Global Business and Management Research: An International Journal
Vol. 14, No. 2s (2022)

Critical Success Factors of E-Learning Implementation in Higher Education Institutions: A Proposed Framework for Success

Professor Hesham Magd, Ph.D.,
Associate Dean for Quality Assurance and Accreditation, and Faculty of Business & Economics Head, Modern College of Business & Science, Muscat, Sultanate of Oman.
E-mail: hesham.magd@mcbs.edu.om

Ahmed Nzomkunda
Faculty of Business & Economics,
Modern College of Business & Science, Muscat, Sultanate of Oman.
E-mail: ahmed.nzomkunda@mcbs.edu.om

Saurav Negi, Ph.D.,
Faculty of Business & Economics,
Modern College of Business & Science, Muscat, Sultanate of Oman.
E-mail: saurav.negi@mcbs.edu.om

Mohammad Ansari, Ph.D.,
Faculty of Business & Economics,
Modern College of Business & Science, Muscat, Sultanate of Oman.
E-mail: mohammad.ansari@mcbs.edu.om

Abstract
Purpose: The purpose of this study is to evaluate the critical success factors (CSF) that could be crucial for effectively implementing e-learning in HEIs and developing a framework for successful e-learning implementation in higher education institutions (HEIs) in Oman.
Methodology/ Design: An extensive literature review was undertaken and analyzed to identify the CSFs. The leading CSFs are determined according to their number of occurrences in the past studies. Accordingly, a framework is developed and proposed for e-learning implementation in HEIs considering the identified leading CSFs.
Findings: The dominant CSFs for e-learning are recognized as teachers' and students' commitment, self-efficacy and self-regulated approach, pedagogy, institution's involvement, technology, social interaction, and building up of e-learning environment.
Value/ Originality: This paper adds value to the knowledge of e-learning implementation in HEIs by emphasizing proposing the framework for successful e-learning implementation in HEIs in Oman. To the best of the author's knowledge, this study is first in its kind in context to Oman, which is a unique contribution.
Limitations: The present study is limited to literature analysis for identifying CSFs of e-learning emphasizing particularly on HEIs. Also, any primary research is not carried out for the verification of the proposed framework, which can be considered for further study.

Keywords: E-Learning, Higher Education, Online Learning, Student Satisfaction, Pedagogy

1. Introduction

With the recent Covid-19 pandemic, a lot of businesses were affected and were forced to have their employees work from home. Among the affected businesses, Higher Education

Institutions (HEIs) around the world were one of them as some were forced to deliver their courses fully online and some had to close for a while. A good example of a country that had both cases is Oman where some universities had the facilities to move forward into fully online teaching and some didn't have the resources and had to close for a while, to plan and obtain the resources. This resulted in a lot of students being stuck at home, not studying, and delayed their graduation for a couple of months.

Online as a mode of delivering course content has been increasing during the 21st Century firstly starting with blended learning to a fully online course. Blended learning is a system used by mostly HEIs that incorporates both the traditional face-to-face learning approach and having a learning management system where course materials could be accessed by the students at any given time and place (Graham, 2011). Integrating both approaches increase the effectiveness of learning and the availability of course material. Online learning has brought up a whole new platform for students to gain an education. Students around the world enrol in universities that are thousands of miles overseas and still earn their degrees. It is often the case that students are unable to go further with their studies due to financial reasons but the introduction of online learning, it has reduced a tremendous portion of the finance that goes into the learning process including accommodation fees and transportation.

In Oman, the HEIs that had closed their operations are now coming back into the market as they have the necessary resources to deliver their programs. Having the necessary resources in the delivery of the courses doesn't mean that e-learning will go smoothly, and other factors need to be considered. Therefore, the purpose of this paper is to review the Critical Success Factors (CSFs) that impact the effective implementation of e-learning in HEIs and develop a framework to assist HEIs in Oman to implement e-learning successfully. In achieving the objective of the study, the authors employed a research methodology based on analysing and synthesizing past literature reviews in different countries to identify the most common CSFs. The identification of these CSFs would assist in developing a better framework for the effective implementation of e-learning in HEIs.

1.1.Background of the Problem

E-learning has become a global phenomenon as it has the potential to revolutionize the higher education sector and change the way we do things and adapt to the global economy. There is supporting evidence that e-learning and technological innovations are radically changing high education, training, and employment across the globe (Basak et al., 2016; Chuntao, 2010; Stensaker and Skjerski, 2003). Adapting e-learning in higher education requires changes on different levels such as teaching practices, infrastructure, student and faculty commitment, top management commitment (McPherson, 2003). All these would require HEIs to put an implementation strategy in place with the critical success factors that are required for effective implementation (Basak et al., 2015). Previous studies (Elzawi et al., 2012; Kenan et al., 2011; Kundi et al., 2010; Qureshi et al., 2012; Sife et al., 2007; Soong et al., 2001; Testa & De Freitas, 2003; Volery & Lord, 2000) have investigated CSFs from different perspectives with a focus on technological, design and delivery issues, while few studies were focused on organizational and institutional issues.

Some HEIs have failed in implementing e-learning due to poor strategies, high cost of technologies, resistance to change, competition, and poor delivery of courses (Elloumi, 2004; Saade, 2003). The adoption of e-learning in developing nations is slow compared to western societies due to several reasons as stated by Al Odeh (2019: 44), "*late adoption of the Internet and other technology infrastructures; the belief that traditional education is of better quality than online education; lack of understanding of online education's advantages; the belief that on-campus resources and infrastructures are enough for the demand and that there is no need for supplemental solutions such as offering online education; corruption and bureaucracy*

hinder establishing online programs". However, developing countries are now considering the adaption of e-learning, but these nations are facing challenges for the effective implementation of e-learning (Gronlund and Islam, 2010; Hussein, 2007), and therefore it is essential to identify the CSFs for effective implementation of e-learning in HEIs where these factors can be used as a road map and strategies.

1.2.Research Questions

- What are the critical success factors for the effective implementation of e-learning in HEIs?
- What framework can be developed for the effective implementation of e-learning in HEIs in Oman?

2. Research Methodology

The main objective of the current study was to identify the critical success factors for the effective implementation of e-learning in HEIs. To fulfil the study objective and develop a framework to assist HEIs in Oman to effectively implement e-learning, the authors employed a research methodology based on analysing and synthesizing past literature reviews in different countries to identify the most common CSFs. The identification of these CSFs would assist in developing a better framework for the effective implementation of e-learning in HEIs in Oman. The authors have reviewed more than 40 papers regarding the subject matter focusing on different countries representing, western countries (Europe, USA, and Australia), the Middle East, Africa, and Asia. The study used the identification of the most common factors in the reviewed articles that are influencing/impacting the implementation of e-learning. This approach has been used in similar studies, e.g., Elkaseh et al. (2015); Cheawjiundakarn et al. (2013); Asiri et al. (2012); Pieterse, (2012). The identified factors were based on their frequency of occurrences. Based on the identified leading CSFs, a framework was developed for e-learning implementation in HEIs in Oman.

3. Analysis and Findings

This section covers the analysis of the available literature on e-learning and its successful implementations in the education sector. This analysis will pave a path for the authors in developing a framework for the successful implementation of e-learning in HEIs in Oman. The first part of this section highlights the benefits and challenges of e-learning implementation, whereas the CSFs of e-learning (in the context of western countries as well as Asia, the Middle East, and the Africa region) are covered in the latter part of the section.

