

RESEARCH ARTICLE



Faculty members' readiness implementing e-learning in higher education Saudi Universities: A cross-sectional study

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Abstract

Background/ Objectives: This article reports on an e-learning readiness study that was carried out to determine the institutional, individual, and communication factors of the two major stakeholder groups (teachers and institutions) in the higher education universities in Saudi Arabia. **Methods:** A sample of 139 faculty members working in ten higher education universities in Saudi Arabia was surveyed in this cross-sectional study. A pre-validated survey questionnaire of e-learning was adopted to collect data from the participants' between April and May 2019. **Findings:** The pre-validated survey tool of Teachers' Readiness for Online Learning Measure (TROLM) of an 18 item scale has been explored in four factors: Communication self-efficacy, institutional support, self-directed learning, and learning-transfer self-efficacy. The findings of this study are instrumental in implementing successful e-learning resources (strategies) in Higher Education Institutions and will also benefit e-learning initiatives in similar institutions in other regions of Saudi Arabia and beyond. The Study demonstrated the supportive e-learning strategies Blackboard system that facilitated faculty members' readiness to teach university students during the sudden transition from traditional methods to the e-learning platforms.

Keywords: Faculty members' readiness; higher education institutions; e-learning strategies; e-learning resources; information technology; institutional support

1 Introduction

Saudi Arabia has been using the blended learning model for the past decade. It has been aided along by technological innovations and information and communication technology (ICT) development in the kingdom. Saudi government has made many efforts to enhance the use of Information and Communication Technology. The outstanding efforts made by the Ministry of Higher Education are likely to lead the country to a better knowledge of society.

The ministry's efforts have focused on the supplement and utilization of ICT in higher education universities and institutions in order to create productive learning environments such as those that can be found in blended learning. However, training on using ICT more effectively might be required for some academic staff and students⁽¹⁾. Many studies have been carried out on blended learning in Saudi Arabian Universities of higher education, mostly aiming for the readiness of students. There is a lack of investigation and agreement about the influential or supporting factors that shape the technological and institutional characteristics of E-learning readiness among trainers; hence a clear gap is recognized in the understanding of the technological aspects of e-learning readiness⁽²⁾. When the works of academics move from a mostly face-to-face mode to online and blended modes, instructors should be provided with the opportunity to critically question their practices and discuss with their peers the adoption of new pedagogical practices for the new teaching spaces. This may provide a better understanding of teaching and learning processes in the online environment. For this dialogue to be fruitful, there needs to be climates of support, the participants need to be receptive to opinion from their peers, and they should engage meaningfully in reflective practice. Still, Instructors' attention has not yet shifted from the technology tools to the pedagogical practices and use of tools⁽³⁾. Understanding the readiness of users is paramount to the success of any e-learning program. Implementing e-learning by educational institutions has a substantial benefit, one of which is e-learning provides the consistency that assists students in overcoming problems involved with instructors different teaching styles. E-learning readiness assessment is a useful tool for determining a country's starting point and can be considered as an initial phase of the national strategy for an area that needs to be addressed with information and communication technology as a precondition for strategy implementation. Readiness categories included; ICT, infrastructure, Human resource, Budget and finance, psychological and content regarding the different types of colleges of education⁽⁴⁾. In Saudi Arabia, the tremendous milestone documented with the establishment of the web-based program (WBP) and information center by the ministry of higher education since the year 1996⁽⁵⁾. Furthermore, the research report by the Market Research, the demand for e-learning models driven by factors like rising investment and e-learning, which has also been emerging as a substitute for (WBP) distance education⁽⁶⁾.

It is no doubt that the Saudi government has been the most significant driver concerning e-learning by providing the most comprehensive and realistic e-learning approach. Saudi Arabian education system operates highly efficient management systems that motivate communication and correspondence between the institutions, faculty members, and students. Communication between these groups is strongly supported by these systems, which are a platform for the implementation of further reforms to ensure the gradual and continuous growth of the university⁽⁷⁾. However, in order to maximize the benefits from e-learning, concerted efforts need to be made in enhancing the professional capacity of building them by faculty members and ensuring smooth and uninterrupted facilities to students⁽⁸⁾. The significant factors that resist the application of e-learning are lack of self-efficacy, poor practices, lack of institutional support, and insufficient training programs. In order to remove the resistance of applying e-learning, there are few considerations related to training and technology required for both teachers and students⁽⁹⁾. Teachers readiness models regarding e-learning, summarized in a recent overview of thirty models, all of which vary according to the scope, and the philosophical standpoints of the stakeholders⁽¹⁰⁾. This research adopted the model of readiness by Faraydi and the survey questionnaire that had the vital variables deemed relevant to understand whether the faculty members in higher education institutions tend to embrace or ostracize e-learning for their work. The findings of this survey reveal a keen insight into faculty members readiness to engage with the new e-learning platform of the blackboard system within the blended method of delivering the curriculum instruction.

