

# Potential Use of Course Management Systems in Higher Education Institutions in Jordan

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Given the increased adoption of the CMS (course management systems) as an instructional tool, it is important to address the potential use of this technology in Jordanian higher education institutions. This study investigates the potential to use CMS tools in instruction in the academic institutions in Jordan. This study does not seek to evaluate the current use of computer mediated tools or their features in instruction. Its purpose is to investigate what is currently taking place with CMS in higher education settings. Therefore, the study does not seek to determine the value that the use of the CMS tools may have contributed to instruction, however, it identifies the level of technology integration as well as the level of the technology use in higher education and problems associated with its use among the faculty. This study identifies prevalent faculty attitudes and perceptions toward the potential use of CMS tools in higher education institutions, in general, and in Jordan, in particular.

*Keywords:* course management systems, e-learning, Web-based learning, authoring tools

## Introduction

CMS (course management systems) are fairly new software tools that have been used in an educational setting for around a decade. CMS are Internet-based software that manage student enrollment, track student performance, and create and distribute course content electronically. In this way, the CMS allow faculty members to manage their courses and use technology tools in their teaching, as well as enable them to extend the classroom beyond its traditional boundaries of time and space (Warner, 2003). The main purpose of CMS packages is to enable faculty to create course Web sites, that is to place course materials online and manage course activities (Kuriloff, 2001). In short, CMS are tools that faculty can use to create online course content (without knowing programming languages), communicate electronically with students and conduct assessments (Dabbagh, 2001).

CMS became widely available in 1997, and their popularity and use have increased dramatically ever since (Rabinowitz & Ullman, 2004). CMS tools (such as blackboard, WebCT, Webboard, moodle and LiveText) have become invaluable tools for teaching with technology and have been widely adopted by many colleges and universities all over the world. In addition, courses that use CMS tools to deliver content are currently being integrated into instruction at a rapid pace (Green, 2002; Nelson, 2003). Three aspects of CMS make them extraordinary tools for ordinary instructors. First, the files are all kept on CMS servers. Second, it is invaluable to instructors that the entire course can be archived for future use. Third, they have the convenience that the

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users can access the course materials from anywhere at any time (Caplan-Carbin, 2003).

One of the main advantages of CMS is that faculty can design asynchronous course activities and communication outside the face-to-face class (Widmayer, 2000). According to Rabinowitz and Ullman (2004), faculty have much to teach and explain to their students, but there is never enough time during a semester to cover all of what they want to cover. For this reason, they indicated that CMS were developed to help the faculty solve the time issue that they encountered during their lectures and assist them in course development and overall management using the Internet.

However, "Effective use of CMS tools does not result from the use of the tools but rather from the integration of the tools in teaching" (Nelson, 2003, p. 3). If we are to understand and realize the potential use of such CMS tools in higher education in Jordan from a learning perspective, we must understand the perceptions of both faculty users and non-users of the CMS authoring tools. Consequently, as more courses require the use of CMS tools, as more funding is required to implement and support these classes, and as more time is required to develop and facilitate these courses, it becomes critical to understand why faculty choose to use or not to use these tools for their course support. In other words, we should examine the motivating factors for using CMS tools as well as the inhibiting factors from using CMS tools as perceived by the faculty members.

Given the increased adoption of the CMS as instructional tools, it is important to address the potential use of this technology in Jordanian higher education institutions. This study investigates the potential to use CMS tools in instruction in the academic institutions in Jordan. In this regard, it is very important to point out that this study is just a direct reflection of the literature on the level of faculty involvement and the challenges that are associated with using CMS tools in higher education in general. Specifically, this study is considered as a cornerstone for another study, which will be conducted at the mid of September 2010 in one of the public universities in Jordan by the researcher to verify the findings of the reviewed literature as they revealed in this paper.

In addition, because Jordan has almost the same academic atmosphere comparing to that of the international one; also, because Jordan is utilizing almost the same CMS and authoring tools, it is important to point out that the findings of this study are not only applied to the international academic institutions, but also applied to the academic institutions in Jordan as well.

This study is organized into four parts. Part one introduces the significance of the study and describes the purpose of the study. Part two provides a literature review about the use of CMS in instruction and addresses a brief history of CMS in higher education and the related faculty perspectives. Part three describes what is currently taking place with CMS integration at higher education institutions and discusses what higher education administrations could do to improve the utilization of CMS tools at their campuses. And part four provides the findings of the study, conclusions and recommendations for future studies.