3.1.E-Learning and its Benefits and Challenges

E-learning has become a very important and popular concept in HEIs over the traditional methods of teaching that were practiced in the past (Naveed et al., 2017). Sangra et al. (2012: 152) defined e-learning as an *"approach to teaching and learning, representing all or part of the educational model applied, that is based on the use of electronic media and devices as tools for improving access to training, communication, and interaction and that facilitates the adoption of new ways of understanding and developing learning"*. The popularity of this concept is due to its flexibility (Al Qahtani & Higgins, 2013; Ragan, 2018; Simonson et al., 2009), improve teaching (Aitken, 2015), cost-effectiveness (Welsh et al., 2003), consistent delivery of contents, breaks boundaries of time and space (Ruiz et al., 2006; Shraim and Crompton, 2015; Wang, 2011; Zhang et al., 2004), self-pacing (Rao, 2011), interactivity, convenience (Bhuasiri et al., 2012; Dutta et al., 2011; Riggs and Linder, 2016), and greater collaboration (Fong Yew and Jambulingam, 2015; Pillay et al., 2007).

E-Learning has become a crucial approach that HEIs use in their learning and teaching process due to having all the necessary resources needed. This approach is much preferred as it provides a comfortable environment compared to the traditional approach of the face-to-face classroom. Since the use of e-learning in higher education has then become a common trend, researchers have studied the CSFs that could affect the implementation of the e-learning systems in higher education. Critical success factors play a vital role in assisting HEIs with the effective implementation of e-learning and enhancing the quality of e-learning. These CSFs will be used as measurable variables during the implementation phase of e-learning (Alhabeeb & Rowley, 2018; Frimpon, 2012; Naveed et al., 2017; Sun et al., 2008). In support of this further, Osman et al. (2006) suggested that CSFs should be considered as a strategic framework in assisting organizations in implementing e-learning. Bendell et al. (1998: 31) concurred with this and suggested that CSFs "*represent a small number of key indicators that are such that if they are showing satisfactory progress towards targets, the organization generally will be perceived as being successful on its path of quality improvement"*.

3.1.1. Benefits of E-Learning

With the introduction of the internet, it became a lot easier for a lot of businesses to conduct their operations. Since e-learning was introduced a couple of decades ago with the advancement of the internet, it has been shown to have impacted the HEIs quite much. The following are the benefits of e-learning:

- ***Convenient for students:*** Technology advancement has made it a lot easier for the educational sectors especially HEIs as it has made it so convenient for students to access the course contents. E-learning does not require the students to be physically present on campus to get access to the study materials. With the advancement of technology, they can use their mobile devices to learn from wherever they are (Guragain, 2016).

- ***Lower cost:*** As mentioned earlier that with technological advancement, learning became easier and could be done anywhere around the world due to the availability of resources online. This was an advantage to the students who were from another country and studying in a separate country. If they had a good internet connection, they saved on a lot of costs such as transportation, accommodation, and living expenses. Having to just spend on tuition fees, of which some universities have low fees in choosing online courses, it is more affordable for anyone who wants to learn (Gautam & Tiwari, 2016).

- ***Up-to-date learning materials:*** Both Gautam & Tiwari (2016) and Guragain (2016) explained that resources on e-learning are up-to-date and there for the taking. With the world wide web being a learning society, different institutions, and scholars all around the world put up learning materials that are up to date so that the students would be well informed and knowledgeable.

3.1.2. Challenges of E-Learning Implementation

Technology has made it possible for individuals all around the world, despite where they reside from, to learn using online resources. Over the years, HEIs around the world have slowly been transitioning into e-learning either through blended learning or a fully online program. Although this was a practice in a few institutions around the world when World Health Organisation declared Covid-19 as a pandemic which forced a lot of operations to be moved online. This is when e-learning became even more famous. For the operational activities to go

on, HEIs had to transform to a fully online delivery where it was an abrupt move for most of the institutions.

Gunawardana (2017) stated that the existence of infrastructure together with connectivity are the key pillars that every university should build upon for e-learning to succeed. For an HEI to have an effective and efficient e-learning system, it should be looked upon as an education reform where attention on its implementation should be of high importance (Tarus et al., 2015). The author further explained from the findings that for a developing country like Kenya, some of the e-learning implementation challenges include *inadequate ICT infrastructure* where a lot of individuals both students and faculties do not own computers or don't have internet connectivity. Some universities do not have the proper resource to execute the learning process. Since e-learning is quite a new thing, there is a *lack of operational e-learning policies* that provide support to the faculty members in guiding them on how classes should be conducted. Being tech-savvy is an advantage to a person undertaking e-learning. Senior lecturers are used to the traditional face-to-face teaching style which is harder for them to transition to e-learning causing a *lack of commitment*.

Al-adwan & Smedley (2012) brought up a unique perspective on how culture impacted e-learning implementation. Acceptable learning practices and culture are directly linked. Using practices from another country with a different culture in your own doesn't work and this was seen in Jordan where there were *socio-cultural problems*. It was already difficult to have an eye-to-eye contact between males and females in a traditional classroom environment, female switching on their cameras during virtual classes was rejected by many which led to lower student engagement. This was experienced not only in Jordan but also in similar countries across the GCC.

3.2.Critical Success Factors of E-Learning

Critical Success Factors can be defined as controllable, measurable, and a few in number, key activities that should be taken into consideration to ensure the effective implementation of e-learning (Odunaike et al., 2013). They are labelled as critical as they can cause the entire implementation process to fail (Selim, 2007). Many researchers have a different set of thoughts in their studies when it comes to CSFs of e-learning. Several articles were studied from different countries and grouped into continents. This section will review the CSFs that were identified from past studies from different parts of the world.

3.2.1. Critical Success Factors of E-Learning: Context to Western Countries

After a comprehensive and systematic review, it was observed that Wotto et al. (2016) proposed a framework that compiled eight CSFs: technical factors, institutional factors, pedagogical factors, management factors, ethical factors, evaluation factors, resources factors, and social interaction factors. Eom & Ashill (2018) stated that the e-learning CSFs are, students, instructors, and LMS/IT (technology). Callahan et al. (2012) reported that institutional leadership, teaching/learning quality, student support, faculty support, and evaluation/assessment play a major role in e-learning implementation.

According to Barclay et al. (2018) in their article on investigating critical success factors in the online learning environment in higher education systems in the Caribbean, the CSFs that were identified and categorized are institutional, e-learning systems, learners, and instructors. From the literature, Menchaca & Bekele (2008) grouped the success factors into five interdependent categories: technology-related, user characteristics, course-related, learning approach, and support services.

After analysing several research papers, Elkaseh et al. (2015) found eight factors that were common amongst the studies conducted on the successful implementation of e-learning. These factors were educational technology, computing experience, attitude, social influence,

curriculum development, language, teaching and learning styles, and demographics. McGill et al. (2014) identified institutional factors, developer factors, teacher factors, student factors, and technology factors as the key elements in the continuation of e-learning initiatives. Moreover, pedagogical strategy, technology and other factors, and management factors were categorized by Sridharan et al. (2010) as CSFs in e-learning ecosystems.