2 Materials and Methods

2.1 Study design

In this research, a cross-sectional descriptive study design using a pre-validated survey questionnaire was adopted to determine faculty member's readiness following an immediate implementation of an e-learning program in higher education universities in Saudi Arabia. Although there are small differences in adopting the specific model concerning teachers' readiness, this research adopted the model of AlFuraidi, which synchronized with the domains of knowledge, skills, attitude, and habit⁽¹¹⁾.

2.2 Settings and sample

The target population of the present study was the faculty members of ten higher education universities in Saudi Arabia. Research study objectives are as follows: a. to explore academic faculty members' readiness for implementation of an e-learning and b. to explore the role of gender, teaching experience, Job title, nationality, and exposure to computers. A purposive sampling technique adopted to choose the participants from the targeted population (Ten University). The pre-validated survey tool was distributed to the relevant department by the researchers using the university portal of the internal distribution system to collate

the completed survey after their consent. The survey link was established by experts and distributed to all ten universities. A five-point Likert scale instrument comprised of four domains Communication Self-Efficacy (CSE), Institutional Support (IS), Self-Directed Learning (SDL), and Learning Transfer Self-Efficacy (LTSE) was used to collect data from participants' readiness towards online learning.

2.3 Data collection tool

The survey instrument had two sections. The first part consists of five questions developed by the researchers regarding the demographic characteristics of the faculty members (including gender, job title, experiences, and nationality, and computer exposure). The second part of the form consists of 18 statements of a Test of e-learning (TROLM) by⁽¹²⁾ to measure faculty members' readiness towards implementation of e-learning, distributed the item into four domains: Self-directed learning (four items), institutional support (five items), communication self-efficacy (four items), and learning transfer self-efficacy (five-item). It consisted of a 5 point Likert response format with degrees of agreement ranging from 1- Strongly disagree, 2- Disagree, 3- Neutral, 4- Agree to 5- Strongly agree.

2.4 Data analysis

The SPSS latest version software was utilized for data analysis. Descriptive statistics were reported both at the item and the sub-scale level and also by various demographic characteristics of the faculty members (gender, Job Title, teaching experience, nationality, and computer exposure). The mean and standard deviations (SD) were calculated to assess faculty members' readiness towards the implementation of e-learning in terms of four domains of knowledge, attitude, skills, and habits. Differences in gender and responses to questions were tested, and statistical significance assessed at the 95% level of confidence using t-tests ($p < 0.05$). The differences in the respondent's readiness towards four domains of e-learning by gender, experiences, nationality, and computer exposure were determined using ANOVA, and a t-test performed to compare overall readiness towards e-learning among the faculty members when grouped according to gender and qualification (doctorate and non-doctorate). The relationship between faculty members' readiness in the domains of sub-scale was examined through the Pearson's product-moment correlation. Confidence intervals (CI) of 95% were reported, and $p < 0.05$ was considered statistically significant.

3 Results

The demographic characteristics of the faculty members are summarized in Table 1. The Study collected data from 139 faculty members from ten academic higher education universities in Saudi Arabia. Based on the results, the majority of the participants in this study were female faculty members, holding a doctorate with teaching experience above 15 years with (100%) exposure to computers.

Table 1. Demographic Characteristics of the respondents (n=139)

Variables	Frequency N(70)	Percentage (%)
Gender		
Female	96	69.1
Male	43	30.9
Qualifications		
Masters' Degree	51	36.7
Doctorate Degree	88	63.3
Work Experience		
0-5 years	31	22.3
6-10 years	43	30.9
11-15 years	25	18
Over 15 years	40	28.8
Nationality		
Saudi Arabian	33	23.7
Non-Saudi Arabian	106	76.3
Exposure to computer		
Yes	139	100
No	-	-

The main findings from Table 1 are that most of the faculty members were identified as females accounted a 96(69.1%), whereas 43(30.9%) were male faculty members. In terms of qualification, results demonstrated that 51(36.7%) faculty members had a Master degree, and 88(63.3%) had a doctorate. Data on teaching experience demonstrated that there were 31(22.3%) faculty members with teaching experience less than six years and 43(30.9%) of them with teaching experience from 6 to 10 years. Furthermore, 25(18%) faculty members had 11 to 15 years of teaching experience, and the last category had 40(28.8%) faculty members with more than 15 years of experience. Data on exposure to computers revealed the exciting factor that all participants 139(100%) had an excellent exposure to computers.

