecommunications consumers, used satellites on a regular basis in their continuing education programs. Distance education in the 1980s saw a huge collaboration between organizations in many different areas and ushered in the formal distance education systems established today (Moore, 2003).

The establishment of computers in the 1990s as a viable mechanism for distance education actually had its beginnings many decades earlier. In the 1970s the first personal computer, floppy disks, and networks were developed. Also during this time, Intel developed a microprocessor that made it possible to send an e-mail. Networking technologies were first set up by the military. The United States Defense Department's Advanced Research Projects Agency (ARPA) linked the military, universities, and defense contractors. This early system of ARPANet allowed users to send e-mail, exchange data, access bulletin boards, and transport text images (Moore, 2003; Zirkle, 2003).

The creation of the World Wide Web made it possible for documents to be accessed by different computers separated by any distance. Mosaic was the first Web browser developed in 1993. This software gave educators new abilities to create and access educational resources through the Web. The computer and related systems and software developed faster than any other information and communication technology had before. Although only 9% of American adults accessed the Internet in 1995, this percentage would grow to over 66% by 2002 (Moore, 2003).

The establishment of the Internet or World Wide Web hastened the expansion of distance education during the 1990s. During this time many universities began offering Web-based courses. Most universities created separate departments to handle their online education programs. Those universities already established as distance education providers, found increased competition as other colleges began offering online education classes in conjunction with their traditional on-campus courses. By the end of the 1990s up to 85% of public universities and colleges offered some Web-based courses (Moore, 2003).

The types of distance learning offered at colleges and universities as a result of these technological innovations vary. Educational content can be delivered via the Internet; audio and videotape; satellite broadcast; interactive TV; or CD-ROM. Distance education can occur synchronously, where the teacher and learners interact simultaneously or it can occur asynchronously where the interaction can be time delayed. The three most widely used distance education technologies by colleges and universities include the Internet, two-way interactive video, and one-way pre-recorded video. Video networks that are interactive and can connect classrooms in different locations are also being used extensively. Pre-recorded media will also continue to be used because of new CD-ROM and DVD technology (Zirkle, 2003).

In the latter 1990s companies began to offer online learning tools and testing services to colleges and universities. Prometric, obtained from Sylvan Learning Systems, now has over 2,500 testing centers in 140 countries. Online learning tools such as CMSs are now being used by thousands of universities worldwide (Moore, 2003; Zirkle, 2003). It has been estimated that nearly one-fifth of college courses use a CMS (Warger, 2003). A CMS is an online software tool used by learners and instructors at universities and corporations. It is used to manage materials, assignments, and conduct other course administration related to online learning. There are over 45 CMSs available to the higher education and business market. Examples of popular systems and market leaders include Blackboard, WebCT, and eCollege.

COURSE MANAGEMENT TOOLS

Universities across the country are making large investments in various technology tools that can facilitate teaching and enhance learning. Some examples of these technology tools are course development programs, wireless access, personal digital assistants, and campus portals. Use of Web course development tools can piggyback on huge investments higher education institutions have made in not only installing the hardware and software, but also planning the network infrastructure to link offices, libraries, classroom, and student dormitories for local, wide area, and Internet connectivity. With sound pedagogical design, Web-based instruction can create meaningful learning environments by engaging students in active application of knowledge and concepts and giving them an opportunity to control pace and monitor learning, which will help them grow and evolve as the course progresses (Hazari, 1998).

CMSs have evolved from simple online learning applications at their early inception

to the complex, integrated enterprise systems available today (Leslie, 2003). Typical features of a CMS include communication tools such as discussion forums, file exchange, e-mail, online journal/notes, and real-time chat. Productivity tools include calendars, orientation/help, search, and the ability to work off-line. Student involvement tools include group work, self-assessment, community building, and student portfolios. Administration tools include authentication, course authorization, hosted services, registration, and integration. Course delivery tools include automated testing and scoring, course management, instructor helpdesk, online grading tools, and student tracking. Curriculum design tools include accessibility compliance, content sharing/reuse, course templates, and instructional design tools. Some systems may also include two-way interactive video, audio conferencing capabilities, and electronic whiteboards (Marsh, McFadden, & Price, 1999).

The Western Cooperative on Educational Telecommunications conducted reviews of 45 systems on the market. The EduTools.info project Web site presents these reviews and product evaluations and is available to educators, institutions, students, and researchers. The EduTools.info project found that most features were standard on the majority of CMSs. The features most often supported by most systems include discussion forums, registration integration, internal e-mail, and authentication. The features lacking support in most systems are video services, student community building, whiteboard, curriculum management, and open source (Leslie, 2003).