While teaching language online, Alberth (2011) categorized the CSFs into six criteria: student characteristics, institutional design (pedagogy), provision of support for both instructors and students, teacher characteristics, technology, and language skills characteristics. Nonetheless, as blended learning is a part of e-learning, Stacey & Gerbic (2008) grouped the CSFs into four dimensions including institutional, teachers, students, and pedagogical considerations.

According to the study conducted by Masoumi (2006), three main factors affect the success of e-learning i.e. pedagogical factors, technological factors, and learner factors. Mozelius & Hettiarachchi (2017) found the e-learning CSFs are, technology, didactics (pedagogy), course outcomes, collaboration and social presence, course design, synchronicity vs. asynchronicity, the heritage from technology enhance distance courses, multimodal overloading, trends and hypes, and economy. Furthermore, according to the study conducted by Volery & Lord (2000) involving students enrolled in an e-learning management system, three CSFs are instructor characteristics, student characteristics, and technology.

After careful perspective comparison from academic staff and students, Alhabeeb & Rowley (2018) identified CSFs of e-learning as instructor characteristics, student characteristics, technology infrastructure, e-learning systems and online learning resources, and support and training. In the study on factors influencing lecturer uptake of e-learning, Fresen (2011) stated that the factors are institutional, technological, lecturer, student, instructional, and pedagogical. Moreover, based on the analysis and understanding of each study, Al-Fraihat et al. (2017) identified the fundamental themes that affect the implementation of e-learning and categorized them into ten dimensions: Planning, management and organization, pedagogy, faculty, evaluation, e-readiness, support, technology, institution, and ethical.

McPherson & Baptista Nunes (2006) stated that the CSFs as identified by higher education practitioners are: leadership, structure and cultural issues, design issues, technological issues, and delivery issues. Three test cases were done in the University of Nottingham and although the context was in different aspects, Lin et al. (2011) were able to categorize the factors into four groups: organizational, technological, e-learning content, and general factors. Nonetheless, Yassine et al. (2018) identified the CSFs through a multidimensional model and categorized them into the social dimension, system dimension, instructor dimension, and learner dimension.

Table 1 depicts the CSFs of e-learning based on the studies analyzed from the literature. The table reflects the CSFs from the global perspectives and their number of occurrences in the literature. Table 1 is further bifurcated into Table 2 and Table 3, where the studies are divided according to western countries and Asia, Africa, and the Middle East countries.

Table 1: Critical Success Factors of E-Learning: Globally

Studies (Region)	E-Learning CSFs																																				
	*1	*2	*3	*4	*5	*6	*7	*8	*9	*10	*11	*12	*13	*14	*15	*16	*17	*18	*19	*20	*21	*22	*23	*24	*25	*26	*27	*28	*29	*30	*31	*32	*33	*34	*35
(Noorulhasan et al., 2017) (Saudi Arabia)	x	x	x	x	x																														
(Frimpon, 2012) (Ghana)	x	x		x	x																														
(Mbodila et al., 2019) (South Africa)			x	x	x	x	x	x																											
(Alqahtani & Rajkhan, 2020) (Saudi Arabia)	x	x	x	x	x				x	x	x	x																							
(Selim, 2007) (UAE)	x	x		x	x																														
(Odunaike et al., 2013) (South Africa)			x						x	x			x	x	x																				
(NehariTalet, 2007) (Saudi Arabia)		x		x		x			x	x						x																		
(Mehregan et al., 2011) (Iran)	x	x	x	x	x	x					x																								
(Ahmad et al., 2018) (Saudi Arabia)	x	x	x	x		x			x			x	x	x	x		x	x																	
(Wotto et al., 2016) (Canada)			x	x	x	x	x	x											x	x															
(Eom & Ashill, 2018) (USA)	x	x		x																															
(Callahan et al., 2012) (USA)	x	x	x		x	x	x																												
(Barclay et al., 2018) (Jamaica)	x	x			x														x																
(Menchaca & Bekele, 2008) (Hawaii)			x	x								x									x	x													
(Elkaseh et al., 2015) (Australia)	x	x	x	x		x																	x	x											
(McGill et al., 2014) (Australia)	x	x		x	x																				x										
(Sridharan et al., 2010) (Australia)			x	x																x															
(Alberth, 2011) (Australia)	x	x	x	x	x																		x												
(Stacey & Gerbic, 2008) (Australia)	x	x	x		x																														
(Masoumi, 2006) (UK)	x		x	x																															
(Mozelius & Hettiarachchi, 2017) (Sweden)			x	x						x		x														x	x	x	x					
(Volery & Lord, 2000) (France)	x	x		x																															
(Alhabeeb & Rowley, 2018) (UK)	x	x		x					x					x																					
(Fresen, 2011) (UK)	x	x		x					x					x																					
(Al-Fraihat et al., 2017) (UK)		x	x	x	x		x	x	x					x						x										x				
(McPherson & Baptista Nunes, 2006) (UK)				x					x			x										x												
(Lin et al., 2011) (Denmark)				x	x	x			x																										
(Yassine et al., 2018) (France)	x	x				x			x																										
(Ali et al., 2018) (Pakistan)	x	x	x	x																															
(Parsazadeh et al., 2013) (Malaysia)				x						x																				x				
(Musa & Othman, 2012) (Malaysia)	x			x																															

(Bhuasiri et al., 2012) (Thailand)	x	x			x	x			x			x																				x			
(Puri, 2012) (India)			x	x	x		x									x																x			
(Fong Yew & Jambulingam, 2015) (Malaysia)		x	x						x			x																				x	x		
(Farid et al., 2018) (Pakistan)			x								x												x	x										x	x
(Masrom et al., 2008) (Malaysia)				x												x																			
Total	21	22	20	28	16	10	5	3	12	5	3	7	2	5	2	3	1	1	2	3	1	2	3	2	1	1	1	1	1	1	1	3	1	1	1

*1= Students' Dimension, *2= Instructors' Dimension, *3= Pedagogy, *4= Technology, *5= Institution, *6= Social Interaction, *7= Evaluation, *8= Ethical, *9= E-Learning Environment, *10= Level of Collaboration, *11= Knowledge Management, *12= Course, *13= Sustainability Plans, *14= Training, *15= LMS, *16= Support, *17= Commitment, *18= Motivation, *19= Resources, *20= Management, *21= Human Factor, *22= Leadership, *23= Language, *24= Demographic, *25= Developer, *26= Synchronicity vs Asynchronicity, *27= Multimodal overloading, *28= Trends & Hypes, *29= Economy, *30= Planning, *31= Learning material, *32= Infrastructure & System quality, *33= Change Agent, *34= Perceived Usefulness, *35= Educational system.

Table 2 depicts the CSFs particularly found in the studies related to America, Europe, and the Australian region. During the analysis, the cut-off number for identifying the leading CSFs was set at 6 as throughout the global studies it has been seen that this is the least most common number, and any number less than that might affect the results. So, it can be concluded from Table 1 that technology, instructor's dimension, student's dimension, pedagogy, institution, e-learning environment, and social interaction are the leading CSFs of e-learning implementation in HEIs globally. Whereas if particularly focus upon America, Europe, and the Australian region the leading CSFs of e-learning are found to be technology, student's dimension, instructor's dimension, pedagogy, institutions, and e-learning environment.