### **Significance of the Study**

A major thrust of education is integration of technology into teaching (Nelson, 2003). Technology by itself cannot be effective. Providing the latest technology to learners does not necessarily ensure improved learners' participation or achievement. Additionally, technology does not necessarily improve instruction. Faculty's attitude toward technology was found to be an important element in a successful integration of technology (Mitra, Steffensmeier, Lenzmeier, & Massoni, 1999; Nelson, 2003). It is important to investigate the level of technology integration in education, in general, and in Jordan, in particular; specifically, the faculty's attitudes

toward the utilization of CMS in their classrooms.

In a recent study of technology innovations, Lynch (2002) found that, while 80% of colleges in his study have course management systems available, faculty only use these tools in 20% of courses offered. Why is such a low percentage of faculty members making use of CMS tools in educational settings? “Despite its potential benefits, the effectiveness of computer mediated communication when used to support learning in higher education is very variable, making it important to identify those factors which best predict successful implementations” (Tolmie & Boyle, 2000, p. 138). However, research indicates that one of the problems hindering the use of distance education tools (technology) in higher education is faculty resistance (Berge, 1998). Research is needed to explore the faculty perceptions about the use of CMS tools in instruction in higher education institutions.

This study is valuable for the instructional technology leadership, because it establishes a cornerstone for any development training program for faculty technology integration at higher education institutions. Also this study is beneficial to instructional technologists in understanding faculty reluctance when diffusing new instructions or educational packages.

The purpose of this study is to identify the issues and concerns of the use of CMS and similar tools in higher education. Specifically, the study, based on the reviewed literature, identifies the faculty’s perceptions about their use of CMS tools, identifies the factors that might be related to faculty use of CMS and investigates what higher education institutions can do to improve the utilization of CMS at their campuses.

Research on faculty’s uses of technology in instruction is important, because educators who are comfortable about using technology model positive uses of technology to learners (Chiero, 1997; Kagima, 2001; Taylor, Torrie, Hausafus, & Strasser, 1999). Conducting research on faculty attitudes toward the use of CMS tools in teaching is important, because the findings will help understand technology integration.

The importance of the obtained information can assist higher education institutions in determining the educational costs and value in terms of CMS effectiveness regarding the technology integration, because academic institutions spend millions of dollars per year on technology. Also, the obtained data can help in determining what academic institutions can do to improve technology integration (such as CMS) at their campuses. The obtained data can provide information about what academic institutions can do to reduce, minimize or overcome the obstacles to technology integration (such as CMS), because the level of technology integration has become a source of data upon which to evaluate university performance and reputation (Feeney, 2001).

Identifying the level of technology integration in higher education and faculty’s attitudes and perceptions toward CMS in higher education may lead to a better understanding of the causes of reluctance to CMS use. This study helps fill in the gap in the current instructional technology knowledge base regarding faculty attitudes and perceptions concerning the use of CMS in higher education, as well as the level of technology integration in higher education.

Additionally, the findings from this study assist faculty development directors when developing training programs for the faculty. Faculty training has been found to be an essential factor for successful implementation of new technology in higher education teaching and learning environments (Butler & Sellbom, 2002; Morgan, 2003; Ndahi, 1999).

This study does not seek to evaluate the current use of computer mediated tools or their features in instruction. Its purpose is to investigate what is currently taking place with CMS in higher education settings.

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### **Literature Review**

Current research indicates that many faculty members choose to integrate CMS tools for a variety of reasons. Some are interested in the convenience factor the tools provide for communication with students, while others are motivated because of administrative pressure. Whatever the reasons, most CMS tools are currently underexploited in teaching (Nelson, 2003).

Many college faculty members are using CMS tools to supplement their traditional classroom instruction (Nelson, 2003; Warner, 2003). Clifford, Earp and Reisinger (2003) indicated that data published in Market Data Retrieval's 2002-2003 Annual Survey of Instructional Technology Trends in Higher Education showed that 91% of colleges and universities reported using some type of CMS in 2002. Most of reviewed research indicated that the primary use of CMS tools is mainly for communication and convenience purposes (Dietz-Uhler & Bishop-Clark, 2001; Grandgenett, 2001; Mitra, Hazen, LaFrance, & Rogan, 1999; Nelson, 2003; Sherry, 1999; Strudler & Wetzel, 1999).