The results of the descriptive analysis of the items in the subscale (Five domains) self-Efficacy (CSE), Institutional Support (IS), Self-Directed Learning (SDL), and Learning Transfer Self-Efficacy (LTSE) are shown in Table 2. Participants' responses demonstrated that the faculty members had perceived institutional support as the highest contributing factor towards readiness in implementing e-learning.

Table 2. Results of the descriptive statistics of the e-learning subscale items: (n=139)

E-learning Paradigms	Mean	Standard Deviation	Level of Readiness Scale Range	Mean Interpretation
Communication Self-Efficacy	4.02	0.53	3.5 - 5 (High)	Low= 0 - 2.5 Moderate= 2.6 - 3.4 High 3.5 - 5
Institutional Support	4.04	0.54	3.5 - 5 (High)	
Self-Directed Learning	3.99	0.60	3.5 - 5 (High)	
Learning Transfer Self- efficacy	3.61	0.84	3.5 - 5 (High)	

From this data (Table 2), the researcher extracted the ranking of the domain of e-learning, it can be reported that the institutional support factor was deemed the overall highest supportive domain with an average mean score of 4.04, while communication self-efficacy was closely followed with the score of 4.02. It follows that the self-directed learning (M=3.99) and learning transfer self-efficacy (M=3.61) are ranked in third and fourth, respectively.

Table 3. Results of the descriptive statistics of all items in the domains (n=139)

Category	Survey items	Mean ± SD
Communication Self-Efficacy	1. Online teaching: Responding to questions.	4.02 ± 0.80
	2. Online teaching: Posting questions in discussion.	4.04 ± 0.77
	3. Using online tools; feel confident	3.99 ± 0.86
	4. Response through text.	3.62 ± 1.01
Institutional Support	1. Supervisors' positive attitude towards In-service training	4.02 ± 0.82
	2. Colleagues' positive attitude towards In-service training	4 ± 0.78
	3. Acceptable employee training	3.97 ± 0.82
	4. Colleagues' support.	4.13 ± 0.83
	5. Supervisors' positive attitudes towards online content.	4.09 ± 0.79
Self-Directed Learning	1. Direct own learning process	4.20 ± 0.71
	2. Carry out own study plan.	4.21 ± 0.68
	3. Manage time well.	4.30 ± 0.72
	4. Not distracted by other online activities	3.79 ± 0.98
Learning Transfer Self-efficacy	1. Share ideas with others.	4.36 ± 0.66
	2. Confident on progress since online course	4.26 ± 0.67
	3. Confident that I have progressed	4.23 ± 0.70
	4. Higher expectation taking online course.	4.12 ± 0.78
	5. Enjoy challenges.	4.26 ± 0.78

The most significant findings in Table 2 is that the mean score of the faculty members' readiness was 4.08 (SD=0.18, range= 1.0 to 5.0), indicating a higher level of higher readiness towards implementing the strategies of e-learning. Results from ANOVA showed a statistical significant association between faculty members' years of experience and readiness sub-scale (linear combination) of institutional support, F= 3.659 at p< .001, however, no significant differences were found between the rest of the demographic data of faculty members' and other three domains of readiness such as communication self-efficacy, self-directed learning and learning transfer self-efficacy. In terms of Faculty members' readiness in other domains

of learning (transfer self-efficacy) had lower perceptions about e-learning than those in the domains of self-directed learning and communication self-efficacy. Almost three fourth of the respondents strongly agreed (72.10%) that they prepared with communication self-efficacy, 87.42% of them favored with institutional support, approximately 80.53% with the domain of self-directed learning responses followed by 42.50% of readiness towards transfer self-efficacy, In conclusion, the mean level of readiness in the institutional domain significantly exceeds that of other domains in e-learning. Consequently, a statistically significant difference was found according to experience with overall readiness at $p < .001$, indeed has demonstrated the faculty members' sole exposure to computers (100%) played a significant role in constructing a higher level of readiness about the e-learning system and means that the higher the familiarity with information and technology systems use and the institutional system, the higher the positive the attitude towards e-learning can be observed. ⁽¹³⁾