3.2.2. *Critical Success Factors of e-learning: Context to Asia, Middle East, and Africa*

Ali et al. (2018) suggested a multi-dimensional framework that summarized the CSFs into three dimensions: technology, pedagogy, and individual. After reviewing several studies on CSFs, Parsazadeh et al. (2013) concluded that technology is the key factor in the implementation of e-learning. After intensive examination, CSFs identified were technology and student factors (Musa & Othman, 2012). Furthermore, according to the study conducted by Bhuasiri et al. (2012) which involved a comparative analysis between ICT experts and faculty, seven CSFs were identified and categorized into three dimensions including personal dimensions (learners' characteristics, instructors' characteristics, extrinsic motivation), environmental dimensions (e-learning environment), and system dimensions (institutional and service quality, infrastructure and system quality, course and information quality).

Table 2: Critical Success Factors of E-Learning: America, Europe, and Australia

Studies	E-Learning CSFs																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
(Wotto et al., 2016)			x	x	x	x	x	x					x	x										
(Eom & Ashill, 2018)	x	x		x																				
(Callahan et al., 2012)	x	x	x		x	x	x																	
(Barclay et al., 2018)	x	x			x								x											
(Menchaca & Bekele, 2008)			x	x							x				x	x								
(Elkaseh et al., 2015)	x	x	x	x		x											x	x						
(McGill et al., 2014)	x	x		x	x														x					
(Sridharan et al., 2010)			x	x										x										
(Alberth, 2011)	x	x	x	x	x												x							
(Stacey & Gerbic, 2008)	x	x	x		x																			
(Masoumi, 2006)	x		x	x																				
(Mozelius & Hettiarachchi, 2017)			x	x						x	x									x	x	x	x	
(Volery & Lord, 2000)	x	x		x																				
(Alhabeeb & Rowley, 2018)	x	x		x					x			x												
(Fresen, 2011)	x	x		x					x			x												
(Al-Fraihat et al., 2017)		x	x	x	x		x	x	x			x		x										x
(McPherson & Baptista Nunes, 2006)				x					x		x					x								
(Priatna et al., 2020); (Lin et al., 2011)				x	x	x			x															
(Yassine et al., 2018)	x	x				x			x															
Total	12	12	10	15	7	5	3	2	6	1	3	3	2	3	1	2	2	1	1	1	1	1	1	1

*1= Students' Dimension, *2= Instructors' Dimension, *3= Pedagogy, *4= Technology, *5= Institution, *6= Social Interaction, *7= Evaluation, *8= Ethical, *9= E-Learning Environment, *10= Level of Collaboration, *11= Course, *12= Training, *13= Resources, *14= Management, *15= Human Factor, *16= Leadership, *17= Language, *18= Demographic, *19= Developer, *20= Synchronicity vs Asynchronicity, *21= Multimodal overloading, *22= Trends & Hypes, *23= Economy, *24= Planning.

Puri (2012) conducted an empirical study and as a result, six CSFs of e-learning were identified: Pedagogical, institutional-administrative affairs, technological, evaluation, resource support, and interface design. Fong Yew & Jambulingam (2015) conducted a study to determine the CSFs of e-learning implementation at educational institutions. The identified factors are infrastructure and environment, attributes of educators, delivery of course contents, and change agents. Moreover, from a quality perspective, a study conducted by Farid et al. (2018) to investigate the CSFs of e-learning systems found perceived usefulness, lack of

learning objects in local languages, quality of the educational system, lack of institutional designer, lack of instructional design process and information quality as the factors that hinder e-learning systems.

Masrom et al. (2008) highlighted that technical and institutional support factors are the key dimensions to be considered in the successful implementation of e-learning. Tanrikulu et al. (2010) developed a framework categorizing the CSFs into ten dimensions namely, demographic characteristics, usability, interaction, functionality, reusability, evaluation, appropriateness, design, interoperability, and accessibility. Furthermore, Priatna et al. (2020) has identified technology, organization, and human resources being the key success factors of e-learning implementation in higher education.

From a mixed-method study conducted by Noorulhasan et al. (2017) to investigate the CSFs of e-learning in Saudi Arabian Universities, students' dimension, instructors' dimension, design and content's dimension, system and technological dimension, and institutional management service dimension were identified as the most CSFs. Frimpon (2012) stated that the key pillars of e-learning are students, faculty, technology, and institution. Likewise, Mbodila et al. (2019) stated that the CSFs of e-learning in South African HEIs can be grouped into eight factors: resource factors, institutional factors, ethical factors, evaluation factors, social interaction factors, management factors, pedagogical factors, and technical factors.

In research on a comprehensive analysis of e-learning from a managerial perspective, Alqahtani & Rajkhan (2020) identified ten CSFs during the COVID-19 pandemic. These factors are instructor characteristics, student characteristics, information technology, support, technology knowledge, course, instructional design, e-learning environment, level of collaboration, and knowledge management. Selim (2007) classified the CSFs into four dimensions based on students' observations including instructors' characteristics, students' characteristics, technology, and institution support. Additionally, Odunaike et al. (2013) proposed e-learning CSFs under e-learning readiness, sustainability plans, adoption of renowned best practices, training, e-learning collaboration, maximization of LMS usage, and online content and curriculum development.

NehariTalet (2007) identified CSFs of e-learning from the student's perspectives: These factors are students, instructors, and content. Mehregan et al. (2011) stated that student characteristics, IT quality, instructor characteristics, content quality, educational institutes support, participation interaction, and knowledge management are the CSFs of e-learning systems evaluation. Moreover, Ahmad et al. (2018) concluded that the CSFs for enhancing sustainability and performance in e-learning are network security, efficient technology infrastructure, organizational infrastructure readiness, user-friendly and well-organized, appropriate e-learning course design, stakeholders training, course flexibility, understandable relevant content, commitment, computer competency, interaction with the instructor, interaction with other students, motivation, easy language communication, and appropriate system.

Table 3 depicts the CSFs identified in the studies related to Asia, the Middle East, and the African region. Based on the number of occurrences in the literature, the leading CSFs of e-learning in HEIs in these regions are technology, instructor's dimension, pedagogy, student's dimension, social interaction, and e-learning environment.

Table 3: Critical Success Factors of E-Learning: Asia, Middle East & Africa

Studies	E-Learning CSFs																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
(Noorulhasan et al., 2017)	x	x	x	x	x																				
(Frimpon, 2012)	x	x		x	x																				
(Mbodila et al., 2019)			x	x	x	x	x	x																	
(Alqahtani & Rajkhan, 2020)	x	x	x	x	x				x	x	x	x													
(Selim, 2007)	x	x		x	x																				
(Odunaike et al., 2013)			x						x	x			x	x	x										
(NehariTalet, 2007)		x		x		x			x	x						X									
(Mehregan et al., 2011)	x	x	x	x	x	x					x														
(Ahmad et al., 2018)	x	x	x	x		x			x			x	x	x	x		x	x							
(Ali et al., 2018)	x	x	x	x																					
(Parsazadeh et al., 2013)				x						x											x				
(Musa & Othman, 2012)	x			x																					
(Bhuasiri et al., 2012)	x	x		x	x				x			x										x			
(Puri, 2012)			x	x	x		x									x						x			
(Fong Yew & Jambulingam, 2015)		x	x						x			x										x	x		
(Farid et al., 2018)			x								x								x	x				x	x
(Masrom et al., 2008)				x												x									
TOTAL	9	10	10	14	8	4	2	1	6	4	3	4	2	2	2	3	1	1	1	1	1	3	1	1	1

