Minimal Functionalities of Course Management Systems:
A Faculty Perspective

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ABSTRACT

In this article the authors offer a faculty perspective on desirable features of a Course Management System (CMS). This article is the result of our Web teaching experiences over a period of eight years using three different CMS platforms. The authors anticipate that this article could help guide software developers in developing appropriate CMS tools and would help institutions to gain greater insight into the selection of an appropriate CMS for effective Web-based or web-enhanced education (WBE). We develop a list of necessary functionalities that a CMS must provide for web-based education. The discussion could also assist current and future Web course instructors by increasing their awareness to take advantage of many features that might exist in their CMS. [Article copies are available for purchase from InfoSci-on-Demand.com]

Keywords: Course Management System; E-Learning; Web-Based Education

INTRODUCTION

A Course Management System (CMS) is an Internet-based software program that provides a set of integrated tools for assessment and evaluation, content development, content management and delivery, communication, and course administration. A CMS manages student enrollment, tracks student performance, and creates and distributes course content. In this way, a CMS enables instructors to break the time and space constraints of traditional face-to-face teaching, allowing them to post information on the Web without any knowledge or understanding of Hypertext Markup Language (HTML). Students only need access to a browser with plug-in capabilities to view the course from any place at any time. Typically, a CMS contains aspects of administration (class rosters, recording of grades, enrollment information) and also deals directly with the core aspects of teaching. It may contain tools for real-time chats or asynchronous bulletin board style communications. CMSs have been recognized as the key technology for delivering courses and programs (Gallagher, 2003; Kemery, 2000). How a CMS is implemented is usually left to the individual university – or more often to the individual instructor. The different CMSs are

relatively similar in their features; it is the ability fully to take advantage of these features that generally determines true value of a particular CMS to a particular institution.

CMSs are a necessary part of e-learning. They are continually evolving and pose challenges to administrators who need to make decisions about their use and deployment at a time when the faculty using these systems is increasing (Aggarwal and Bento, 2000). They are being used by Web-based, hybrid and blended courses and have reached a level of capability making it feasible to offer instruction from a distance. Many institutions are adopting and/ or changing CMSs as part of the development and improvement of their Web-based education (WBE) programs. Experiments with these tools are having positive results at institutions and several schools are already offering fully online programs. Indeed, studies are beginning to suggest that there might be no significant difference (Aggarwal, 2003; Aggarwal and Bento, 2000) in learning between the face-to-face classroom and the virtual classroom in which these new tools are used. The time is appropriate for institutions to seriously consider WBE as a viable option for enhancing the availability of education without sacrificing quality (Schiffman et. al., 2007).

A CMS represents an opportunity and a challenge. A large number of educators are placing a variety of course elements such as lecture notes, presentations, publications, online textbooks, and assignments on the Web. CMS could be used for both completely Web based and Web enhanced learning through blended courses. While the use of CMSs by faculty is increasing rapidly, much of it is concentrated on the content presentation tools within the CMS. Faculty members are much slower to adopt the more complex or interactive tools of the CMS, such as discussion forums, quizzes, and grade books. Once these tools are used, however, they are used extensively (Morgan, 2003). Although CMSs are becoming omnipresent, widespread adaptation of these CMS tools by faculty members has been hampered for various reasons (Katz, 2003). The resistance to adaptation can be overcome as systems become more robust and flexible and as faculty members become more experienced with their use (Katz, 2003).

CMSs became widely available in the mid 1990s and their popularity has dramatically increased ever since (Ullman and Rabinowitz, 2004). Numerous CMSs are marketed to, and adopted by, colleges and universities. Resources are available to compare various available CMSs by their functionality, product name, and/or by features [http://www.edutools.info/course/help/howto.jsp] (Haag et al., 2007; Van de Pol, 2001). It is important to keep in mind that the features of CMSs and their compliance/conformance with technical standards are rapidly changing, so any comparison of products needs to be updated regularly. Given the increased adoption of a CMS as an instructional tool, it is important to address how instructors are to make use of this technology. Typical steps in a complete WBE include inquiry, admission, enrollment, course work, and graduation. Though all steps are essential, none is more important than the course work itself, where the actual delivery, learning, and assessment take place. However, how to incorporate the functionality of a CMS into an existing course has rarely been addressed (Ullman and Rabinowitz, 2004). Though some authors have discussed general CMS functionalities (Hall, 2003; Valenti et al., 2003), this is the first attempt to study functionalities from faculty perspectives.

In an earlier paper, Aggarwal and Adlakha (2006) present a quality model for a Web-based course using the concepts suggested by quality leaders such as W. Edwards Deming and Joseph M. Juran. They develop a framework for implementing total quality management in a Web-based course and provide guidance on development, management, delivery, and continual improvement of such a Web course.

In this article, we extend their work and present CMS aspects with respect to a Web-based course. We discuss major components of a CMS with respect to the development, management, delivery, and assessment of a Web course and desirable supporting features in a CMS. Wherever possible, the discussion

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