The two market leaders in CMSs are Blackboard and WebCT. In October of 2005, Blackboard announced a merger with WebCT. Blackboard plans to eventually offer a new, standards-based product, incorporating the best from both systems. For now, these two systems will continue to be supported and enhanced with new releases and ongoing maintenance (Stanton, 2005). When comparing their products, Blackboard Academic Suite and WebCT Vista 4, there are many similarities. Both of these systems are their respective companies' premier academic enterprise system. These systems can easily handle very large educational institutions or consortia. Both systems support the majority of the features discussed earlier. Blackboard and WebCT also offer other products for smaller universities.

When comparing features of different systems it is important to realize that there is not one feature that makes a CMS successful. Different users will focus on different features and what will work best with their instructional expectations. CMSs are designed to make it relatively easy for technical novices to design effective online courses, and creative designers will incorporate information, instruction, and activities that will engage a student and facilitate learning. Although content presentation tools such as discussion forums, quizzes, and grading are the most favored features of CMSs, it is up to instructors to decide what features they will utilize in their online course. Because of this, the success of an online course may be dependent upon good instructional design by the instructor (Koszalka & Ganesan, 2004).

METHODOLOGY

The purpose of this study was to get feedback from business school faculty and students on the use of a newly deployed Blackboard system (and to a certain degree the school portal that provided a gateway to the Blackboard course tool). A 10-item, Web-based survey was made available to faculty and students. The survey included closed-ended as well as opportunities for providing open-ended comments on important issues of relevance that may have been missed in the survey. Forty-three faculty and 296 students responded to the survey. The survey did have some limitations. Response

Figure 1. Survey demographics

Number of undergraduate courses using Blackboard:		93	
Number of undergraduate course sections using Blackboard:	223		
(Multiple course sections may or may not use same Blackboard coursespace)			
Number of graduate courses using Blackboard:	97		
Number of graduate course sections using Blackboard:	163		
(Multiple course sections may or may not use same Blackboard coursespace)			
Total number of Blackboard courses:		386	
Number of faculty using Blackboard:	147		
Number of students registered in Blackboard:	4000 (approx.)		
Number of faculty in the school:			
Full-time 115			
Part-time 60			
TOTAL 175			
Number of faculty responding to the survey:		43	
Number of students responding to the survey:			
Undergraduate			217
Graduate (Full-time)		46	
Graduate (Part-time)		33	
TOTAL			296

rate was not very high so the generalizability of the findings is limited. However, despite the low response rate, open-ended comments provided by the students and faculty provided insight on several issues that need to be addressed. One of the goals was to make this tool an integral part of the school's strategy, which was to provide faculty with technology tools and an environment for effective communication with students, as well as prepare students to be good communicators and users of information systems. Survey demographics are shown in Figure 1.

Faculty Responses

On the question related to satisfaction with the Blackboard CMS, 7% of faculty were "not satisfied," 56% were "somewhat satisfied," and 38% were "very satisfied" with the Blackboard system. Considering that this was the first semester of Blackboard availability to faculty, some problems associated with such a large deployment could be expected. With only 7% of faculty being dissatisfied with the system, it can be hypothesized that some elements (such as technology, feature set, training) must be identified to understand where the dissatisfaction occurs. Follow-up discussion with faculty using focus groups could pinpoint specific issues that needed to be looked at carefully to raise satisfaction of faculty to 100%.

Multiple sections of Blackboard training were offered to faculty before the semester started. These training sessions were optional and faculty who attended were explained the features of the Blackboard system and were provided with a comparison to the previously used Lotus Notes system.

Faculty were shown how to add announcements; course materials; create and manage groups; create surveys; and so forth, and given information on additional information available. Regarding the question of satisfaction with the faculty training provided in learning the Blackboard system, of the 147 faculty using the Blackboard system, more than 70% had attended the Blackboard classes. Of the faculty who attended training, 85% were satisfied with the faculty training and 15% were dissatisfied. Continuing training on other Blackboard features was also being provided on a one-on-one basis rather than formal classroom sessions (as done in the weeks prior to Blackboard launch). This was due to lack of availability of training rooms and limited timeslots available to conduct training.