*1= Students' Dimension, *2= Instructors' Dimension, *3= Pedagogy, *4= Technology, *5= Institution, *6= Social Interaction, *7= Evaluation, *8= Ethical, *9= E-Learning Environment, *10= Level of Collaboration, *11= Knowledge Management, *12= Course, *13= Sustainability Plans, *14= Training, *15= LMS, *16= Support, *17= Commitment, *18= Motivation, *19= Language, *20= Demographic, *21= Learning material, *22= infrastructure & System quality, *23= Change Agent, *24= Perceived Usefulness, *25= Educational system,

4. Framework for Effective E-Learning Implementation in Heis in Oman

This section discusses the framework developed for the effective implementation of e-learning in HEIs in Oman based on the leading CSFs identified through this study. The present study classifies CSFs of e-Learning into seven components, which is derived through extensive literature of western countries, Asia, the Middle East, and Africa. These seven factors are recognized to be the common ones studied in the literature to ensure the effectiveness of e-learning implementation. The selection of these factors was based on their frequency of occurrences and commonalities in the past studies as discussed in the prior section also. The identified factors include student's dimension, instructor's dimension, pedagogical factor, technological factor, institutional factor, social interaction factor, and e-learning environmental factor. The authors present a framework as shown in Figure 1 comprising of these essential elements for e-learning implementation, which will lead to an improvement in the performance of HEIs in Oman.

The framework illustrates that all these factors are very critical for the successful implementation of e-learning in any HEI in Oman. To become a leading HEI in an online environment, which is a future of higher education, and to achieve sustained success in a competitive environment, it is very important to consider each factor while implementing e-learning initially from the phase of planning till the actual implementation. Considering all these factors for e-learning implementation, the HEIs in Oman will successfully lead to improved teaching and learning quality, and student satisfaction. Each component of the framework is discussed as follows:

Student's Dimension: Students are the main audience in e-learning of which the implementation of it should be designed in a way that would engage them throughout the learning experience. One way of getting students engaged in an online classroom is to get them to collaborate and interact with course participants in different sorts of activities (Mozelius & Hettiarachchi, 2017). Kim, Kwon & Cho (2011) argued that social presence will be achieved but doesn't mean that it will lead to student satisfaction. Students satisfaction can be linked to several outcomes like persistence, retention, course quality, and student success (Kuo et al., 2013). The authors explained that the predictors of student satisfaction in an online setting include interaction i.e., learner-learner, learner-instructor, and learner-content interaction, internet self-efficacy, and self-regulated learning.

Instructor's Dimension: The role of a teacher in an online setting differs from that of a traditional face-to-face environment as it demands new competencies (Ammenwerth, 2017). Baran (2012) highlighted that teacher require to develop their pedagogies when transforming from traditional teaching to online teaching. A teacher in an online setting becomes more of a facilitator where the learning process becomes student-centred (Arah, 2012). This gives the students the autonomy of being responsible for their learning and being collaborative with others.

Pedagogical Factor: In any educational setting, having an effective pedagogy is the key to a successful class. Stone & Perumean-chaney (2011) also highlighted that traditional face-to-face classroom pedagogy wouldn't be as effective as a fully online classroom. The author added that moving from traditional face-to-face doesn't mean that the pedagogy needs to completely change but rather adapt it to suit the online setting. When adapting the online teaching pedagogy, teachers tend to rely mostly on their face-to-face experience and use the same traditional pedagogy online (Baran et al., 2013).

Technological Factor: Technology is the key factor to the success of online learning. Quality, reliability, and medium richness are factors to be considered when setting up online learning technology (Volery & Lord, 2000). The Internet is a part of technology that online learning relies mostly on upon. The Internet has a lot of online resources called Open Education Resources (OER) in different fields of study that enable HEIs in the delivery of the courses (Porcello & Hsi, 2013). For it is a very supporting resource to gain unlimited knowledge, it is also a drawback to students who have low network connectivity (Wellington & Hutchinson, 2005). The introduction of technology in higher education made it flexible for the students to attend class as they can do it from anywhere at their own convenient time (Mbodila et al., 2019). Also, with the use of a Learning Management System (LMS) and the available OER, students get a variety of materials to enhance their learning process.

Institutional Factor: The services an institution provides must be of high quality so that there is a level of customer satisfaction obtained (Brown & Chin, 2004). For a successful implementation of e-learning in higher education, institutional factors should be put into consideration. The institution should be able to provide and fulfill certain requirements that would enable a successful implementation process. Some of these factors include financial readiness, cultural readiness, technical infrastructure, management support for training, leadership strategy, and content readiness (Masoumi, 2006).