Lewallen (1998) found that 100% of faculty surveyed used CMS communication tools in their daily life activities, but only about one-third of the same faculty used these tools in their teaching. Thus, "Some faculty members are simply unable to connect technology use to their teaching" (Nelson, 2003, p. 21). However, to many faculty members, technology use is often viewed as a separate activity and does not require the same forethought as traditionally formatted course tasks (Pierson, 2001). "Attitude toward technology and prior use of technology was found to be an important element" (Nelson, p. 21); therefore, "Faculty who possess a positive attitude about CMS tools are more likely to use them in instruction" (p. 21).

"The influence of technology on teaching and learning is becoming more and more evident in educational institutions" (Ndahi, 1999, p. 21). The increasing availability of effective technology justifies investigating the level of faculty involvement, and the challenges that are associated with using these technologies. Some of these technologies are new to many institutions and faculty (Ndahi, 1999). Additionally, when people within an organization plan for using new or existing technology, there are several barriers to their efforts that they are likely to encounter. A consideration of the barriers faced by organizations may help organizational leaders find solutions to reduce or minimize these obstacles (Cho & Berge, 2002).

According to Cho and Berge (2002), organizational cultures, norms and strategic planning influence the adoption and deployment of technology. Hence, most of the literature found that the need for faculty development and institutional support (encouragement and incentive) are consistently identified as primary factors influencing the use of new instructional technology at higher education settings (Butler & Sellbom, 2002; Morgan, 2003; Ndahi, 1999).

According to Feeney (2001), CMS have been the focus of recent scholarly attention. As integrating technology into higher education becomes an institutional imperative at schools across the US, adoption of digital courses in new CMS becomes both an organizational goal and a source of data upon which to evaluate performance. Furthermore, Feeney (2001) stated that higher education institutions face persistent challenges in the use of technology, with the CMS being the latest technology challenge.

According to the 2003 Campus Computing project, more than 80% of universities and colleges in the US utilized CMS (Morgan, 2003). Harrington, Gordon and Schibik (2004) noted that perhaps no other innovation in higher education has resulted in such rapid and widespread use as the CMS. In the early of mid 1990s, faculty utilized a variety of Web-based tools to supplement course content and curriculum. Many faculty began using email and basic HTML (hypertext markup language) functionality in an attempt to increase interaction and enhance the teaching and learning process.

Research indicated that one of the problems hindering the use of CMS in higher education is faculty resistance (Betts, 1998). Despite the expansion of distance education programs and its related technology across the US, many faculties are reluctant to participate in distance education or use its related technology, such as CMS (Olcott & Wright, 1995). Faculty's reluctance has been linked to internal issues such as a lack of incentives and rewards systems to encourage faculty participation and a lack of an institutional framework to train distance teaching faculty (Lewis, 1985; Verduin & Clark, 1991). Betts (1998) stated that one of the primary factors that influences faculty participation in distance education and its related technology is the effect on faculty workload.

According to Harrington et al. (2004), many universities, in an attempt to reduce the load on faculty, hired webmasters and instructional designers to assist faculty in creating more dynamic and learner-friendly instructional related websites. Several higher education institutions and commercial companies foresaw the need for more user-friendly approaches to put course materials on the Web and the need for increased availability to learners via the Internet. These entities began developing systems that would be relatively easy to use, requiring little or no knowledge of programming language (HTML, Java) and with the tools necessary to be useful for instruction. Between 1995 and 1997, several academic and commercial CMS applications were launched in the higher education market.

These early CMS had only slight variations in available tools (Gray, 1998, 1999; Katz, 2003). Over time, a core group of tools were available with essentially all CMS. These core components included tools for synchronous and asynchronous communication, content storage and delivery; online quiz and survey tools, gradebooks, whiteboards, digital dropboxes and email communications (Harrington et al., 2004). While the majority of these tools are seen in the most commonly used CMS today, the robustness, flexibility and ease of use have generally all been refined. Furthermore, a vast array of additional components have been added, including mechanisms for just-in-time delivery and integration to front- and back-office administrative computing systems.

Hannafin and Savenye (1993) examined some of the reasons why many instructors do not use, and sometimes resist, technology. They found that instructors may have felt threatened by change, so chose to resist it; they stated, "Fear is often cited as a reason for teacher resistance, even preventing some teachers from using any form of technology in the classroom" (p. 27). They also found that little formal effort was made to support instructors who tried to implement new technology. Wolski and Jackson (1999) indicated that there is a need for better representations of why some faculties adopt technology and why some faculties resist it.

