Key Findings

Faculty Use of Course Management Systems

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Course management systems are an increasingly important part of academic systems in higher education. They pose challenges to administrators who need to make decisions about their use and deployment at a time when the numbers of faculty using these systems is increasing rapidly, budgets are constrained, and the marketplace for course management systems is more confusing than ever. This research study examined the use of course management systems by faculty in the University of Wisconsin System (UWS). The study addressed four major questions:

- What is the extent of faculty use of course management systems?

- What factors drive faculty to start using a course management system (CMS), and, once they have started, what factors determine whether faculty increase or decrease their use?

- For what purposes are course management systems used?

- What pedagogical gains does using a CMS bring?

Scope and Methodology

A mix of qualitative and quantitative methods was used to gather data from the 15 institutions of the University of Wisconsin System. The UWS is made up of a wide range of institutions, from research universities to four-year comprehensive institutions to two-year freshman and sophomore campuses. Data were collected in the following ways:

- Interviews were conducted with 140 faculty members and staff in the University of Wisconsin System.

- A survey was completed by 740 faculty and instructional staff from all UWS institutions.

- Course management system user logs were examined at six institutions within the UWS.

Course Management System Defined

For the purposes of this study, a course management system is defined as a software system that is specifically designed and marketed for faculty and students to use in teaching and learning. Common course management systems in the higher education environment include, but are not limited to, WebCT, Blackboard, LearningSpace, and eCollege. Other technologies used to assist in teaching and learning, such as content management systems and presentation software like PowerPoint, are excluded from this study. Course management systems are currently undergoing both technical and functional changes. Today, most course management systems include course content organization and presentation, communication tools, student assessment tools, gradebook tools, and functions that manage class materials and activities.

Course Management System Use

The use of course management systems by faculty in the UWS is increasing rapidly, but much of this use is concentrated on the content presentation tools within the CMS. Faculty members are much slower to adopt the more complex or interactive parts of the CMS, such as the discussion tools, quiz tools, or gradebook. Where these are used, however, they are used quite heavily.

Factors Shaping CMS Use

Initial Adoption of CMS

Faculty described their initial adoption of a CMS as being driven primarily by the need to address a particular pedagogical challenge. When probing below the surface, however, it seems that most of these needs have less to do with pedagogy, per se, and more to do with class management. Faculty adopt course management systems principally to manage the more mundane tasks associated with teaching, especially teaching large classes. Faculty look to course management systems to help them communicate easily with students, to give students access to class documents, and for the convenience and transparency of the online gradebook.

Other factors also promote the adoption of course management systems. The influence of peers' recommending a CMS or setting an example by using the technology is especially important. Also important in promoting faculty adoption of a CMS are the pressure or persuasion of campus administrators, either at the department chair, dean, or provost level, and the availability of training in the use of the software. Surprisingly, student requests or demands for the use of course management systems seem not to be a strong factor in faculty decisions to start using a CMS. Only three percent of the faculty surveyed cited student pressure as the primary reason for starting to use a CMS. Figure 1 illustrates faculty motivations for using a CMS.