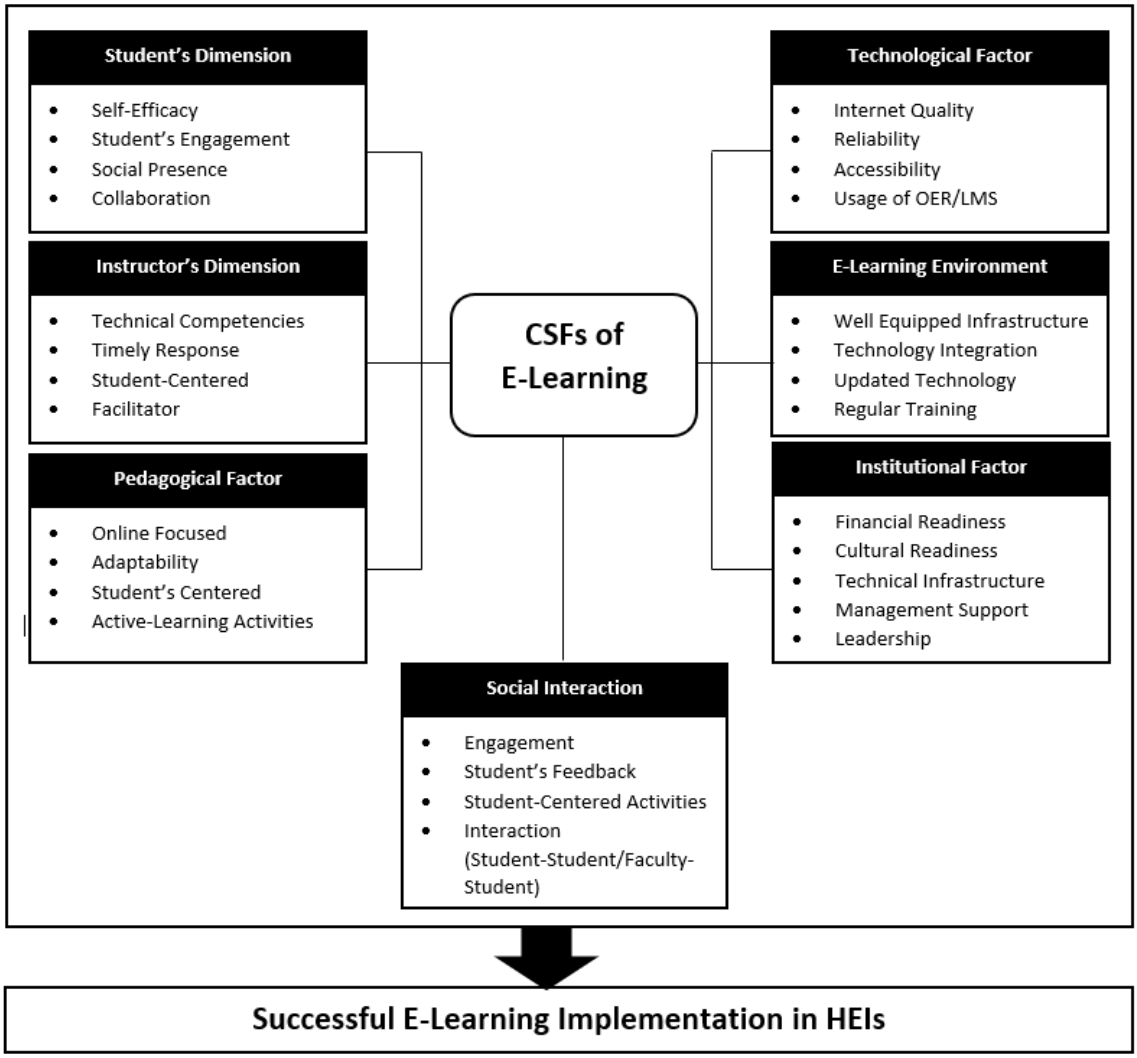

Figure 1: A Proposed Framework for E-Learning Implementation in HEIs in Oman (Compiled by the authors)

Social Interaction Factor: Interaction between a student and the instructor is very crucial. As mentioned earlier in the student's dimension, one of the best ways to gain student engagement is through interaction between themselves and with their instructor. For e-learning to be successful, there should be a systemized process that ensures the interaction between the said parties. Social interaction could be in the form of evaluation. As important as student evaluation is in a face-to-face class environment, it is as important or even more important for students as it is an indicator of student achievement (Kuo et al., 2013). Student evaluation does not only have to be the teacher sending feedback on the assessment submitted by the students, but also the student evaluation on teaching and the course content. Considering student evaluation of teaching and learning provides a positive impact on the improvement of course delivery, and student-centered classroom (Steyn et al., 2019).

E-Learning Environment: For implementing and strengthening the e-learning system, HEIs must be well-equipped to support its functions. E-learning infrastructure is a big part of the e-learning environment for smooth operations related to teaching and learning. According to Mehlinger and Powers (2002), educators are encouraged from integrating technology into their teaching when there is a lack of infrastructure provided. As e-learning infrastructure is a key element in influencing an effective e-learning environment, getting administrative support

from the institute and training is a great factor in convincing educators to use technology in their teaching. It could be a failure if the required technical support is not provided to the users (Teo, 2011).

5. Conclusion

E-Learning is rapidly becoming the popular mode of study among students globally. This trend is also visible in the HEIs, using online learning to support the learning activities of the students. Therefore, it is very important to identify and understand the CSFs of online learning to determine the right path towards the competitive online environment, if any institutions want to achieve success. Due to the pandemic, the trend of e-learning has increased drastically as it was adopted on a mass scale because of its one of the main advantages i.e., continuing education from anywhere without any hassle. Some of the benefits of e-learning are student's convenience, efficiency, economical, and inexpensive due to lower operating cost, and above all the availability of the most up-to-date learning materials. Because of this growing concern towards e-learning worldwide, for HEIs, it becomes imperative to successfully implement e-learning, so the performance of the institution can be enhanced, and the students can easily attain their goals of learning.

The present study aimed to identify the CSFs of e-learning implementation in HEIs and proposed a framework for the successful implementation of e-learning in HEIs in Oman. The study covered the extensive literature review on e-learning implementation in the education sector particularly HEIs. The authors reviewed the studies focusing on e-learning worldwide and based on that the CSFs were identified. This study identified multiple factors that contributed to accomplishing e-learning, such as Information and Communication Technology, stakeholders' commitment, maturing ICT skills, and ever-growing human capital with the HEIs. The dominant CSFs of e-learning implementation that is found from the present study are student's dimension, instructor's dimension, pedagogical factor, technology factor, institutional factor, social interaction, and e-learning environment. It is observed that success cannot be attained until the HEIs develop a suitable working environment, culture, policies, practices, and procedures, which can bind students and academics together for e-learning success. Based on the identified CSFs, a framework is proposed for the successful implementation of e-learning in HEIs in Oman. The framework comprises the identified CSFs, which are very important to consider by the HEIs for successful e-learning implementation.

The framework will act as a comprehensive guidebook for the academicians, academic administrators, policymakers, and decision-makers of educational institutions in Oman that will provide them the right direction to implement e-learning in the institution by focusing on the important factors. It will enable the HEIs in improving the education quality in this rapidly changing era by focusing on the factors that need special considerations to achieve the organizational goal and mission. This framework will be vital in developing the programs to enhance e-learning implementation in HEIs by the instructors and learners. Also, this study can be used as an assessment tool by the HEIs those who are already applying e-learning to determine the suitability, which will enable them to enhance e-learning initiatives. Finally, to implement e-learning successfully by the HEIs in Oman, the CSFs must be considered and adopted suitably.

5.1.Limitations and Future Scope of the Study

The present study is limited to the collection and analysis of available literature on CSFs of e-learning focusing only on the HEIs. Also, any primary research is not carried out for the verification of the proposed framework. Thus, this study poses several research avenues for scholars. The identified CSFs will enable the researchers to carry out future research using these factors. Also, the proposed framework will act as a guide for the scholars interested in

this field in developing a model for e-learning implementation in any HEI. An empirical model can be developed for HEIs in different regions or nations and can be verified. Finally, the proposed framework can be empirically tested and verified in Oman using the primary data.

References

Ahmad, N., Quadri, N. N., Qureshi, M. R. N., & Alam, M. M. (2018). Relationship modeling of critical success factors for enhancing sustainability and performance in E-learning. *Sustainability (Switzerland)*, *10*(12), 1–16. https://doi.org/10.3390/su10124776

Aitken. (2015, March 23). The Topic No One Wants to Consider Faculty Time Management Online. Retrieved from Online Learning Consortium: https://onlinelearningconsortium.org/topic- no-one-wants-consider-faculty-time-management-online/

Al-adwan, A., & Smedley, J. (2012). Implementing e-learning in the Jordanian Higher Education System: Factors affecting impact. *International Journal of Education & Development Using Information & Communication Technology*, *8*(1), 121–135. http://search.ebscohost.com/login.aspx?direct=true&db=eue&AN=88933232&site=ehost-live&scope=site

Al-Fraihat, D., Joy, M., & Sinclair, J. (2017). Identifying success factors for e-learning in higher education. *Proceedings of the International Conference on E-Learning, ICEL*, 247–255.

Alberth. (2011). Critical Success Factors in Online Language Learning. *TEFLIN Journal*, *22*(1), 16–33. https://doi.org/10.15639/teflinjournal.v22i1/16-33

Alhabeeb, A., & Rowley, J. (2018). E-Learning Critical Success Factors: Comparing Perspectives from Academic Staff and Students. 43), 1(*2002*, □□□□□□. https://doi.org/10.1017/CBO9781107415324.004

Ali, S., Uppal, M. A., & Gulliver, S. R. (2018). A conceptual framework highlighting e-learning implementation barriers. *Information Technology and People*, *31*(1), 156–180. https://doi.org/10.1108/ITP-10-2016-0246

Al-Qahtani, A. A., & Higgins, S. E. (2013). Effects of traditional, blended and e-learning on students' achievement in higher education. Journal of computer assisted learning, 29(3), 220-234.

