

Conditions Facilitating Faculty Members' Implementation of Online Learning Technology in Iranian Universities

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ABSTRACT

The aim of the study was to determine the conditions that facilitate the implementation of online learning technology among faculty members at e-learning centres in Iranian universities. Research sample comprised of 220 faculty members who were randomly selected from nine public universities in Iran. Using the survey methodology, data were gathered through the use of a questionnaire. The questionnaire included the following: (a) 10 items pertaining to demographic information; and (b) 40 items related to Ely's conditions facilitating technology implementation. The reliability of the scale was .91. The data were descriptively analyzed in the forms of mean and standard deviation using the Statistical Package for the Social Science (SPSS) version 16. Findings of the study showed that five conditions, which facilitate implementation of online learning technology, perceived to be present by the faculty members were: (a) dissatisfaction with the status quo, (b) existence of knowledge and skills, (c) availability of time, (d) existence of rewards or incentives, and (e) expected and encouraged participation. From these five conditions, 'dissatisfaction with status quo' was perceived to be the most present condition. On the other hand, three other conditions were perceived to be less present, namely, 'commitment by those who are involved', 'leadership', and 'availability of resources'. From these three conditions, 'availability of resources' was perceived to be the most lacking at e-learning centres in Iranian universities.

Keywords: Online learning, ICT, Ely's conditions

ARTICLE INFO

Article history:

Received: 20 November 2011

Accepted: 27 April 2012

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INTRODUCTION

The positive impact of Information and Communication Technology (ICT) on students' learning is undeniable. ICT, when used effectively, can affect students'

achievement, assist in developing their higher order thinking and problem solving skills, enhance their incentive and attention in learning, help to make them ready for workforce, and also address the needs of low performing and learning impaired students (Centre for Applied Research in Educational Technologies, 2005). Hence, due to these benefits, ICT has been increasingly adopted as an intrinsic part of the learning processes. The new wave of the information age is represented by the Internet, the World Wide Web, and personal computers. This new wave eventually leads to the advent of teaching and learning methods in online learning environment (Alnujaidi, 2008).

Online learning is delivery of learning through the use of ICT via the Internet, where learners and instructors are physically separated (Chongwony, 2008). Online technology allows students to participate, regardless of their geographical locations and independent of time and place. Students do not need to meet face-to-face in the entire sessions to complete a course (Tsai & Machado, 2002). In fact, an online learning environment provides different ways of learning and a richer learning environment through various communication tools. It also provides fresh approaches and different styles in learning, as well as allowing for a greater diversification in learning and access to learning. It can include any or all of a number of aspects, ranging from administration details relevant to the class to learning experiences that are mediated through interactive tools to a total course delivered via the Internet

(Palloff & Pratt, 2005).

There are many barriers to online technology implementation by faculty members. These include the lack of time and training, inadequate resources and equipment, limited technological and pedagogical knowledge, lack of technical, administrative and policy supports, and also faculty members' low motivation (Beggs, 2000; Cummings, 1998; Ertmer, 1999; Rogers, 2000; Schoepp, 2004; Shafiei, 2005).

In an attempt to address conditions facilitating technology implementation Ely (1976, 1990 & 1999) proposed a series of conditions in a variety of education-related contexts, especially in higher education. The conditions identified by Ely are: (a) dissatisfaction with the status quo; (b) existence of knowledge and skills; (c) availability of resources; (d) availability of time; (e) existence of rewards or incentives; (f) participation; (g) commitment; and (h) leadership.

In the context of Iran, the Ministry of Higher Education has made attempts to capitalize on the strengths of using online technology for teaching and learning. The past eight years have seen monumental efforts put by the authorities to train and familiarise faculty members or instructors with the development of electronic contents and online courses. There are ten e-learning centres at ten Iranian public universities in Iran which deliver online courses to learners through the Internet. An e-learning centre is an initiative which aims to empower universities on the adoption and use of

e-learning. This is in line with the national development objectives as postulated in Iran's 'Vision 2025'.