Katz (2003) reported that the past several years have witnessed the emergence of the CMS as an integral part of higher education's instructional infrastructure. CMS have "become dominant elements of higher education's system of educational delivery" (Morgan, 2003, p. 85). Green (1995) reported that 6% of all college courses used Web-based resources to support instruction; then Green (2001) found that 73.2% of the institutions

sampled used CMS. Hence, "College and university campuses have and continue to designate resources to technology integration" (Nelson, 2003, p. 32). However, given the change that is required to integrate CMS tools effectively, timely faculty development, support and learning materials are gaining importance.

Ely (2002) indicated that traditional approaches to teaching and learning in postsecondary environments continue to be a dominant force for a number of reasons: (1) professors hesitate to change; (2) some faculty do not have the skills to use information technology and are not especially eager to learn; and (3) there is an institutional reluctance to provide sufficient personnel and financial assistance to facilitate the use of networking. He noted that almost every technological development that has had potential for improving instruction has been confronted with barriers regarding user skill and confidence. Ely (2002) also indicated that potential users may be convinced that the technology has potential for improving learning, but the potential users are often reluctant to acquire the skills for using the new technology.

In summary, the reviewed literature identified that the problems facing higher education faculty in integrating technology into their classes need to be addressed to improve the level of technology utilization. Furthermore, the reviewed literature identified that the level of CMS use has increased as faculty perspectives toward such technology have been addressed.

### **Technology Integration in Higher Education**

This section addresses the level of technology integration in higher education and problems associated with its use among the faculty. "Technology is continuing to be a driving force in the delivery of education. Most college and university campuses have and continue to designate resources to technology integration. For faculty members, this is exciting and challenging" (Nelson, 2003, p. 32).

While Ely (2002) indicated that "Faculty members at institutions of higher education have usually been late adopters of innovations for teaching and learning" (p. 11), Green (2000) pointed out that more college courses are using more technology resources. Green's 2000 survey revealed that three-fifths (59.3%) of all college courses now utilize electronic mail, up from 54% in 1999, 44% in 1998 and 20.1% in 1995. Furthermore, the survey revealed that two-fifths (42.7%) of college courses in 2000 used Web resources as a component of the syllabus, up from 10.9% in 1995, 33.1% in 1998 and 38.9% in 1999. Moreover, Green's 2000 survey revealed that almost one-third (30.7%) of all college courses had a Web page, compared to 28.1% in 1999, 22.5% in 1998 and 9.2% in 1996. Green's 2000 Campus Computing Survey revealed that almost one-fourth (23.0%) of all college faculty had a personal Web page not linked to a specific class or course, compared to just 19% in 1999.

The integration of technology in teaching in higher education has become an important issue (Nelson, 2003). Ely (2002) indicated that technology integration in instruction is one of the current trends in educational technology. In 2000, Green reported that there is a rising use of technology in instruction. The increasing availability of technology in instruction justifies investigating the level of faculty involvement, and the challenges that are associated with using these technologies (Ndahi, 1999).

Green (2002) pointed out that courses use technology to deliver content are currently being integrated into instruction at a rapid pace. In the 2003 National Survey of Information Technology in US Higher Education, Green (2003) reported that a third of all college courses are using CMS tools, up from 26.5% in 2002, and 20.6% in 2001, and almost double the level in 2000 (14.7%). His survey data also revealed that over half (51.4%) of the

respondents' institutions had a strategic plan for developing CMS tools, compared to 47.5% in 2002.

Green also reported that more than four-fifths (82.3%) of the participating institutions in his survey had already established a single product standard for CMS software, up from roughly three-fourths (73.2%) in the 2001 survey and 57.8% in 2000. He indicated that CMS are playing an increasingly significant role in instruction across all sectors. Green concluded that CMS tools have become an important component of the institutional instructional infrastructure: Both the percentage of classes that use CMS resources and the number of institutions that have established a campus standard for a CMS product are on the rise. Hence, as more instruction includes the use of these tools, issues in effective technology use become more important (Nelson, 2003). Investigating the level of faculty involvement and the challenges that are associated with using CMS have become essential issues in higher education.

