Faculty Members' Concerns about Adopting a Learning Management System (LMS): A Developing Country Perspective

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ABSTRACT

This study examined the concerns of faculty members regarding the adoption of a Learning Management System (LMS) employing the Concerns-Based Adoption Model (CBAM). Forty-seven faculty members from a university in Jordan completed the Stages of Concern Questionnaire (SoCQ). The SoCQ was used to assess the strength of faculty members' concerns in seven areas: awareness, information, personal impact, management, consequences, collaboration and refocusing. The results showed that the respondents' concerns were greatest in the early stages of the introduction of the LMS. Faculty members had a general lack of awareness about LMS and did not have enough information about it. The faculty members had little interest in or engagement with the LMS; they wanted to know more about the effect of LMS on them personally. Furthermore, faculty members had concerns about the management, time, and logistical aspects of the implementation of LMS.

Keywords: Concerns-Based Adoption Model (CBAM), developing country, faculty members, Learning Management System (LMS)

INTRODUCTION

The role of Information and Communication Technologies (ICTs) in higher education is increasing. Examples of services played by ICT include:

- providing faculty members with greater flexibility in delivering educational content, and providing students with greater flexibility in receiving it (Noor-Ul-Amin, 2013)
- making educational content available 24/7 for students (Sarkar, 2012)
- allowing faculty members and students to access educational resources (e.g. digital libraries and data bases) (Thanuskodi, 2011)
- enabling faculty members and students to use the latest technology to support their educational processes (Redecker & Johannessen, 2013)
- providing students with equal access to education regardless of culture and location (Ali, 2011)
- allowing faculty members to achieve pedagogical goals that rely on the use of ICT in their teaching practice (Ertmer & Ottenbreit-Leftwich, 2013)
- allowing students and faculty members access to the latest educational achievements (Veletsianos, 2012)
- increasing the efficiency of higher education institutions by enabling them to use ICTs to reduce the cost of maintaining their premises, to obtain savings in the reproduction of materials and to recruit more students (Lai, 2011; Sulisworo, 2012).

Learning Management Systems (LMSs) are one type of ICT that plays a major role in higher education. LMS refers to software applications and web-based technologies that help learning and teaching processes. LMSs are popular in universities in developed countries (Voss, 2013; Stone & Zheng, 2014). They have been used to facilitate distance learning as well as to supplement face-to-face instruction in blended learning (Dias & Diniz, 2014). LMSs provide opportunities to combine traditional classroom teaching and virtual learning through web-based courses. LMSs provide each student with a distinct personal experience of the learning process. They can serve as convenient

Contribution of this paper to the literature

- The study addressed the shortfall that faculty members' concerns about adopting LMSs in formal teaching have received little attention in developing countries in general and in Jordan in particular.
- The findings showed that the majority of the participants were mainly worried about self-concerns in the process of adopting LMS; the participants had little interest in or engagement with the LMS; they wanted to know more about the effect of the LMS on them personally, its demands, and their roles in its introduction. They wanted to know more about the fundamentals of the LMS, its effects on their teaching, and its requirements for use.
- The study identified Jordanian faculty members' concerns about adopting LMSs in their teaching practice and provided recommendations to resolve such concerns in order to promote actual use of LMSs in faculty members' teaching practice.

tools for faculty members to provide educational materials to students, to facilitate rapid and private communication between faculty members and students and between students, to provide flexible testing systems, and to facilitate student-centered learning environments.

Typical LMSs include document and multi-media management tools, communication and collaboration tools, assessment tools, and course and learning management tools (Macfadyen & Dawson, 2010). There are two main types of LMS: commercial systems and free open-source systems. Examples of commercial LMSs include the Blackboard Learning System, Desire2Learn, and eCollege. Examples of open-source LMSs include Moodle, ATutor, Google Classroom, Eliademy and Forma LMS. Due to current technology and web application developments, LMSs are continually improving. For instance, current versions of LMSs have added several features and services such as learning analytics capabilities, mobile access, 3D simulation authoring tools, virtual classes, and many more. Some faculty members have used Social Networking Sites (SNSs) such as Facebook groups as learning management systems (Wang, Woo, Quek, Yang, & Liu, 2012; Meishar-Tal, Kurtz, & Pieterse, 2012), taking advantage of their popularity among students (Hamade, 2013; Bsharah, Gasaymeh, & Abdelrahman, 2014).

