

External Issues Affecting Teachers' Use of Technology in Saudi Arabia: Systematic Literature Review

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ABSTRACT

External issues have, for many years, had a crucial, adverse, impact upon the extent to which teachers have adopted technology for the promotion of learning, for example by introducing learning management systems (LMS). This problem has particularly affected teachers working in developing and less-developed nations. Despite this, few researchers have conducted systematic literature reviews that explore the Saudi Arabian context. The purpose of this study is to examine and scrutinize what is presented in the academic literature about the external factors that affected teachers use of technology in the teaching process in Saudi universities. The systematic review presented in this paper was carried out using a number of databases. Sources include library resources, key journals, PhD theses, master's theses, and papers yielded by Google Scholar searches of the relevant literature published from 2008 to 2018. There were 32 studies and just 12 studies included in this systematic review. The findings of this review reveal the current state of those external factors that have for some time delayed and influenced teachers' use of LMS and associated technologies in their teaching in the Kingdom of Saudi Arabia (KSA) between 2008 and 2018. Recommendations are made in this paper, to help Saudi institutions to limit this phenomenon going forward.

INTRODUCTION

There is no doubt that now, the digital curriculum and use of information technology is very important for educational settings; indeed, these and similar technologies are essential and vital to many aspects of our daily lives. Furthermore, the introduction of this type of technology in higher education has given some students, who may otherwise have been lost to education, opportunities to continue their learning.

However, the introduction of such new technologies in higher education has faced several challenges, which have sometimes ultimately led to low levels of ICT use in teaching and learning processes.

During the last decade of the twentieth century, according to Algamdi and Samarji (2016), the read-only Web1.0 technology began to influence teaching and learning methods in higher education organisations, and at this time the concept of e-learning emerged. However, in the twenty-first century great progress has been made in this field and many more types of technology have come into use in higher education (HE), as Web2.0 technologies made interaction and communication more flexible and easier, and facilitated student-centered learning.

The use of technology in higher education institutions should be facilitated and further developed in order to provide opportunities to both academic staff and learners. However, the use and facilitation of e-learning in HE has required concerted effort not only from government, but also from the institutions and companies that have produced this technology.

Currently, developed countries are attempting to benefit from up-to-date technology, in order to provide effective learning environments. However, in less developed nations such as Saudi Arabia, the adoption of technology has faced many barriers, generated by issues both internal and external. These include technical problems, poor internet services, lack of training, lack of skills, lack of knowledge, lack of institutional support and lack of technical infrastructure. The Saudi ministry of higher education has invested heavily in e-learning, funding and encouraging its implementation in places of education throughout the kingdom. However, this investment does not seem to have been matched by a commensurate level of effective implementation and adoption of technology-augmented education, with many institutions continuing to lag behind their peers, especially those in developed nations in this regard.

The research presented here comprises a systematic review and analysis of the extent to which external factors are delaying the use by teaching staff of LMS in their classes at Saudi universities. This study begins with background information and an introduction, and then the aim of the research is provided; after that, the research methods are considered, and then the results and the discussion are given. Finally, the implications for future research are presented and finally, the conclusions and suggestions are described.

OBJECTIVES

The main goal of this study is to establish to what extent external challenges are delaying teachers' use of LMS in their classes in Saudi Arabian academic environments. Also, this study aims to provide a comprehensive review of the literature and research publications that consider those external challenges that are delaying the comprehensive integration of LMS into Saudi Arabian educational environments. From the results and findings yielded by this study, some recommendations and suggestions for future work will be made, with a view to diminishing these problems and dilemmas, and driving the optimal uptake of new technologies in Saudi higher education.

Research Question

The research question that underpins this study is: *what are the external impediments related to the incorporation of technology in higher education in Saudi Arabia?*

METHODOLOGY

This study has been conducted using the technique of systematic review. First of all, the selection criteria for both inclusion and exclusion were established. This process was guided by the goal of this study, which is to determine the external issues that prevent educators from reaping the benefits of LMS and associated technology in their classes. The selection criteria that were adopted in this study by the researcher are given in Table 1. The publications referred to were issued between 2008 and 2018; these were investigated alongside unpublished debates and theses, which were also included. A number of websites were used in order to search for and collect sources; these include the Saudi Digital Library, Google Scholar, Scopes, Umm Al-Gura University Library and King Abdul Aziz University Library.