Alqahtani, A. Y., & Rajkhan, A. A. (2020). E-learning critical success factors during the covid-19 pandemic: A comprehensive analysis of e-learning managerial perspectives. *Education Sciences*, *10*(9), 1–16. https://doi.org/10.3390/educsci10090216

Ammenwerth, E. (2017). Envisioning changing role of university teacher in online instructional environments. *AISHE-J - The All Ireland Journal of Teaching and Learning in Higher Education*, *9*(3), 3121–3129.

Arah, B. (2012). The Competencies, Preparations, and Challenging (New) Roles of Online Instructors. *Online Submission*, *10*, 841–856.

Baran, E. (2012). The transformation of online teaching practice: Tracing successful online teaching in higher education. *Dissertation Abstracts International Section A: Humanities and Social Sciences*, *72*(12-A), 4526. http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2012-99111-023&site=ehost-live

Baran, E., Correia, A. P., & Thompson, A. D. (2013). Tracing successful online teaching in higher education: Voices of exemplary online teachers. *Teachers College Record*, *115*(3), 1–41.

Barclay, C., Donalds, C., & Osei-Bryson, K. M. (2018). Investigating critical success factors in online learning environments in higher education systems in the Caribbean*. *Information Technology for Development*, *24*(3), 582–611.

https://doi.org/10.1080/02681102.2018.1476831

Bendell, T., Boulter, L. and Goodstadt, P. (1998) Benchmarking for Competitive Advantage. London, Pitman. Catterall,

Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J. J., & Ciganek, A. P. (2012). Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. *Computers and Education*, *58*(2), 843–855. https://doi.org/10.1016/j.compedu.2011.10.010

Brown, S. P., & Chin, W. W. (2004). Satisfying and retaining customers through independent service representatives. Decision sciences, 35(3), 527-550.

Callahan, N., Jones, M., & Bruce, R. (2012). Best practices and success factors in online education: A comparison with current practice in technology-based programs. *Technology Interface International Journal*, *13*(1), 36–44.

Dutta, A. K., Mosley, A. A., & Akhtar, M. M. (2011). E-learning in higher education: Design and implementation. International Journal of Computer Science Issues (IJCSI), 8(4), 509.

Elkaseh, A., Wong, K. W., & Fung, C. C. (2015). A review of the critical success factors of implementing E-learning in higher education. *International Journal of Technologies in Learning*, *22*(2), 1–13. https://doi.org/10.18848/2327-0144/cgp/v22i02/49160

Eom, S. B., & Ashill, N. J. (2018). *A System ' s View of E-Learning Success Model*. *16*(1), 42–76.

Farid, S., Qadir, M., Uddin Ahmed, M., & Daud Khattak, M. (2018). Critical Success Factors of E-Learning Systems: A Quality Perspective. *Pakistan Journal of Distance & Online Learning*, *I*, 1–20. http://pjdol.aiou.edu.pk/wp-content/uploads/2018/08/1-critical-success-factors-1.pdf

Fong Yew, O., & Jambulingam, M. (2015). Critical Success Factors of E-learning Implementation at Educational Institutions. *Journal of Interdisciplinary Research in Education*, *5*(1), 2232–180.

Fresen, J. W. (2011). Factors Influencing Lecturer Uptake of E-Learning. *Teaching English with Technology –*, *11*(1), 81–97.

Frimpon, M. F. (2012). A Re-Structuring of the Critical Success Factors for E-Learning Deployment. *American International Journal of Contemporary Research*, *2*(3), 115–127.

Gautam, S. S., & Tiwari, M. K. (2016). Components and benefits of E-learning system. *International Research Journal of Computer Science (IRJCS)*, *3*(01), 2014–2017.

Graham, C. R. (2011). Blended Learning Models. *Encyclopedia of Information Science and Technology, Second Edition*, 375–382. https://doi.org/10.4018/978-1-60566-026-4.ch063

Gunawardana, K. D. (2017). An Empirical Study of Potential Challenges and Benefits of Implementing E-Learning in Sri Lanka. *SSRN Electronic Journal*, 1–8. https://doi.org/10.2139/ssrn.2931993

Guragain, N. (2016). E-Learning Benefits and Applications. *Thesis*, *February*, 1–53. https://www.theseus.fi/bitstream/handle/10024/105103/Guragain_Nischal.pdf?sequence=1&isAllowed=y

Kim, J., Kwon, Y., & Cho, D. (2011). Investigating factors that influence social presence and learning outcomes in distance higher education. Computers & Education, 57(2), 1512-1520.

Kuo, Y., Walker, A. E., Belland, B. R., & Schroder, K. E. E. (2013). A predictive study of student satisfaction in online education programs | Kuo | The International Review of Research in Open and Distributed Learning. *The International Review of Research in Open and Distance Learning*, *14*(1). http://www.irrodl.org/index.php/irrodl/article/view/1338/2416

Lin, C. C., Ma, Z., & Chiu-Pin Lin, R. (2011). Re-examining the Critical Success Factors of e-learning from the EU perspective. *International Journal of Management in Education*, *5*(1), 44–62. https://doi.org/10.1504/IJMIE.2011.037754

Masoumi, D. (2006). Critical factors for effective E-learning. *Retrieved November*, 1–14. http://asianvu.com/digital-library/elearning/Critical_factors_for_effective_e-learning_by_DMasoumi[1].pdf

Masrom, M., Zainon, O., & Rahiman, R. (2008). Critical Success in E-learning: An Examination of Technological and Institutional Support Factors *. *International Journal of Cyber Society and Education Pages*, *1*(2), 131–142.

Mbodila, M., Mkabile, B., & Ndebele, C. (2019). *JOURNAL OF GENDER , INFORMATION AND DEVELOPMENT IN AFRICA (JGIDA) Critical Success Factors for the Effective Implementation of e-Learning in South African Higher Education Institutions Munienge Mbodila * Bulelwa Mkabile ** Clever Ndebele *** Introductio*. *4276*, 229–251.

McGill, T. J., Klobas, J. E., & Renzi, S. (2014). Critical success factors for the continuation of e-learning initiatives. *Internet and Higher Education*, *22*, 24–36. https://doi.org/10.1016/j.iheduc.2014.04.001

McPherson, M., & Baptista Nunes, M. (2006). Organisational issues for e-learning: Critical success factors as identified by HE practitioners. *International Journal of Educational Management*, *20*(7), 542–558. https://doi.org/10.1108/09513540610704645

Mehlinger, H. D., & Powers, S. M. (2002). Technology and teacher education: A guide for educators and policymakers. Houghton Mifflin Co..

Mehregan, M. R., Jamporazmey, M., & Hosseinzadeh, M. (2011). Proposing an approach for evaluating e-learning by integrating critical success factor and fuzzy AHP. *International Conference on Innovation, Management and Service IPEDR*, *14*, 125–130.