4 Discussion

The results of the study explored the faculty members a higher level of readiness, which is in agreement with many studies where the researchers have tried to evaluate readiness factors that affect e-learning outcomes. For instance, the researchers ⁽¹⁴⁾ have focused on determining the readiness factor in the relationship between the E-learning readiness and outcomes. The researcher ⁽¹⁵⁾ assessed a model to examine online instructors at the online campus of a university and to assess their level of e-learning readiness before, during, and after course delivery. A study by the investigator ⁽¹⁶⁾ assessed the readiness of nursing students for e-learning in an applied medical science university. Finally, investigators ⁽¹⁷⁾ have considered presenting the intervening conditions that influence the implementation of e-learning in resource-constrained nursing in Rwanda, who documented that the success of e-learning depends not only on the availability of ICT infrastructures, and also depends on the users' readiness, and the institutional abilities in responding to the challenges developed by a technology-mediated learning environment. Thus, the faculty members' readiness to implement the e-learning strategies may be associated with the institutional support from various perspectives and other relevant variables in the sense of manner in attitude and habits ([Table 2](#)). This is the first study that categorized the readiness factors which had a subdivision of four domains, and each factor in each domain ([Table 3](#)) was measured in terms of analyzing faculty members' readiness in implementing e-learning strategies at higher education institutions in Saudi Arabia. Based on findings of the study, this article has attempted to provide a general overview of faculty members concerning their knowledge of using online tools, skills on managing with online strategies, attitudes towards colleagues and supervisors, and their confidence in practicing online strategies. Faculty members perceived a gap to be a result of inadequate transfer self-efficacy and self-directed learning. The result recommends that instructors are likely to be the better facilitator of e-learning not only when administrative knowledge processes and policies concerning e-learning are developed but also where the organization renders support towards building and supporting them with adequate training.

The findings confirm that the faculty members acknowledge the importance of e-learning in their teaching, and this leads to accepting e-learning in their teaching process. These results are supporting the study by the researchers who have explored the same factors at the initial stages of an e-learning introduction that can have a tremendous impact on the later stages of the process ⁽¹⁸⁾.

In this research, firstly, we considered the skill domain of institutional support as a specific factor that was measured, which has shown greater validity in evaluating faculty members' readiness instead of being evaluated in general. Results of this study demonstrated a higher level of overall readiness in implementing e-learning at higher education universities Saudi Arabia, and four domains of e-learning readiness were also documented at a higher level of perception, Communication self-efficacy at $M 4.02 \pm SD 0.53$, Institutional support at $M 4.04 \pm SD 0.54$, Self-directed learning at $M 3.99 \pm SD 0.60$, Learning transfer self-efficacy at $M 3.61 \pm SD 0.84$. The results of inter-correlation show that each domain correlates with moderate significance as compared with the other three domains and the entire scale. According to the results of a study which offers further evidence that faculty members are confident in their abilities and appreciative of the importance of e-learning in facilitating the process. There is also evidence supporting the view that the institutional system and procedures for the faculty members have been considered for the most effective and proper strategies for implementing e-learning across the university of higher education ^(19,20).

The reported findings about the domains of Self-directed learning and learning transferself-efficacy did not show a remarkable impact on enhancing teachers readiness in implementing the e-learning program, indicating the gap of their confidence and self-efficacy.

5 Conclusion

Most of the universities of higher in Saudi Arabia offer undergraduate, postgraduate, and allied courses through a very personalized learning process that allows faculty members and students to design and tailor their curriculum and schedules. In essence, the university e-learning system of education (Blackboard) has one of the most comprehensive and dynamic

performance support systems. Despite the stress and tension experienced in the beginning, the innovative updated system of Blackboard through appropriate training courses was much supportive in implementing several strategies of technology and information system. There is evidence supporting this view that among the several available resources, Blackboard has a dedicated service to supporting faculty members with resources for their online teaching activities⁽²¹⁾. Nevertheless, the university's record system available in the Blackboard allows learners and educators to observe performance move and identify strategies to promote optimism in delivering teaching-learning methods.

Furthermore, the available e-learning system that include e-libraries with e-books, interactive whiteboards, video conferencing or chatting, learning simulators, test design and question bank system that has been linked with the management system, revamped the quality of teaching-learning process. This study highlighted the overall supportive platforms, which has become resourceful, and this existing institutional supportive strategy confirms that the higher education universities act as a pioneer in Saudi Arabia concerning the success of completing the (2020) academic semester and growth of delivering quality education, even though pandemic situation arises due to Covid-19. It has been evident that faculty members readiness for e-learning is a crucial factor in the success and growth of conducting courses through the e-learning process of an institution, which represents a group of faculty members' ability and willingness to prepare adequately, design, and facilitate courses within an online environment.

6 Limitation and Recommendation

Due to a small sample size, the results cannot be generalized to all faculty members of all higher education universities. Subsequently, research with a larger sample size and variety of geographical regions is recommended to determine if the present findings apply to the whole target population. There also needs a comparative study between Blackboard and Moodle to identify the effectiveness and barriers.

Blended learning is an umbrella, and it is not an inflexible wholesale approach to instruction. Instead, it is a unique concept for various models of teaching-learning methods that combine either traditional or information technology-enriched classrooms with online instruction⁽²²⁾. Further, if faculty members and learners do not adhere to motivation to become experts in using e-learning, it can limit their use of new pedagogies⁽²³⁾. Our findings recommend the associated motivational factors of teachers readiness in different domains along with the effective Blackboard learning system as a suitable model as an aid to pedagogy by assessing the teachers' readiness.

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