PROBLEM STATEMENT

In Iran, distance learning has developed in the last two decades. However, it suffers from deficiency, barriers and challenges with regard to its infrastructure and technology. Shadmehr (2007) points out several issues in this respect, including the lack of appropriate framework, mismanagement, legal obstacles, lack of suitable teacher-student interaction, ineffective curriculum, and limited class time allotted only to solving problems. Moreover, not much attention is given to distance learning, particularly specific differences between educational leadership, textbooks, and curriculum planning in the distance and traditional learning (Kochakzadeh, 2007). The Internet access and skills needed to use it are not adequate, whereas the speed of the Internet is too low (Gharehbakool, 2006). Furthermore, Ahmadi (2004) asserts that distance learning technology is still very new and unknown to the Iranian learners and instructors.

The factors listed above, as well as others identified by various researchers, have been shown to hinder the use or incorporation of the technology into the instruction by faculty members. Although a few studies have been conducted on the existing barriers in ICT implementation in Iran (Kochakzadeh, 2007; Mostafapur, 2004; Nasiri, 2003; Sadeghzadeh, 2008; Shadmehr, 2007; Shirvani, 2002), none has

investigated the conditions facilitating the implementation process of ICT. According to Nawawi (2005), another way to look at the implementation of technology in higher education is to ask what conditions will facilitate faculty members' implementation of technology in instruction.

OBJECTIVE

The objective of this study was to determine which Ely's conditions facilitate the implementation of online learning technology among the faculty members at e-learning centres in Iranian universities.

METHODOLOGY

The research design employed for this study was in the form of a survey. The population of the study comprised of faculty members from e-learning centres in Iranian public universities (N=445). Based on Krejcie and Morgan's formula (1970), the minimum sample size was 206. The research sample was selected based on the simple random sampling technique as the information of all the faculty members were available. An online questionnaire adapted from Nawawi (2005) and Ely's framework (1999) served as the research instrument for obtaining data. The questionnaire was divided into two parts. The first part had 10 items pertaining to demographic information, while the second part contained 40 items related to eight of Ely's conditions. A total of 360 online questionnaires were distributed to the faculty members, and out of which, 220 were found to be valid for analysis. The questionnaire used a five-point Likert scale

(ranging from 1 for “Strongly Disagree”, 2 for “Disagree”, 3 for “Slightly Agree”, 4 for “Agree” to 5 for “Strongly Agree”). Interpretation of the mean scores for each of the eight conditions is presented in Table 1. The questionnaire was validated and subjected to back translation by a panel of content and language experts. Based on a pilot study, the overall reliability of the scale was .91. The data were analysed descriptively using SPSS version 16.

TABLE 1
Mean Scores and Interpretation for each of Ely’s Conditions

Mean scores	Interpretation
5 - 15	Perceived as less presence at e-learning centre. Condition does not facilitate online technology implementation.
16 - 25	Perceived as more presence at e-learning centre. Condition facilitates online technology implementation.

RESULTS AND DISCUSSION

Demographic Profiles of the Respondents

A total of 220 faculty members at e-learning centres in nine Iranian universities were included in this study. Majority of the faculty members (n=158, 72%) were males, and were in the 26 to 45 years old age group (n=157, 71%). In terms of faculty rank, majority of the faculty members (n=119, 54%) were assistant professors. Similarly, majority of the faculty members (n=118, 53%) have had between three to four years of teaching experience at e-learning centres in Iranian universities. In terms of the number of online courses developed by the faculty

members at e-learning centres, the majority of them (n=121, 55%) have developed between one to six online courses. As for the number of online courses taught by the faculty members in the second semester academic year 209-2010 at e-learning centres, most of them (n=178, 81%) have taught two to three online courses.

Table 2 presents the mean scores and standard deviations of each of Ely’s conditions. In general, the conditions that were perceived by the faculty members to have more presence were: a) dissatisfaction with the status quo (M=17.87, SD=2.37), b) existence of knowledge and skills (M=17.13, SD=2.88), c) availability of time (M=16.99, SD=2.45), d) existence of rewards or incentives (M=16.78, SD=3.14), and e) participation (M=16.12, SD=2.41). Dissatisfaction with the status quo was perceived to be the most present as compared to the other four conditions. Three other conditions which were perceived to be less present in the university were: a) commitment by those who are involved (M=14.21, SD=3.71), b) leadership (M=13.89, SD=2.65), and c) the availability of resources (M=13.31, SD=3.56). Out of these three conditions, the availability of resources was perceived to be most lacking in the universities.