Higher education faculty members have been encouraged to integrate ICTs, particularly LMSs, into their educational practice. However, for successful integration of LMS there is a need to understand faculty members' concerns regarding the implementation of such technology (Lochner, Conrad, & Graham, 2015). Faculty members are key players in the successful implementation of ICT in their teaching practice.

In the current study, in order to understand faculty members' acceptance of and attitudes toward the implementation of LMSs in their teaching practice, the Concerns-Based Adoption Model (CBAM) (Hall & Hord, 1987) was used. The CBAM has been used extensively to examine the acceptance and integration of technology in educational settings (Newhouse, 2001; Butler, 2010; Sultana, 2015). CBAM helps us to understand faculty members' concerns before, during, and after the adoption of new technologies for educational purposes. CBAM uses the Stages of Concern Questionnaire (SoCQ), an analytic tool for studying personal responses to change.

The current study took place in a university in Jordan. In Jordan, great attention has been paid to the integration of ICTs in higher education, and faculty members have been encouraged to integrate ICTs into their educational practice (Gasaymeh, 2009; Khasawneh, & Ibrahim, 2012). Jordanian universities provide faculty members with access to several ICTs, including LMSs, anticipating the use of such technologies in their educational practice. It is anticipated that the findings of the current study will improve the levels of implementation of LMSs by providing recommendations regarding professional staff development interventions that deal with the training and support needs of Jordanian faculty members.

Given the benefits of the integration of LMSs into educational practice in higher education, higher education institutions' growing attention to the integration of LMS to facilitate distance learning and blended learning, and the critical role of faculty members in the adoption of LMSs, the current study examined the concerns of university faculty members regarding the adoption of LMS.

THEORETICAL FRAMEWORK

As a conceptual framework, CBAM has been used to describe, explain, and predict potential adopter behaviors throughout change processes. It helps change facilitators avoid the problems of programs failing because changes are not implemented properly, or because staff concerns about changes are not addressed (Hall, & Hord, 2001).

The creators of the CBAM argue that change is accomplished by individuals rather than institutions, and that the process of change is a highly personal experience (Roberts, 1986; Anderson, 1997; Hall, & Hord, 2001). One of the key dimensions of CBAM is the Stages of Concern component (Hall & Hord, 1987). Stages of Concern are used to measure potential adopters' concerns, feelings and motivations about the new technology which they are going

to implement (Hall & Hord, 1987). Individuals are placed in one of seven stages of concern about an innovation. Hall, George, and Rutherford (1977) identified these stages as follows:

0. Awareness: Little concern about or involvement with the innovation is indicated.

1. Informational: A general awareness of the innovation and interest in learning more detail about it is indicated. The person seems to be unworried about herself / himself in relation to the innovation. She/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects, and requirements for use.

2. Personal: Individual is uncertain about the demands of the innovation, her/ his inadequacy to meet those demands, and her/his role with the innovation. This includes analysis of her/his role in relation to the reward structure of the organization, decision making, and consideration of potential conflicts with existing structures or personal commitment. Financial or status implications of the program for self and colleagues may also be reflected.

3. Management: Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency, organizing, managing, scheduling, and time demands are utmost.

4. Consequences: Attention focuses on impact of the innovation on students in her/his immediate sphere of influence. The focus is on relevance of the innovation for students, evaluation of student outcomes, including performance and competencies, and changes needed to increase student outcomes.

5. Collaboration: The focus is on coordination and cooperation with others regarding use of the innovation.

6. Refocusing: The focus is on exploration of more universal benefits from the innovation, including the possibility of major changes or replacement with a more powerful alternative. Individual has definite ideas about alternatives to the proposed or existing form of the innovation (p. 7).