Figure 1. UWS Faculty's Stated Reasons for CMS Adoption (*N* = 574)
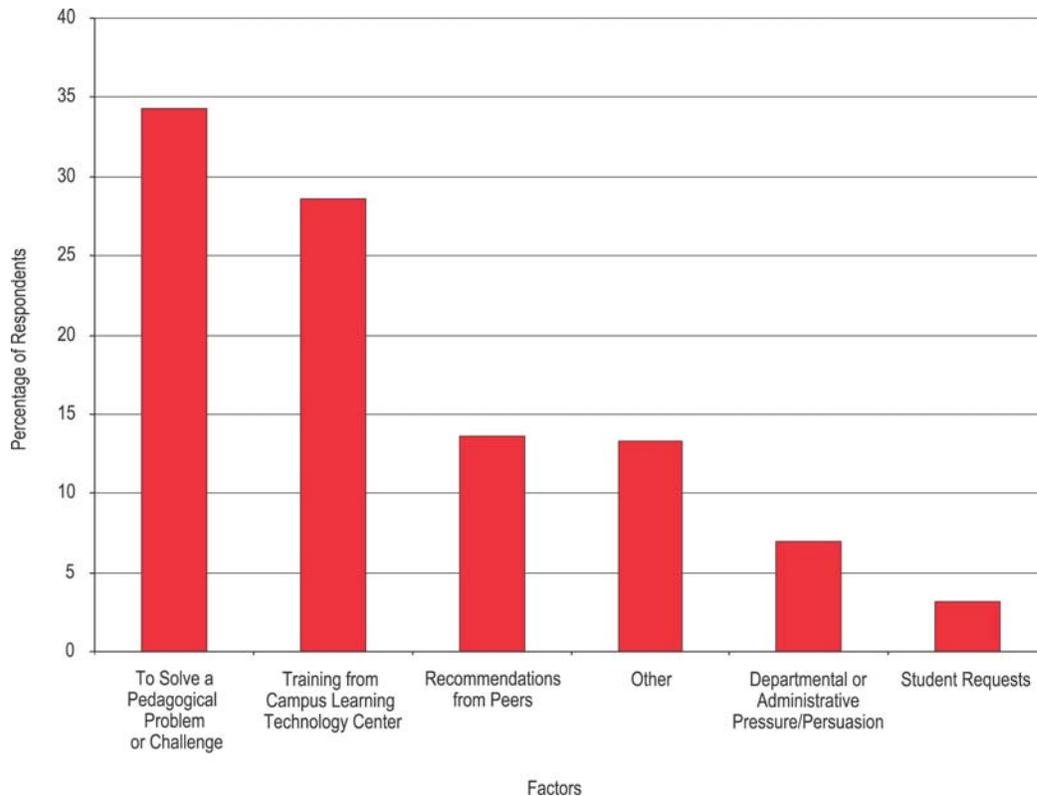
Why Faculty Increase Use of CMS

Once faculty start to use a CMS, their use of the technology tends to grow. Nearly two-thirds of the faculty surveyed said they used a CMS more extensively or intensively at the time of the survey than they did when they first started using the technology. By far the most important reason given for the growth in their CMS use was that, over time, they began to see increased uses for it in their teaching. Many faculty spoke of how using the CMS allowed them to see new ways that they could use it in their classes or ways they might use it in a different type of class. Other faculty spoke of how they learned about new uses and applications of a CMS from discussions with colleagues (especially with those from other disciplines) or in training sessions. When they include practical examples of the use of the software, these influences and sessions seem especially effective in promoting the increased use of course management systems.

Why Faculty Reduce Use of CMS

The faculty whose use of course management systems decreased over time (just 5 percent of those surveyed) related that the technology was time consuming, inflexible, and difficult to use. They had few complaints about the time spent restructuring and redesigning courses in order to incorporate a CMS in their instruction, but they resented the time required to load and reload course materials. It is this time expenditure that frequently contributed to some faculty's reducing their CMS use. Other faculty found course management systems inflexible and overly-structured, while a significant number

of others complained that most course management systems could not easily handle mathematical and scientific notation.

Some faculty (10 percent of those surveyed) found course management systems too difficult to use, and a greater number (16 percent) limited their use of a CMS because of problems that students reported. This emerged as a significant problem affecting the rate, level, and success of CMS use. All faculty said their use of course management systems would grow if the software were easier to use and if training—for themselves and their students—were more available.

How Faculty Use Course Management Systems

Most use of course management systems in the UWS is to enhance regularly scheduled face-to-face classes. Just over 80 percent of those surveyed use a CMS in regularly scheduled face-to-face classes, compared to just 27 percent who use a CMS to teach fully online classes. Course management systems are also used to enhance distance education classes taught through other media (such as compressed video) and to offer hybrid classes.