TABLE 2
Mean scores of Ely’s conditions

Ely’s Conditions	M	SD
1. Dissatisfaction with the status quo	17.87	2.37
2. Existence of knowledge and skills	17.13	2.88
3. Availability of resources	13.31	3.56

TABLE 2 (continued)

4. Availability of time	16.99	2.45
5. Existence of rewards or incentives	16.78	3.14
6. Participation	16.12	2.41
7. Commitment	14.21	3.71
8. Leadership	13.89	2.65

Generally, the results of the study support Ely's (1990, 1999) list of conditions. All the eight conditions were perceived to be present, although their presence was in varying degrees. The mean scores for five of these conditions (namely, dissatisfaction with the status quo, existence of knowledge and skills, availability of time, existence of rewards or incentives, and participation) were found to be higher than 15, and could be interpreted as having more presence at the e-learning centres. These conditions were also perceived as supporting and facilitating online technology implementation among the faculty members.

The results from this study also showed dissatisfaction with the status quo as the most present condition at the e-learning centres in Iranian universities. This finding supports the results by Stein (1997) and Kajuna (2009) who believe that the presence of dissatisfaction with the status quo is vital as without it, innovations would probably not be attempted. This finding is also consistent with Nawawi (2005) who states that in order to be willing to use the innovation, faculty members should have faith that using technology is more useful than what is currently used.

In addition, the existence of knowledge

and skills among faculty members was also found to have higher presence at Iranian universities. This finding is similar with those of Jeffrey (1993), Marovitz (1994), Riley (1995), and Owen and Demb (2004) who indicate that the presence of knowledge and skills is vital for a successful implementation of technology. In particular, the studies by Ely (1990, 1999) have shown that knowledge and skills have consistently been ranked as one of the most significant factors leading to implementation. As reported by Nawawi (2005), faculty members with improper knowledge and skills may be unwilling or discontinue to using a particular technology.

Meanwhile, the availability of time was also another condition perceived to have higher presence at the e-learning centres. This finding is not surprising because Choudrie and Dwivedi (2005) have also stated that planning for an online course obviously requires more preparation time than that of a traditionally taught class. The findings from this study are similar with the studies by Spotts (1999) and Ellsworth (1994), as cited in Nawawi (2005), who pointed that the time is needed by faculty members to learn about new technologies, experiment with and implement them, and also adapt and implement fresh capability to support the use of new instructional technology.

The findings also showed that rewards or incentives were the fourth most present at the e-learning centres. There exist both intrinsic and extrinsic types of motivations for the faculty members to use online

learning technology. The e-learning centres in Iranian universities provide financial incentives and professional opportunities for the faculty members to participate in the project involving the use of online learning technology. Thus, the findings of the study support Thompson (1986) and Lewis and Wall (1990), as cited in Nawawi (2005), that a pervasive obstacle to technology use may be the lack of faculty members' rewards or incentives.

The results from this study support the presence of participation at e-learning centres in Iranian universities. In this study, participation is defined as a shared decision-making process with communication between all parties involved. The finding showed that the majority of the faculty members (N=117, 53%) communicated their experiences in using online learning technology with other faculty members. The finding of this study is similar with that of Ely (1999) who has suggested that each person should feel that he or she has an input in decisions that directly affect his or her work in order to improve the chance for a more successful implementation.

The results of this study revealed that the condition related to availability of resources was perceived to have the lowest presence. This finding is similar to that of Marovitz (1994) and Kajuna (2009) who highlighted the importance of the availability of resources for successful implementation. According to Ellsworth (1994), this condition should be evenly reachable to faculty members and students to acquire the learning objectives. Two

other conditions found to have low presence were commitment and leadership. Faculty members perceived that universities' leadership lacked commitment to the success of online learning technology at their universities. The lack of support given by the leaders includes not providing encouragement and serving as role models. This scenario may be due to other contributing factors among the universities' high-level leaderships towards the use of online learning technology in Iran (Masoumi, 2007).

CONCLUSION

Literature has demonstrated that online technology is beneficial to both learners and faculty members. However, the lack of conducive conditions may impede successful integration and implementation of technology, regardless how much has been invested in purchasing high-end and state-of-the-art technology. Thus, in order to ensure a more successful implementation of online technology, Iranian universities have to determine that leadership exists, garner commitment from every personnel and identify ways to make resources available and accessible.

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