Following the application of both inclusion and exclusion criteria, 11 studies were deemed suitable for this study and these are shown in Table 2.

Table 1

Factor	Inclusion criteria	Exclusion criteria
Language	Arabic and English	Other
Publication date	2008–2018	Published prior to 2008
Search in	Theses (either PhD or Masters) articles, journals	'Grey' literature
Conditions of interest	Research carried out to investigate the external issues affecting teachers' use of technology in Saudi Arabia	Studies that discuss the external problems which have influenced use of LMS by Saudi academic staff
Geographical coverage	Saudi Arabia	-
Study design	Any design	-
Study methods	Any approaches	-

Selection criteria.

Table 2

Title of research	Study sample	Place conducted	Author and year
Academics' Adoption and Usage of Learning Management Systems in Saudi Arabia's Universities	Teachers, students, leaders of e-learning	Saudi Arabia	Alshammri (2015)
The Barriers to the Use of ICT in Teaching in Saudi Arabia: A review of Literature	Review of literature on the barriers that affect the use of ICT in teaching in Saudi Arabia	-	Ensaf-Al Mulhim (2014)
Faculty Members' Perception of E-learning in Higher Education in the Kingdom of Saudi Arabia (KSA)	Sample of 550 Male and female teachers	Saudi Arabia	Ahmed Maajoon. Alenezi, (2011)
Towards Successful Implementation of ICT in Saudi Schools	Literature Review	-	S. Albugani and V. Ahmed (2015)
Evaluating the effectiveness of the e-learning experience in some universities in Saudi Arabia from male students' perceptions	Sample of 300 Students from two universities	Saudi Arabia	AlGhtani Abdulla,2011
Quality of distance e-learning at Saudi universities: students' perceptions	(Sample of 591) Students in two university, King Abdul-Aziz and Immam Mohamed	Saudi Arabia	Ali, Alhathlol(2017)
Saudi Female Attitudes Toward Distance Learning in Higher Education	Graduate assistants, administrators	Saudi Arabia	Ziyadah (2012)
Impediments of Activating E-Learning in Higher Education Institutions in Saudi Arabia	100 teachers and students, questionnaire	Saudi Arabia	Al-Masaud & Gawad (2014)
Blended Learning in Higher Education in Saudi Arabia: A Study of Umm Al-Qura University	Educators and students, questionnaire and interview	Saudi Arabia	Almalki 2013)
Adopting and Implementing an E-Learning System for Teaching and Learning in Saudi Public K-12 Schools:thee Benefits, Challenges, and Concerns	Sample of 70 teachers from schools. Online survey, based on ATM theory	Saudi Arabia	Alahmari and Kyei-Blankson (2016)
Obstacles Facing Faculty Members in the Effective Implementation of E-Learning at Some Universities in Saudi Arabia	Sample of 375 teachers, from four universities,	Saudi Arabia	Al-Shammari and Higgins (2015)
Barriers to participations in LMS in Saudi Universities.	Sample of 150 students	Saudi arabia	Alonezi,2018

Resources used in this research.

Ethics

There was no need for ethical approval, nor the application of ethics protocols, since this paper comprises a literature review and the research is a systematic review.

RESULTS AND DISCUSSION

During the period from 2008 to 2018, there were just 32 research and only 12 studies that investigated the external barriers hindering the use of technology in Saudi educational environments; that is, according to the researchers' searches in the online libraries, Google Scholar, Scope, and other sources mentioned above. For instance, in 2011 Alonezi, conducted a research study that investigated the barriers to implementation of technology-assisted learning by teachers. The study concluded that a lack of administrative support (such as software and equipment) related to the use of e-learning in the Saudi context was a key external factor that prevented appropriate uptake. The findings of Al-Shamari and Higgins (2015) and Albugani and Ahmed (2015) concurred with this.

In 2018, Alonezi carried out a research in order to understand the barriers to integrating LMS in Northern Borders University. The research found out lacked time, Lack of training, resources, hardware and software, and that there were not enough computers in classes to make implementation of LMS. AL-Ghtani, 2008 study came to similar conclusions; Al-Ghtani, 2008 found that a lack of time and lack of resources were the major external elements that affected the use of technology among students in Saudi universities. These external factors remained influential several years later, in 2012, when Ziyadah conducted a study to examine Saudi females' attitudes towards distance learning in higher education, and in particular, the barriers that they faced, in five government universities across Saudi Arabia. Ziyadah's study results indicated that the primary external elements preventing female educators from using technology in educational environments were: lack of training, lack of reward, lack of encouragement from administration, lack of technical support and finally, lack of administrative support. This suggests that new external factors had emerged over time. These include the perception of a lack of reward from administrative bodies, lack of motivation and lack of encouragement.