These stages can be grouped according to three dimensions: self (the awareness, informational, and personal stages), task (the management stage) and impact (the consequences, collaboration and refocusing stages). These stages are determined by the potential users' responses to an interview, survey and observation process (Johnson, 2006). The developers of this model provide an assessment instrument called the SOCQ, which measures the strength of each participant's concerns regarding each of the seven stages (Hall & Hord, 1987). It is important for program planners to know individuals' concerns and their intentions regarding the program. This information allows them to address potential users' concerns during the adoption process, and to respond appropriately. In a change process, the goal is to guide the potential adopters toward Stage 6 (Refocusing) (Dawson, Swain, Johnson, & Ring, 2004). Pedron and Evans (1990) highlighted the importance of determining the stages of greatest concern for the individuals who are going through the adoption process:

> *CBAM theory proposes that once the most intense stage of concern is identified and intervention appropriate to that Stage is provided, then resolution of those concerns will occur, clearing the way for eventual adoption of the innovation. Conversely, it is hypothesized that interventions which are not stage appropriate could intensify concerns at the identified Stage and possibly prevents movement toward accepting the innovation (p. 191).*

The current study used CBAM to examine the concerns of Jordanian faculty members regarding the adoption of LMS. CBAM examines the processes of technology's adoption for individuals.

PREVIOUS STUDIES

According to Stone and Zheng (2014, p 756), "in a changing and globally competitive world, an LMS can allow for improved access and tracking of learning activities as well as support organizational growth and development". Several studies have examined faculty members' perceptions, motivations and use of LMS. For instance, Lonn and Teasley (2009) examined faculty members' and students' use of, and perceptions about using, an LMS to support traditional face-to-face teaching. A total of 2573 faculty members and 4537 students from a university in the United States participated in the study. The data were collected using a questionnaire and log records over a two-year period. The results showed that the majority of the faculty members and students were using an LMS. The researchers found that that instructors and students believed that LMS services for transmitting course materials and announcements were more important than LMS interactive services such as those used for posting and accessing sample exams, quizzes, lectures notes and questions. In Saudi Arabia, Hussein (2011) examined Saudi faculty members' attitudes toward the national LMS (JUSUR). Responses from 90 faculty members from seven Saudi universities showed that overall, they had positive attitudes toward the use of the LMS. However, these positive attitudes were not reflected in their actual use. The researcher noted that there was a need for training in particular aspects of the LMS such as content management, file sharing, forums, and the questions bank. The study

found that the faculty members' attitudes toward the use of the LMS were not influenced by their gender or their major.

Gautreau (2011) examined faculty members' motivations for adopting an LMS to support traditional face-to-face teaching and in online teaching. For the purposes of the study, forty-two faculty members from a university in the United States completed a questionnaire. The results showed that the major factors that would motivate faculty members to adopt an LMS in their instructional practice were increasing their salary, feelings of responsibility and feelings of achievement. In Turkey, Ocak (2011) examined faculty members' reasons for not using blended courses that incorporated LMSs. A qualitative case study design was used in which 117 faculty members from four Turkish universities participated in interviews. The results showed that the main problems of using an LMS in blended courses were related to instruction and technical issues. Specifically, the main reported problems with the use of blended learning were "(1) complexity of the instruction, (2) lack of planning and organization, (3) lack of effective communication, (4) need for more time, (5) lack of institutional support, (6) changing roles, (7) difficulty of adoption to new technologies and (8) lack of electronic means" (Ocak, 2011, p.589).

Some studies have adopted different models to examine faculty members' use of LMS. For instance Alharbi and Drew (2014) investigated Saudi Arabian faculty members' intentions to use LMS. The researchers used a modified version of the Technology Acceptance Model (TAM) to study faculty members' acceptance of LMS. Fifty-nine faculty members from different colleges completed an online questionnaire. The results showed that the faculty members had positive attitudes towards the LMS and intended to use it. In addition, the results showed that faculty members' intentions to use LMS were positively related to their attitudes toward the use of LMS, their perceptions of LMS ease of use, their perceptions of LMS usefulness, and the extent of their LMS usage experience. In another recent and more comprehensive study, Alghamdi and Bayaga (2016) examined 220 Saudi faculty members' use of and attitudes towards LMSs. The respondents from six Saudi universities completed a questionnaire. The study showed that despite the availability of LMSs, only a small percentage of faculty members used them for the majority of their teaching-related activities, while many others did not use LMSs at all.