Menchaca, M. P., & Bekele, T. A. (2008). Learner and instructor identified success factors in distance education. *Distance Education*, *29*(3), 231–252. https://doi.org/10.1080/01587910802395771

Mozelius, P., & Hettiarachchi, E. (2017). Critical Factors for Implementing Blended Learning in. *ICTE Journal*, *6*(2), 37–51. https://content.sciendo.com/view/journals/ijicte/6/2/article-p37.xml

Musa, M. A., & Othman, M. S. (2012). Critical Success Factor in E-Learning: an Examination of Technology and Student Factors. *International Journal of Advances in Engineering & Technology*, *3*(2), 2231–1963.

Naveed, Q., Muhammad, A., Sanober, S., Rafik, M., & Shah, A. (2017). A Mixed Method Study for Investigating Critical Success Factors (CSFs) of E-Learning in Saudi Arabian Universities. *International Journal of Advanced Computer Science and Applications*, *8*(5), 171–178. https://doi.org/10.14569/ijacsa.2017.080522

NehariTalet, A. (2007). OTL Students' Perceptions of the Critical Success Factors in the Successful Implementation of Online Teaching and Learning. *The International Journal of Learning: Annual Review*, *12*(12), 25–34. https://doi.org/10.18848/1447-9494/cgp/v13i12/58574

Odunaike, S. A., Olugbara, O. O., & Ojo, S. O. (2013). E-learning implementation Critical Success Factors. *Lecture Notes in Engineering and Computer Science*, *2202*, 560–565.

Osman, M. R., Yusuff, R. M., Tang, S. H., & Jafari, S. M. (2006). ERP systems implementation in Malaysia: the importance of critical success factors. International Journal of Engineering and Technology, 3(1), 125-131.

Parsazadeh, N., Megat, N., Zainuddin, M., Ali, R., & Hematian, A. (2013). *A Review on the Success Factors of E-Learning*. 42–49.

PILLAY, H., IRVING, K. & TONES, M. 2007. Validation of the diagnostic tool for assessing tertiarystudents' readiness for online learning. Higher Education Research &

Development, 26, 217-234.
Porcello, D., & Hsi, S. (2013). Crowdsourcing and curating online education resources. *Science*, *341*(6143), 240–241. https://doi.org/10.1126/science.1234722
Priatna, T., Maylawati, D. S. adillah, Sugilar, H., & Ramdhani, M. A. (2020). Key success factors of e-learning implementation in higher education. *International Journal of Emerging Technologies in Learning*, *15*(17), 101–114. https://doi.org/10.3991/ijet.v15i17.14293
Puri, G. (2012). Critical success Factors in e-Learning–An empirical study. *International Journal of Multidisciplinary Research*, *2*(1), 149–161.
Ragan, L. C. (2018). Establishing Online Instructor Performance Best Practices and Expectations. Madison, Wisconsin: Magna Publications, Inc.
Rao, P. (2011). E-learning in India: the role of national culture and strategic implications. Multicultural Education & Technology Journal.
Riggs, S. A., & Linder, K. E. (2016). Actively Engaging Students in Asynchronous Online Classes. Manhattan, KS: Oregon State University Ecampus.
Ruiz, J. G., Mintzer, M. J., & Leipzig, R. M. (2006). The impact of e-learning in medical education. Academic medicine, 81(3), 207-212.
Sangrà, A., Vlachopoulos, D., & Cabrera, N. (2012). Building an inclusive definition of e-learning: An approach to the conceptual framework. International Review of Research in Open and Distributed Learning, 13(2), 145-159.
Selim, H. M. (2007). E-learning critical success factors: an exploratory investigation of student perceptions. *International Journal of Technology Marketing*, *2*(2), 157. https://doi.org/10.1504/ijtmkt.2007.014791
Shraim, K., & Crompton, H. (2015). Perceptions of Using Smart Mobile Devices in Higher Education Teaching: A Case Study from Palestine. CONTEMPORARY EDUCATIONAL TECHNOLOGY, 301-318. Sibley,
Simonson, M., & Schlosser, L. A. (2009). Distance education 3rd edition: Definition and glossary of terms. Iap.
Sridharan, B., Deng, H., & Corbitt, B. (2010). Critical success factors in e/learning ecosystems: A qualitative study. *Journal of Systems and Information Technology*, *12*(4), 263–288. https://doi.org/10.1108/13287261011095798
Stacey, E., & Gerbic, P. (2008). Success factors for blended learning. *ASCILITE 2008 - The Australasian Society for Computers in Learning in Tertiary Education*, 964–968.
Steyn, C., Davies, C., & Sambo, A. (2019). Eliciting student feedback for course development: the application of a qualitative course evaluation tool among business research students. *Assessment and Evaluation in Higher Education*, *44*(1), 11–24. https://doi.org/10.1080/02602938.2018.1466266
Stone, M. T., & Perumean-chaney, S. (2011). The Benefits of Online Teaching for Traditional Classroom Pedagogy : A Case Study for Improving Face-to-Face Instruction. *MERLOT Journal of Online Learning and Teaching*, *7*(3), 393–400.
Sun, P-C, Tasi, R.J., Finger, G., Chen, Y-Y., Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical success factors influencing learner satisfaction. Computer & Education, 50, 1183-1202.
Tanrikulu, Z., Tugcu, C., & Yilmaz, S. (2010). E-university: Critical success factors. *Procedia - Social and Behavioral Sciences*, *2*(2), 1253–1259. https://doi.org/10.1016/j.sbspro.2010.03.183
Tarus, J. K., Gichoya, D., & Muumbo, A. (2015). *Challenges of Implementing E-Learning in Kenya: A Case of Kenya Public Universities*. *17*(3).
Teo, T. (2011). Modeling the determinants of pre-service teachers' perceived usefulness of e-learning. *Campus-Wide Information Systems*, *28*(2), 124–140.

https://doi.org/10.1108/10650741111117824

Volery, T., & Lord, D. (2000). Critical success factors in online education. *International Journal of Educational Management*, *14*(5), 216–223. https://doi.org/10.1108/09513540010344731

Wang, T. H. (2011). Developing Web-based assessment strategies for facilitating junior high school students to perform self-regulated learning in an e-Learning environment. Computers & Education, 57(2), 1801-1812.

Wellington, W., & Hutchinson, D. (2005). *U Sing T He I Nternet T O E Nhance C Ourse P Resentation : a H Elp O R H Indrance T O S Tudent L Earning*. *32*, 364–371.

Welsh, E. T., Wanberg, C. R., Brown, K. G., & Simmering, M. J. (2003). E-learning: emerging uses, empirical results and future directions. international Journal of Training and Development, 7(4), 245-258.

Wotto, M., Basak, S. K., & Bélanger, P. (2016). A framework on the critical success factors of e-learning implementation in higher education: A review of the literature. Int. J. Educ. Pedagog. Sci, 10(7), 2409-2414.

Yassine, S., Khalifa, M., & Franck, P. (2018). Towards a Multidimensional Model to Study a Critical Success Factors Affecting Continuity and Success in E-Learning Systems. *Proceedings - International Conference on Developments in ESystems Engineering, DeSE*, 129–134. https://doi.org/10.1109/DeSE.2017.26

Yew, O. F., & Jambulingam, M. (2015). Critical success factors of e-learning implementation at educational institutions. J. Interdiscip. Res. Educ. Vol, 5(1).

Zhang, D., Zhao, J. L., Zhou, L., & Nunamaker, J. (2004). Can e-learning replace traditional classroom learning—Evidence and implication of the evolving e-learning technology. Communications ofthe ACM, 47(5), 75- 79.