In 2013, Almalki investigated teachers' and students' perceptions of barriers to online learning in Umm Algura University. The results of this work indicated that lack of time and lack of training were the major factors affecting the use of online learning; this finding was also reported by Ensaf Al Mulhim in 2014; she found that a lack of time and training, and technical issues, were the most important external factors to prevent the educators' use of technology in Saudi schools. In the same year (2014), Al-Masaud and Gawad carried out a study at Algasim University, with the intention to understand the issues that delayed the use of e-learning tools by students and educators. The study used 100 samples from the institution's faculty members and undergraduate students. The study was conducted via questionnaire. The researchers found that the main factors preventing educators from appropriately implementing e-learning tools were a lack of computer maintenance, lack of English language skills, lack of financial support, poor internet services and workload.

In 2015, Al-Shamari conducted research in three Saudi universities, namely King Fasil University, Imam University and Prince Nora University. The researcher used the techniques of interview and questionnaire to collect the data; the sampled population was students, teachers and leaders of e-learning. The results indicated that the important external factors affecting the use of LMS systems in Saudi universities were the lack of time, lack of interest, lack of knowledge, lack of interaction between teachers and students. In the same year (2015) Al-Shammari and Higgins carried out research with four Saudi universities, and they found that a lack of technical and instructional designing support, a lack of training and time and absence of e-learning institution policy were the external factors preventing teachers' use of technology in their teaching.

In 2016, Alahmari and Kyei-Blankson carried out research, this time in Saudi schools, surveying 70 teachers. The study was intended to examine the benefits and the challenges that these teachers faced when deciding to use e-learning in their classes. The study findings indicated that external factors, such as the lack of a teacher's professional development, time for training and internet access were key to restricting the inclusion of e-learning in their teaching methods. This results in agreement with , Alhathlol ,2017 where he found that lack of rewards, time and training were the major external factors affect the use of technology.

SUMMARY OF THE KEY RESULTS

Lack of training

Eight studies reported that lack of training was the major problem that affected the use of e-learning in teaching methods. these were AL-Ghtani(2008),Ziyadah(2012), Almalki(2013), Ensaf Al Mulhim(2014), Al-Shamari(2015), Shammari and Higgins(2015), Alhathlol (2017), Alonezi(2018).

Lack of administrative support

Seven studies indicated lack of administrative support was the major factors for delay the use of technology by teachers, these studies were Al-Shamari and Higgins (2015), Albugani and Ahmed (2015),Alonezi (2011) Alonezi (2018),AL-Ghtani (2008), Ziyadah(2012),Al-Masaud and Gawad(2014).

Lack of time

Lack of time was indicated by six studies as the factor that prevent teachers from using e-learning tools in teaching practice. These were AL-Ghtani(2008), Almalki(2013) Al-Shamari(2015), Shammari and Higgins(2015), Alhathlol (2017), Alonezi(2018).

Lack of rewards

Only two studies reported that lack of rewards was the issues for using technology in teaching. These were Alhathlol (2017), Ziyadah (2012).

IMPLICATIONS FOR FUTURE WORK

A research study, across all Saudi universities, should now be conducted to investigate the external issues that impede Saudi teachers' use of technology. In particular, studies should be carried out to see if these barriers are widespread or exist only in some institutions. As well as to this, another study using systematic analysis will be required, to find the most important internal issues that hinder the use of technology by faculty members and students in Saudi universities.

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study is to examine and scrutinize what is presented in the academic literature about the external factors that affected teachers use of technology in the teaching process in Saudi universities. It is clearly to indicate that despite the Saudi government's sustained efforts to help the country benefit from the development of technology, and specifically the use of LMS, in education processes, there are still external challenges that limit teachers' effective use and implementation of this capability. These external barriers include technical issues, lack of infrastructure and lack of training. As a result, efforts should be done by decision makers in Saudi institutions in order to reduce and solve these issues. There are many recommendations to be made, based on the results of this study. Firstly, educational institutions need to carry out regular assessments of their technical infrastructure. Secondly, institutional support should be provided, such as equipment and computer labs. This will have the benefit of reducing the heavy workload of teachers.

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