In another similar study, Lochner, Conrad, and Graham (2015) used CBAM to examine the concerns of 206 teachers regarding the adoption of LMS. They completed a questionnaire regarding their concerns about adopting LMS. The results showed that the educators' concerns regarding the LMS adoption, ranked from the most intense to the mildest, were related to the awareness, management, personal, informational and refocusing stages. The authors argued that the successful adoption of new technology in education depends on obtaining an understanding of educators' concerns, and obtaining that understanding is likely to depend on the use of CBAM (Lochner, Conrad, & Graham, 2015). Understanding educators' concerns regarding the adoption of new technology in education can help change the way agents and university administrators implement such technology. In Jordan, Matar (2015) used CBAM to assess faculty members' use of e-learning system. A sample of 138 faculty members from 12 different universities completed a questionnaire. The results showed that the participants' most serious concerns related to two stages of information and management.

In another study that used CBAM, Untiedt (2014) examined LMS implementation in a university in South Africa. Fifty-four health professional educators completed a questionnaire regarding their concerns about adopting an LMS. The results showed that despite the availability of an LMS, the educators had not fully adopted it. The participants' most serious concerns related to the awareness, management, personal and informational stages. Untiedt (2014) reported that the main needs for the educators in their adoption process were: to understand the motives for using the LMS, having enough time to learn to implement the LMS, training and support resources related to LMS, and the need for an understanding of the pedagogical and technical capabilities of the LMS in their practice. In Malaysia, Masrom (2013) examined faculty members' concerns about using LMS in their teaching practice. One-hundred-and-forty-three faculty members completed the SOCQ in the CBAM. The profiles of participants' concerns showed that instructors' greatest concerns were in the awareness, self and task stages, with tailing-up of refocusing concerns.

The previous studies have shown that the adoption of LMS had captured researchers' attention in different parts of the world. Faculty members had positive perceptions and attitudes towards the use of LMS in their educational practices (Lonn & Teasley, 2009; Hussein, 2011; Alharbi & Drew, 2014). LMS provides several benefits for students and educators such as efficient communication and interactive educational and administrative services (Lonn & Teasley, 2009). However, faculty members' positive attitudes toward the use of LMSs were not necessarily translated into actual use (Hussein, 2011). Faculty members' adoption of LMS needs careful planning by institutions of higher education. Making the technology available for faculty members is not enough to ensure its adoption (Ocak, 2011; Masrom, 2013; Untiedt, 2014 Alghamdi & Bayaga, 2016). Faculty members' play integral roles in the adoption process of the new technology in education. Therefore, there is a need to understand faculty members' concerns regarding the adoption of the technology. The current study used CBAM to examine the concerns of Jordanian faculty members regarding the adoption of LMS.

PURPOSE OF THE STUDY

The use of LMS provides educational and administrative benefits for faculty members in institutions of higher education. Faculty members have significant roles in the process of adopting and using such technology. CBAM has great potential for increasing our understanding of adopters' concerns regarding the adoption of new technologies. The current study used CBAM to examine the concerns of faculty members regarding the adoption of LMS in a university in Jordan.

RESEARCH METHODS

The current study adopted a cross-sectional survey design to examine faculty members' concerns regarding the adoption of LMS in their educational practice. The data were collected using SoCQ.

Participants

The participants were a group of faculty members at a public university in southern of Jordan. The study sample consisted of 47 faculty members. The number of participating male faculty members (80.9%; n=38) was higher than the number of female faculty members (19.1%; n=9). A little more than half of the participants (57.4%; n=27) were between the ages of 30 and 45. Only 4.3% (n=2) were less than 30 years old. Around one-third of the participants (38.3%; n=18) were older than 45. About one-third of the participants (36.2%; n=17) were from the university's college of educational science. Just under one-third of the participants (31.9%; n=15) were from the college of engineering. Only 12.8% (n=6) were from the arts and humanities colleges. Only 10.6% (n=5) were from the science college. About a third of the participants (34%; n=16) were lecturers. A little less than one third of the participants (31.9%; n=15) were associate professors. About a quarter of the participants (25.5%; n=12) were assistant professors. Only 6.4% (n=3) were full professors.