Course tools such as Blackboard and WebCT include two types of course components: static and interactive. Examples of static components are slides, announcements, syllabus, and so forth (i.e., content that does not change and is used primarily for downloading/printing purposes). Interactive components are the discussion board postings, live chat, quizzes, and so forth that participants use to interact with the medium. Regarding features of Blackboard course tool, 27% of faculty indicated they used Blackboard primarily for the purpose of distributing course materials such as Powerpoint slides, posting announcements (20%), placing a syllabus online (19%), and sending e-mail to the class (15%). Discussion board, which is the most commonly used interactive component of Blackboard, was considered an important feature by only 3% of the faculty.

Discussions on use of Blackboard that go beyond the convenience features can be arranged so faculty can learn from each other and view best practices that have worked in graduate or undergraduate courses. A seminar, "Effective Online Learning" that was more of a roundtable discussion (rather than a hands-on lab session) to explore online pedagogy using Blackboard was offered to faculty later, since faculty would have been familiar with the mechanics of using Blackboard and would be more receptive to ideas that improve teaching/learning.

Most faculty (67%) were motivated to use Blackboard since they believed it offered convenience to students in downloading a syllabus online; accessing course information such as class notes; scheduling; discussions, and so forth. Some faculty (19%) indicated they were using Blackboard due to the Dean's mandate. Only 2% of faculty indicated Blackboard use because of interest in teaching online. This shows most faculty are more comfortable with face-to-face classroom teaching than an intrinsic motivation of using the online environment for teaching. Many universities are rethinking how they may recognize innovative teaching approaches using technology for faculty recognition, promotion, and tenure consideration ("Technology and Tenure," 2000).

The newly launched school portal included the ability to incorporate Blackboard courses and announcements on the portal page. Use of a portal can have advantages, such as seeing activities related to the school consolidated on one page, as well as advantages of integrating back-end administrative functions such as reporting, registration, determining student retention, and grade calculations. Data showed that 53% of the respondents had not used the portal, and only 26% of the faculty using the portal had found it to be useful. Portals in today's environment offer convenience and use that can benefit administrative and academic use. There was a demonstrated need to make the Portal an essential and useful component to faculty. Portals have shown to create value for the organization by aggregating and distributing information, which can be useful for faculty, staff, students, and administrators, therefore should be pushed for maximum diffusion in the school (Sullivan, 2003).

Online teaching tools offer advantages that provide flexibility and additional capabilities for displaying and distributing course materials that may not be possible in a regular face-to-face classroom session. Examples of such tools are the use of simulation, discussion in which students can interact with the course materials, instructor, or other students in a virtual environment. Data showed that 60% of faculty believed the use of Blackboard system had *not* changed how they teach, and only 19% found that they were teaching differently from the past. Some faculty (21%) were not sure if the use of Blackboard had made any difference in their teaching styles. The online teaching environment is fairly new and it could be inferred that faculty may benefit from learning about online pedagogy by attending seminars that can demonstrate efficacy of the online teaching environment.

Student Responses

Regarding the question of student satisfaction with the Blackboard CMS, 44% of students were "very satisfied," and 50% of students were "somewhat satisfied" with the Blackboard system. Only 6% of students appeared to be "not satisfied" with Blackboard. Comparing faculty and student satisfaction rates, the numbers were consistent, which indicates that for the most part Blackboard was meeting expectation of faculty and students in the school.

Regarding student use of features of the Blackboard system, the data is consistent with that shown earlier in the corresponding faculty question. Of all the features, 23% of students ranked availability of Slides and course materials to be the most important feature, followed by announcement (21%), and syllabus (18%). The discussion board, which is an important interactive feature ranked high by only 4% of the students. As more faculty use the Blackboard system, use of the discussion groups could be projected to grow, although convenience of accessing static materials would continue to remain high in classes that primarily relied on face-to-face meetings as primary mode of contact.

Regarding portal use, only 21% of students indicated that the portal was useful to them. A large majority of students (66%) had never used the portal, and 13% of students felt the portal was not useful. This data indicate additional portal education and awareness sessions would be beneficial to faculty and students to demonstrate benefits and use as it pertains to their academic experience in the school. Regarding the way the Blackboard system was being used by faculty, most faculty were using Blackboard as a tool of convenience to distribute syllabi, announcements, and course materials. Of the students who responded to the survey 25% were "very satisfied," 66% were "satisfied," and only 9% of students were "not satisfied."

From the students who answered the question, "Do you believe that use of this system by your course instructor has contributed to improving your learning in courses?" 51% felt that use of the Blackboard system had contributed to improving learning outcomes, 22% felt it had not, and 27% were not sure. As mentioned earlier, faculty were using Blackboard to offer features for the convenience of students. With additional seminars and awareness of how online course tools can be used to improve teaching and learning, faculty can be shown how Blackboard can be used at a level that can directly affect learning outcomes.