In regards to the challenges to faculty use of technology, Rogers (2003) stated that "Getting a new idea adopted, even when it has obvious advantages, is difficult" (p. 1). According to Rogers, "When new ideas are invented, diffused, and are adopted or rejected" (p. 6), social change occurs with certain consequences. Accordingly, adapting new technological innovation in higher education requires faculty to change their ways of teaching. Such change does not come easily (Schifter, 2000). Walsh (1993) stated, "Implementation of an innovation often requires change in the environment where it is introduced" (p. 52). Wolski and Jackson (1999) noted that adapting new technology, such as CMS, is not that simple. Some users will resist change entirely, with resistance to change in educational organizations being a widely recognized problem in the study of higher education.

In this regard, Berge (1998) indicated that one of the problems hindering the use of new technology, such as CMS and distance education technology, in higher education is faculty resistance. Betts (1998) pointed out that research indicates that one of the problems hindering the use of distance education technology in higher education is faculty reluctance. In addition, Ely (2002) indicated that professors at higher education institutions hesitate to change. Rogers (2003) pointed out that anxiety, fear and resistance to change are natural phenomena when diffusing a new innovation, and that the attitudes and perceptions of users play an important role when such diffusion occurs. Marvin et al. (1999) stated about the situation most succinctly, "Faculty attitudes about instructional technology influence the successful implementation of technology in the classroom" (p. 4).

"The gap between technology adoption and technology use in teaching has been noted worldwide" (Feeney, 2001, p. 11). Therefore, "Understanding the rate of adoption in any given situation requires analyzing factors that may facilitate the adoption and those that may operate as barriers to adoption" (Butler & Sellbom, 2002, p. 22). Ndahi (1999) indicated that the reasons which faculties are uncomfortable or resistant to using interactive computer-based instruction, such as CMS, in higher education institutions, are not made clear. Morgan (2003) found that some faculties are reluctant to adopt CMS.

Holden and Mitchell (1993) indicated that faculty's attitude is one of the obstacles that higher education institutions face. They stated, "The resistant attitude of faculty to using CMC applications, such as CMS, is an obstacle that will need to be overcome in order to ensure the success of future instructional CMC applications" (p. 36). Walsh (1993) indicated that the rate of adoption of distance education technology, such as CMS, in institutions of higher education, is slow. He also stated that faculty in institutions of higher education, and in particular, the attitudes of the faculty, are critical elements in the diffusion process.

On the one hand, some scholars found that: (1) Some faculty are reluctant to adopt CMS, because they believe that the systems reduce their control of instruction and the instructional environment; (2) Training of

faculty plays a key role in successful CMS adoption and use; (3) Strong leadership by campus executives and department chairs plays an important role in shaping and encouraging faculty to use CMS; and (4) The pedagogical impact of using CMS is perceived but difficult to measure.

On the other hand, the findings of Ndahi's (1999), Muilenburg and Berge's (2001), Butler and Sellbom's (2002), Anderson's (2003) and Morgan's (2003) studies showed that institutional support, encouragement and faculty training are essential factors for successful implementation of new technology in higher education teaching and learning environment. Clark (1993) found that department chairs, who will most influence future adoption and institutionalization of teaching innovations and new programs, were relatively positive in their attitudes toward the use of distance education technology and delivery tools when compared to other tenured and tenure-track university professors or other faculty at two-year colleges. Also, these studies indicated that, to successfully implement new technology in teaching and learning, educational institutions must address these barriers to faculty adoption. They also emphasized the need for further research to investigate faculty perceptions of CMS, to validate their findings and to analyze the utilization of CMS in higher education.

Ndahi (1999) examined the extent to which distance learning technology is used by faculty in industrial and technical teacher education programs. He identified the variables or factors that contribute to faculty willingness or unwillingness to use interactive distance learning technology in industrial and technical teacher education programs. He also indicated that the reasons why faculty are uncomfortable or resistant to using interactive computer-based instruction (such as distance learning technology and course management systems) at higher education institutions are not made clear, thus, making it difficult to develop strategies to overcome the resistance if the reasons for instructors' willingness or unwillingness to use these technologies are not understood. "Therefore, faculty and administration have to work together to identify, examine, and perform solutions so that the goal and mission of the institution, as well as the needs of the students, can be met" (Gammill, 2004, p. 30). However, he found that the most common reasons given by faculty for not using distance learning technology in their teaching are: (1) a lack of institutional encouragement, support and incentives; and (2) a lack of adequate training in the use of technology.