Regarding their experience of the use of LMS, the majority of the participants (70%; n=33) reported that their experience with LMS ranged from none to moderate. While the rest (30%; n=14) reported that they had high experience with LMS. Only 19.1% (n=6) reported receiving training regarding the use of LMS.

Instruments

The instrument used in this study was the CBAM Stages of Concern Questionnaire (SoCQ). SoCQ is the main tool for determining the intensity of individuals' concerns about an innovation (George, Hall, Stiegelbauer & Litke, 2008). The validity, reliability, and internal consistency of SoCQ were thoroughly tested (George, Hall, Stiegelbauer, & Litke, 2008). The SoCQ had four parts: the cover page, the introductory page, a total of 35 items divided into seven scales to assess individuals' concerns, and the demographic questions. The participants marked each item on a 0–7 Likert scale, where "0" represented a completely irrelevant item for the respondent and "7" represented a completely relevant item for the respondent.
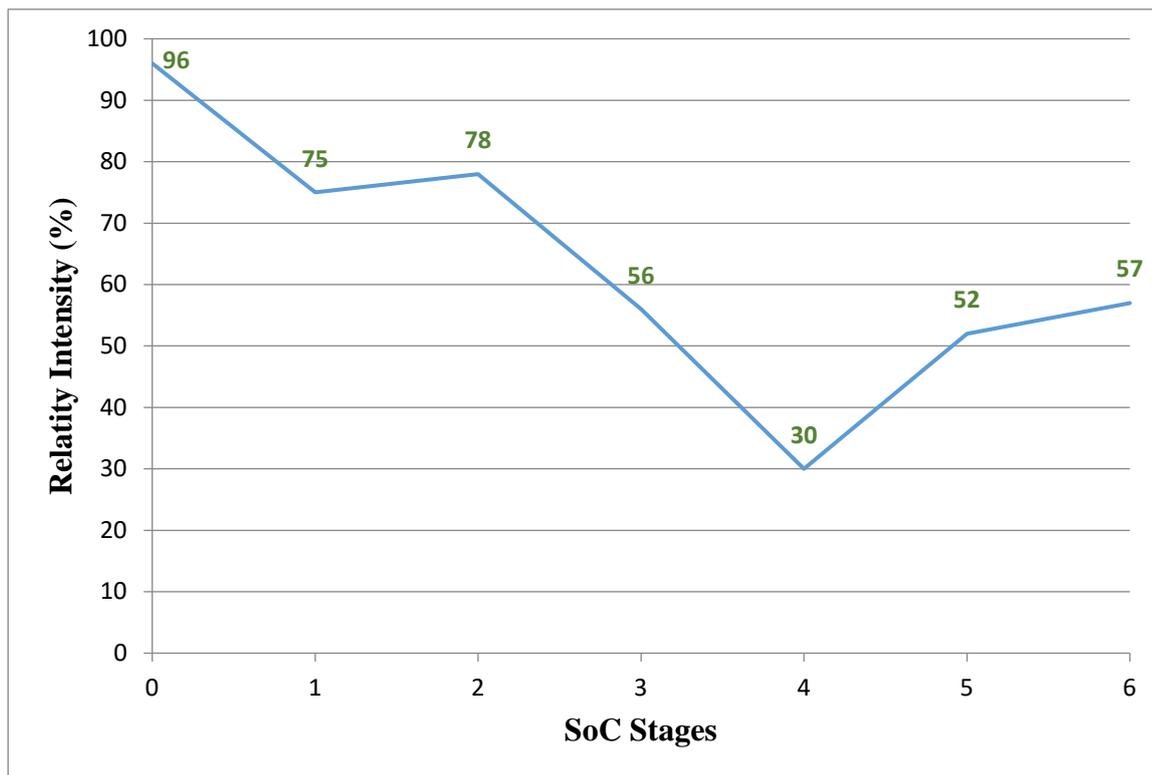
Procedure

The study took place in the second semester of the 2016–2017 academic year. The participants were invited by a group of research assistants to participate in the study. Research assistants visited the offices of faculty members to hand out the paper-based questionnaires. Out of the total of 250 faculty members at the university, 100 participants were randomly selected to be invited to participate in the study. Of these 100 faculty members, 47 completed the questionnaire.