To gain further insight on data collected, it was important to find out if there were statistical differences between faculty and student data. The following hypotheses were formulated:

- **Ho:** The pattern of satisfaction with the Blackboard system is the same for faculty and students.

Table 1. Standardized residual data

Std. Residuals	Faculty	Students
No	-3.31	1.27
Not used	5.35	-2.05
Yes	0.59	-0.23

- **Ha:** The pattern of satisfaction with the Blackboard system depends on role (faculty or student) in the school.

The Pearson chi-square test statistics p-value was found to be 0.732, which indicates there is no significant difference at 5% level, that is, the pattern of satisfaction is the same for students and faculty. Similar analysis was carried out to determine if there were differences in student and faculty attitudes towards the portal.

- **Ho:** The pattern of satisfaction with school portal is the same for faculty and students.
- **Ha:** The pattern of satisfaction with the school portal depends on role (faculty or student) in the school.

The Pearson chi-square test statistics p-value was found to be 0.00, which indicates there is a significant difference between faculty and student satisfaction with the portal.

Table 1 shows the nature of relationship. It can be seen that faculty/not used has a very high residual (5.35) indicating the observed value does not closely agree with expected value calculated on the basis of null hypothesis. Faculty have not used the portal more than what would be predicted by the null hypothesis, and students have not used the portal less often than would be calculated on the basis of the null hypothesis. This underscores the need for additional efforts to better encourage faculty and students to use the portal.

Open-ended comments provided further insight into faculty and student satisfaction. Common themes that emerged from open-ended faculty comments included reliability of system access, e-mail problems (tied to administrative log-in system), training issues, and feature-specific comments of Blackboard. For students, common themes that emerged from open-ended comments included e-mail problems, system access issues, differences in levels of use by faculty, Blackboard features (posting grades was a major concern), comparison with (previously used) WebCT, and Blackboard usability (mostly positive).

The findings of the study showed faculty and student satisfaction with Blackboard is high. Both faculty and students indicated some features in Blackboard that can be improved (such as the posting grades feature). Portal use should be further encouraged for students and faculty to utilize advantages of accessing school resources—faculty training that goes beyond tool use of Blackboard—and include online pedagogy that further enhances use of course tools should be encouraged. It was observed that Blackboard was mostly being used to distribute static material (syllabus, slides, etc.) to students. Online discussion groups that provide the highest level of interactive features were not being used by the majority of instructors.

FUTURE TRENDS

As explained in this study, course management tools are being integrated with institution portals. Chat capabilities of earlier versions of CMSs are being redesigned to work seamlessly with popular instant messaging programs such as MSN Messenger or Yahoo! IM. Faculty can now use these tools for online office hours so students can communicate with them. The next generation of tools may be able to allow students and instructor when logged on to see who is online and engage them in a text or audio chat. Other multimedia features such as media players are being embedded into systems to support a wide variety of video and audio formats. Podcasts and appropriate video clips add to the interest and variety of the whole learning experience. This makes CMSs a necessary tool to leverage teaching, learning, and administrative tools in colleges and universities that offer Web-based courses either as adjunct to traditional classes, or as standalone distance learning courses.

CONCLUSION

As CMSs become more complicated and not only include front-end features to provide students with options such as interaction with multimedia elements, video, podcasts, blogs, learning objects, and so forth, the back-end features are being improved to make reporting and data collection easier to support administrative functions from registration to grade reporting. Because of the high capital costs involved in deploying enterprise CMSs, institutions should make platform-specific decisions carefully to realize full benefits, determine value being offered by return on investments in technology. Results of this study will also provide other institutions with a better understanding of issues involved with evaluation of enterprise CMSs.

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KEY TERMS

Blogs: Blogs are a Web-based electronic diary containing entries in chronological order, usually updated by the author to provide current information about topics.

Collaborative Learning: Collaborative learning is group learning in which students share resources to work in a constructivist type environment for learning to occur.

Distance Education: Education and interaction that takes place between teacher and learner who are separated by time and/or space.

Enterprise Course Management System: Web-based software that allows hosting of courses and course components such as documents, audio, and video files. The system also ties into to administrative databases for access to library databases, student class roster imports, and submission of final grades.

Learning Objects: Learning objects are a digital resource that can be reused to support and enhance learning.

Podcasts: Podcasts are audio files available on the Internet that can be accessed using a subscription model.

Portal: A portal is a single point of entry Web page that gives users access to various resources in a consolidated format.

Threaded Discussions: Threaded discussions are a series of posts in a discussion board pertaining to a single topic.