Butler and Sellbom (2002) identified the factors that might affect faculty use of modern instructional technology. They identified the factors that faculty believes are important either in facilitating the use or in creating barriers that work against the use of such technology. They indicated that technology use needs more flexible and adaptive organizational cultures, norms and planning. They found that knowing how to utilize technology is the second most important factor in determining faculty use of modern instructional technology. However, they found that a lack of institutional support and a lack of time to learn new technology (workload) are the major factors affecting faculty use of technology.

Rogers (2000) examined barriers to technology adoption. She found that barriers to successful technology adoption in education appear to have internal and external sources. Internal barriers may be summarized as "teacher attitude" or "perceptions" about a technology, in addition to a person's actual competency level with any technology. External sources include the availability and accessibility of hardware and software, the presence of technical personnel and institutional support, and an appropriate and adequate program for staff development and skill building. Barriers that cross internal and external sources are lack of time, funding and the unique culture of the institution. Furthermore, Rogers found that "Attitudes and perceptions of key individuals in the academic institutions may become the major barrier to adopting any technology" (p. 467).



Schifter (2000) provided an understanding for why faculty do or do not participate in distance education technology. She pointed out that understanding what truly motivates faculty to participate in distance education could help administrators in encouraging faculty who have stronger intrinsic motives over personal needs. However, she found that lack of institutional support, lack of release time and lack of concern about faculty workload are the most common factors that inhibit faculty from utilizing distance education technology.

Marvin et al. (1999) examined faculty attitudes toward the use of CMS technology at higher education institutions. They stated that the resistance to using new technology stems from certain emotional barriers that faculty experience when they are asked or are forced, to use equipment that they are not comfortable using for various reasons. According to Marvin et al. (1999), some of the barriers that advocate from using new technology include faculty fear of becoming facilitators instead of teachers, losing control over the teaching process, an increased workload associated with adapting to a new teaching method, and an inadequate training and support on the use of instructional technology. However, they found that faculty development and training in using technology were essential to faculty members, because "Understanding how to use technology is as important as availability" (p. 16).

Holden and Mitchell (1993) recommended that higher education institutions should provide the opportunity to develop the additional teaching skills needed to implement instructional CMC applications for faculty members, and should provide a comprehensive program to combat the resistant attitudes of non-CMC-using faculty, and thus to increase the relatively slow adoption rate of classroom CMC. Holden and Mitchell (1993) stated, "To adopt classroom CMC, faculty must perceive that using CMC has a relative advantage over not using CMC. Therefore, the adoption program should make faculty aware of the many advantages of CMC, such as speed, cost-effectiveness, flexibility and convenience" (p. 36). They also stated that for instructional CMC to succeed, non-CMC-using faculty need to perceive CMC as being compatible with their current teaching methods.

Chism (2004) found that just-in-time training, incentives and rewards are required when dealing with supporting faculty use of instructional technology. She also found that organizational development is important for the success of faculty development. She stated, "Promoting faculty change in the use of information technology goes hand-in-hand with organizational development. Efforts taken to foster a climate of experimentation focus on leadership, rewards, policies and procedures, and resources" (p. 44).

Wilson (2003) found that the three most common barriers to successful use of technology in higher education were identified as time, funding and faculty reward systems. Having enough time is the most critical element to successfully implementing technology. New technologies are expensive, both to purchase and support, and no technology implementation project can succeed without adequate infrastructure funding. For this reason, Wilson suggested that programs need to be developed to help faculty learn new technology. However, he indicated that technology must be used to enhance the educational experience, not to overpower or replace it. He also stated, "Rather than viewing technology as merely a tool for delivery, higher education should perceive technology as a means to improve learning" (p. 62).

In summary, most of the scholars illustrated the need for effective faculty development programs to support and improve the level of CMS use by faculty members in higher education.

## Conclusion

This study presents information that will be useful to a number of individuals who have an interest in the diffusion of postsecondary online or Web-based instruction. This includes, but is not limited to, faculty at higher education institutions who are using CMS, and/or who will potentially use CMS, universities administrators and faculty development directors.

The results of this study will benefit the expected audience in that it will: (1) identify what is currently taking place with CMS integration at higher education institutions, thus, the obtained information can assist university administrators to determine the educational costs regarding CMS integration; (2) identify factors that are related to faculty's attitudes toward the use of CMS, so the obtained information can assist those who facilitate faculty development to understand faculty resistance of using such technology in their instruction; (3) assist faculty development directors when developing training programs for the faculty because faculty training has been found to be an essential factor for successful implementation of new technology in higher education teaching and learning environments (Butler & Sellbom, 2002; Morgan, 2003; Ndahi, 1999); and (4) identify what higher education administrations could do to improve the utilization of CMS tools at their campuses.