Data Analysis

The collected data from the questionnaires were used to construct a profile chart showing the level of concern reported by the participants for each stage. To create the profile chart, the means of the raw scores for each of the seven stages were calculated, and these means were then expressed as percentiles on the chart.

RESULTS AND DISCUSSION

Figure 1 is a chart showing the participants' group concern profiles about adopting LMS in their teaching practice. The majority of faculty members had their most serious concerns in the first three stages: Stage 0 awareness, Stage 1 information, and Stage 2 personal. This suggests that the majority of participants were mainly worried about self-concerns.

| n | 10 | 10 | 12 | 0 | 5 | 10 | 0 |

Figure 1. Concern profile for faculty members in adopting LMS

Participants' high concerns in the first three stages indicated that the LMS was not the only thing the faculty members were concerned about. In addition, it indicated that there were potential ideas, tasks, and activities that were of concern to them. Participants' high concerns in the first three stages indicated that the participants had little interest in or engagement with the LMS; they wanted to know more about the effect of the LMS on them personally, its demands, and their roles in its introduction. They wanted to know more about the fundamentals of the LMS, its effects on their teaching, and its requirements for use. Furthermore, such result indicated that the participants were concerned about the personal advantages from the use of LMS in their educational practice.

Faculty members in Jordan still rely on the traditional way of delivering instruction due to the lack of motivational factors that would encourage them to adopt different type of ICT, including LMS, in their educational practice (Gasaymeh, Al-hasanat, Kraishan, & Abutayeh, 2017). As a result, faculty members would be concerned about the traditional teaching methods rather than the integration of ICT in their teaching practice. In addition, the faculty members would be concerned about the personal advantages related to the use of LMS such as direct benefits, rewards and motivations. Faculty members' answers to the survey question regarding their experience with LMS showed that for the majority of the participants (70%; *n*=33) their experience ranged from none to moderate. In addition, the majority of the participants (87%; *n*=41) had not receive training regarding the use of LMS. These explain why concerns were greatest in the first three stages.

Stage 3 (management) was the stage with the second-highest area of concern after self-concerns, suggesting that the faculty members had concerns about management, time, efficiency, and other logistical aspects of the implementation of LMS. Strong management concerns indicate an intense concern with the logistical aspects of LMS implementation. Examples of logistical concerns that are mostly related to technology integration in education include proper infrastructural support, free time, and access to and use of suitable resources (Ocak, 2011; Delgado, Wardlow, McKnight, & O'Malley, 2015). Such concerns can be explained by the lack of training, where the majority of the participants (87%; *n*=41) had not receive training regarding the use of LMS.

There was a dramatic decrease in the level of concern in Stage 4. The consequences stage was the stage which registered the lowest level of concern. This result reflects that the faculty members were least concerned about the direct effects of the use of LMS on students. Similar to faculty members' concerns in Stage 3, they had relatively low levels of concern in Stage 5. The lower scores for Stage 5 indicated that the faculty members were not very concerned about working and collaborating with others in the use of the LMS. The overall group concern profile

shows tailing up in at Stage 6. However, such tailing up is not very high; tailing up needs 7–10 percentile points to be detectable in the profile (George, Hall, Stiegelbauer, & Litke, 2008). The tailing up of the refocusing stage (6) indicates that the faculty members had other educational innovations and technologies that they saw as having more advantages than the LMS. In addition, the tailing up in the profile was a warning that the faculty members might have been resistant to the use of LMS in their educational practice. The low intensity of their concerns in Stages 4, 5, and 6 indicated that despite the availability of LMS at the university, it had not yet become completely incorporated into the university environment, and the establishment of the LMS as a convention or norm in the university had not been accomplished. Since the LMS was not adopted by most of the faculty members, it was expected that they would not have high concerns regarding the effect of the use LMS on students, working and collaborating with others in the use of the LMS, and exploration of more benefits from the LMS. These types of concerns would be developed for the users of the LMS rather than non-users of LMS.