Faculty members use course management systems for a wide range of other purposes. They use them to support and organize the work of academic departments, organizations, and other projects. Others use the CMS not for classes but to supervise the work of interns and students in the field or for academic advising.

Course Management System Use in Teaching

Faculty use course management systems in teaching and learning to achieve a number of teaching goals. The most important goals include supplementing lecture materials, increasing transparency and feedback, and increasing contact with and among students. A number of faculty found that the CMS helped them to include more interactive materials, allowing them to address diverse learning styles. Faculty also use the CMS as a way to increase the amount of feedback they are able to provide to students and to improve the promptness of that feedback. An important aspect of this is the use of the online gradebook, which many faculty described as altering their relationship with their students and the students' relationship with their own work. This positive outcome occurred despite the fact that faculty generally found the currently available CMS gradebooks difficult to use and were dissatisfied with their functionality.

Faculty were especially impressed by the way course management systems allowed them to increase communication with their students. Fifty-nine percent of faculty surveyed reported that their communication with students increased as a result of using the CMS. This communication is broadcast in nature, from the faculty member to the student. However, faculty also spoke of the learning gains achieved by getting students to use the CMS to hold discussions and engage with course materials in a slower, self-paced fashion.

Faculty using course management systems find that they achieve a number of pedagogical gains. This is something of a paradox given that faculty look to a CMS to provide them with organizational tools. But in the process of using these tools, many

faculty members begin to rethink and restructure their courses and ultimately their teaching. The end result is a sort of "accidental pedagogy." Faculty teaching is improved through the use of a CMS, but this is a side effect of the use of the software rather than a direct result of its use.

CMS Support in Higher Education

Even though many faculty members find that they can achieve teaching gains by using a CMS, they express concerns about how the technology is supported in a higher education environment. These concerns have the potential to retard adoption of course management systems and to inhibit more extensive use by those faculty already using them.

The first of these concerns is control. Course management systems insert an additional layer of bureaucracy between faculty and their teaching, and this can become a problem when it threatens faculty autonomy. The extreme case occurs when faculty teach fully online classes developed by an outside organization. But even in face-to-face classes enhanced using a CMS, the use of and support required by the technology can make faculty feel that they do not control important parts of their teaching environments and that they are subject to the vagaries of technology administrators and technology reliability.

Faculty are also concerned about change. Technology administrators seldom communicate effectively to faculty about why decisions are made to adopt or stop supporting particular pieces of software. Faculty thus often feel subject to what some of them see as the capricious whims of technology administrators and are therefore unwilling to make full use of or rely on a CMS out of a concern that it will not always be available to them. Communication between administrators and faculty about upgrades and version changes to the CMS also needs to improve. Many faculty are frustrated by the amount of work that upgrades require them to do, and they do not necessarily appreciate the efforts that support staff make to minimize the disruption caused by these upgrades. Administrators need to do a better job of communicating with faculty about the timelines for CMS changes and the fact that because the technology is in a relatively early stage of development, change is likely to be frequent and profound.

Administrators need to find a way to educate faculty about change and to minimize the impact of these changes. To some extent, development of technical standards and specifications such as the IMS Global Learning Consortium specifications and the Sharable Content Object Reference Model (SCORM) will help make changes within and between products easier. Policies and change management practices also need to be developed.

Course Management Systems and the Future

One of the faculty members interviewed for this study stated that we are still at the "Model T" stage of CMS use and that one needs to understand how it works before one can drive it. This is likely true; course management systems currently require far more skill, patience, and dedication than is desirable. But we are at an interesting juncture. Course management systems must get easier to use in order to capture the larger

numbers of faculty and student users that their rapidly rising price tags will demand. The technology also must become more sophisticated and flexible—particularly with regard to content management and groupware functions and the definition of roles—in order to satisfy current users. The latest generation of course management systems from the major vendors shows signs of moving in this direction, but there is still much work to be done.

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