However, it is important to point out that the findings of this study are not only applied to the international academic institutions, but also applied to the academic institutions in Jordan as well. Because Jordan has almost the same academic atmosphere comparing to that of the international one; also, because it is utilizing almost the same CMS and authoring tools. Nevertheless, there is a need for conducting a study specifically for the academic institutions in Jordan to confirm these findings.

This study, based on the reviewed literature, identifies prevalent faculty attitudes and perceptions toward the potential use of CMS tools in higher education institutions in general and in Jordan in particular. The following are major conclusions emerging from this study based on the review of the literature in general, and within the context of Jordan in particular: (1) Faculty attitudes toward the use of CMS tools are influenced by several factors. The most important factors are an increase in salary, receiving a stipend for using CMS, receiving a recognition/reward from the administration, merit pay, release time, teaching workload and training in the use of CMS; (2) CMS tools are currently integrated into instruction in higher education institutions to its highest use; and (3) Institutional incentives, proper training and adequate institutional support are major concerns in utilizing CMS tools.

Based on these conclusions, three themes emerged: (1) Faculty need financial incentives to encourage them to use CMS tools; (2) Faculty need training, technical assistance and institutional support to enable them to use CMS tools; and (3) Faculty need more information about the effectiveness of CMS tools for instruction.

The study findings have implications for the administrations of the higher education institutions in general and in Jordan in particular. The findings imply that personal experience with CMS tools is an influential factor in individuals' attitudes toward CMS use. If CMS diffusion strategies and efforts are to be promoted and expanded, it is important that faculty is provided with the opportunity to engage in a positive CMS use experience. This may be accomplished in several ways:

(1) Defining what obstacles need to be overcome to ensure the successful CMS use in higher education environments and providing adequate training for faculty who utilize or would utilize a course using CMS tools; such training opportunities should be publicized. This is important, because training in CMS use is essential to

encourage higher levels of faculty use and more effective uses of the technology;

(2) Providing institutional encouragement, support and incentives for faculty who desire to use CMS tools. Also, implementing an intellectual property agreement that will allow faculty to retain rights to the material they have created;

(3) Encouraging and rewarding faculty for exemplar uses of CMS tools to support instruction. Also, reducing the faculty workload and providing faculty with more time to develop and use CMS tools;

(4) Providing a comprehensive CMS program to combat the resistant attitudes of CMS faculty non-users. To implement CMS tools, faculty must perceive that using CMS has a relative advantage over not using CMS. Therefore, faculty development programs should make faculty aware of the many advantages of CMS, such as convenience, flexibility, accessibility and cost-effectiveness. In addition, for CMS to succeed, CMS faculty non-users need to perceive CMS as being compatible with their current teaching methods. The comprehensive CMS program should illustrate how CMS tools can be integrated into several teaching methods;

(5) Providing a stipend, merit pay or an increase in salary for faculty who use CMS tools in their classes;

(6) Providing release time or reducing teaching load for faculty who use CMS tools in their classes.

The results from this study suggest the following areas for future research:

(1) Conducting a study to assess the potential effects that implementation of CMS tools will have on traditional higher education;

(2) Conducting a study to investigate the administrative leadership role in shaping and encouraging faculty use of CMS;

(3) Conducting a study in one of the public universities in Jordan on the same topic of this paper with the context of Jordan to confirm the findings of the reviewed literature.

In short, higher education institutions in Jordan should decide to become more involved in the use of CMS tools, then faculty participation, as well as additional research will be essential. This is important, because literature, according to Wilson (2003), indicated that improving student learning is one of the primary motivations to using technology such as CMS. However, Swinney (2004) stated that "The new technologies course management systems can offer students and faculty members increased access and flexibility. Its value depends on how and why faculty members decide to use the technologies and what the students do with them" (p. 137). In this regard, Chizmar and Williams (2001) stated that "Faculty members do not need motivations; they need support" (p. 24).

Last but not least, conducting a research study on faculty uses of CMS technology in instruction at one of the Jordanian public universities is important and highly recommended, because the obtained information can assist the university in determining the educational costs, and value in terms of CMS effectiveness regarding the technology integration, because academic institutions spend a lot of money yearly on technology.

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