In the current study, the faculty members' overall concern profile roughly followed the non-user profile. George, Hall, Stiegelbauer, and Litke, (2008) reported that non-users usually have high concerns in Stages 0, 1, and 2 and low concerns in Stages 4, 5, and 6. The profile had a negative one–two split. Negative one–two splits happen when the Stage 2 score is higher than the Stage 1 score (George, Hall, Stiegelbauer, & Litke, 2008). This result suggests that the faculty members' concerns about the effect of LMS on their own work, for example due to their own time limitations and the changes they would be expected to make, were greater than the desire to learn more about the LMS.

Despite the anticipated usefulness of the implementation of LMS in educational practice reported in some of the previously discussed research studies (Lonn & Teasley, 2009; Stone & Zheng, 2014), the current study found that the faculty members had not implemented LMS in their educational practice. The findings of the current study aligned with the findings of similar research study that found that the availability of the LMS did not necessary mean that faculty members would implement it in their educational practice (Hussein, 2011; Untiedt 2014; Alghamdi & Bayaga, 2016)

The results were consistent with some recent CBAM-related research findings that showed that practitioners had intense personal and task concerns about adopting LMS (Masrom, 2013; Untiedt, 014; Lochner, Conrad, & Graham, 2015; Matar, 2015). After determining faculty members' concerns about adopting LMS, educational leaders should provide faculty members with proper and timely programs, strategies, and support to help them in their evolution to higher-level concerns. The intensity of integration of the LMS could be enhanced when the training interventions concentrate on particular preparation and support requirements of the faculty members.

CONCLUSIONS AND RECOMMENDATIONS

The use of the CBAM to understand educators' concerns regarding the adoption of new technology in education is essential successful integration of those technology (Lochner, Conrad, & Graham, 2015). The current study provides essential information related to faculty members' concerns associated with the adoption LMSs. This information can contribute to efforts to integrate ICT, particularly LMS technology, in education. It will assist higher education change facilitators and educational leaders to facilitate technology-supported learning environments. Specifically, change facilitators and educational leaders can apply the data gained from the current study about faculty members' concerns regarding the use of LMS when designing and implementing training programs and activities to resolve faculty members' greatest concerns.

The results show that the university faculty members' most intense concerns arose in the early stages of the introduction of the technology, and were related to the use of LMS in their educational practice. In order to establish the use of a technology as a convention or norm in educational institutions, there is a need to resolve the potential adopters' concerns in informational, personal and management areas (Hall & Hord, 1987). Accordingly, to institutionalize the use of LSM in the university, faculty members need support to address their high intensity concerns about the LMS use. The goal of CBAM is to guide innovation users toward refocusing concerns (Dawson, Swain, Johnson, & Ring, 2004). In order to help faculty members to progress from the early concern stages to the later ones, there is a need to address their concerns in these early stages.

Therefore, the first step is to make them aware of and familiar with the LMS. They should then be provided with the necessary concepts; knowledge and skills; and the changes, they will be required to make, that are related to the integration of LMS into their educational practice. Support information in relation to LMS integration should be continuously provided during the implementation process in order to help the faculty members' progress toward higher-level concerns. In the process of technology integration in higher education, Dysart and Weckerle, (2015) stressed the importance of providing faculty members with ongoing professional development opportunities in order to increase their understanding and competence in the use of technological tools and the pedagogical approaches needed to successfully integrate such technology into teaching practice. In addition, ongoing

professional development programs need to address faculty members' concerns throughout the stages of technology adoption.

After providing faculty members with enough information related to the use of LMS in their educational practice, change facilitators should address faculty members' personal concerns. A common way to address potential adopters' personal concerns in the adoption process is to conduct appropriate professional development programs or activities. Thus, university administrators and other university leaders need to provide faculty members with training and demonstrations related to use of the LMS and its effects on their educational practice.

However, based on the CBAM, continued professional development programs should be provided to potential adopters in different stages of concern. The main aim of all professional development programs should be to help adopters reach the collaboration level (Bybee, 1996). Therefore, the use of CBAM to guide professional development programs and activities related to use of LMS, rather than relying on technology skills-based models, will successfully address faculty members' concerns that may inhibit their use of LMS.

The results showed that the participants had intense concerns in the management stage regarding the LMS implementation. The use of technology in blended learning environments requires that practitioners have sufficient experience in the use of the relevant technology, and enough time to adapt to it (Ocak, 2011). In order to address faculty members' management concerns, they should be provided with adequate professional support programs that build on training programs that resolve concerns about the previous stages. These types of professional development programs should include demonstrations, hands-on practice, and corrective feedback (Bybee, 1996). Faculty members should be provided with further assistance in the process of the implementation of LMSs. In their teaching, faculty members need more time to learn to use the new technology (Ocak, 2011). Faculty members who intend to use an LMS in their educational practice should be given more release time or compensation for using LMS in their teaching practice. Similar time requirements have been reported in other studies that have examined the integration of LMS in educational practice (Gautreau, 2011). In the process of the integration of LMS in teaching practice, faculty members need more time to: create electronic materials and design new teaching activities, review and change the curriculum in order to integrate LMS, learn about the possible uses of LMS, learn about the use of LMS that best improves students' learning, share their experiences with colleagues and cooperate with them regarding LMS integration, track and evaluate students' learning outcomes, and reflect on and assess their experiences with the LMS integration.

The results showed that the participants had least concerns regarding the LMS implementation in the consequence stage. Adopters develop intense consequence concerns about the application of the innovation only when this innovation is being fully integrated into their practice (Hall, George, & Rutherford, 1977). This result therefore suggests that the LMS was not completely integrated into faculty members' curriculums, and this explains the low levels of concern about the role of the LMS as an educational tool. However, in order to support faculty members to adopt LMS in their teaching practice, they should be provided with opportunities to observe how LMS positively affects students' learning. If faculty members have the chance to experience the positive impacts of the use of a technology on students' learning, they will be more open to adopt technology in their learning (Dougherty, 2015).

University administrators should address faculty members' collaboration concerns. Change facilitators should establish traditional and virtual collaborative learning communities (Prasolova-Førland & Divitini, 2002; Dougherty, 2015). During the change process, faculty members should be able to collaborate with their peers to exchange knowledge and skills related to LMS integration in teaching practice. In addition, providing faculty members with opportunities to share their LMS experiences with other faculty members can be considered as rewarding for them, and it is likely to encourage them to continue using LMS in their educational practice. In addition, professional development should facilitate communication, interaction, and collaboration among the trainees. It is important to encourage collaboration among faculty members who have different concerns in order to support inexperienced faculty members in the early stages of adoption. The tailing up in the level of concerns in the refocusing stage in the non-users' concern profile suggests that some faculty members wanted to teach without the use of the LMS. In studying faculty members' concerns regarding the integration of the LMS in their teaching practice, the goal is to make them use the LMS and guide them toward refocusing concerns in order collect their feedback about how to improve the use of LMS and gain better educational outcomes.

CBAM is a diffusion model that assumes that change is a process that is achieved by individuals, that it is a personal experience, that it involves developmental growth in emotions and capabilities, and that it can be facilitated by interventions directed toward individuals, innovations, and contexts (Hall & Hord, 1987). It is important for the program planner to know which stages of the adoption process individuals are concerned about, and the levels of those concerns. This is essential if planners are to address potential adopters' concerns during the adoption process and provide appropriate interventions (Dawson, Swain, Johnson, & Ring, 2004). In the process of LMS integration in institutions of higher education, faculty members should be involved in the adoption process.

Faculty members should be involved in informational and professional development programs that make them aware of and familiar with LMS, its benefits, and its effect on their teaching practice.

Finally, there are some limitations to the current study. The study sample consisted of a small number of participants from only one public university in Jordan. The used research methodology was quantitative. More participants from different universities in Jordan should be invited to participate in similar future research studies. Future similar research studies should employ other types of research methodologies, such as mixed methods research, in order to provide more in-depth understanding of faculty members' use of LMSs.

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