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PRIMARY RESEARCH

Development of a holistic approach framework for e-learning adoption decision-making in Saudi Arabian universities

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Abstract

This study aims to develop a framework for the factors that influence the adoption of Information Communication Technology (ICT) in Saudi Universities.COVID-19 pandemic quickly led to the closure of universities and colleges worldwide. The provision and usage of E-Learning, Learning Management System (LMS), Blackboard, and other online education platforms are becoming the main challenge for many universities during this pandemic. The needed to fast delivery of knowledge and information, anytime and anywhere, a catalyst factor for the growth of E-Learning worldwide. E-Learning system has several great features that would be valuable for use during this pandemic was changed the way of teaching and learning takes place in educational institutions. However, some barriers influence the use of this technology. This study employed a systematic analysis review of the relevant literature published between 2005 and 2020 to determine the significant contexts that affect the Adoption of LMS. The methodology adopted was the searching of scholarly databases. Following the criteria established for collecting this data, studies were reviewed and included in the review. As a result, this study attempts to review and analyze surveys that have investigated the critical internal and external obstacles to educational members' use of Technology in Saudi universities to improve ICT adoption in Saudi Universities.

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I. INTRODUCTION

The Development of E-Learning is a result of the growth of ICT in education because of the need to provide education for larger numbers of students as well as training [1, 2]. In this context, the Adoption of new Technology as online learning in the teaching and learning process is inevitable due to its numerous advantages. These include the fact that Technology makes information available and allows instructors and learners to contact and cooperation with each other anytime and anywhere. COVID-19 has forced the education sector worldwide to adopt online learning and shift rapidly to adopt E-Learning in different educational environments as universities. The world now in a state of emergency and must react with different and available ways of learning such as E-Learning systems and mobile learning applications. E-Learning or online learning is not new to learners, nor is distance learning. However, COVID-19 is reviving the need to explore online teaching and learning opportunities. The COVID-19 induced a disruption that has placed online education and E-Learning into the spotlight almost overnight. Until now, online education always remained in the back seat as an alternative to traditional, offline education. Even the most technologically forward-looking institutions and companies used a mixed approach of complementing offline learning with online learning. The temporary migration to 100% online consumption was relatively instantaneous with the existing technology stack already in place. In this context, one of the most impacted industries is online learning and education during the COVID-19 pandemic. The needed to investigate studies to improve

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online learning adoption quickly to these changes to fill the knowledge gap.

According to the educational industry research agency, Holon IQ's (2020) [3] report paints an optimistic picture of the future for E-Learning based on the investment numbers in the industry as shown in Figure 1.

Fig. 1. Global digital spend in education

In this context, the benefits of e-Learning the vast movement towards e-learning is motivated by the many benefits it offers. However, much e-learning is praised and innovated; computers will never eliminate human instructors and other educational delivery forms. What is essential is to know precisely what e-learning advantages exist. Some of the most outstanding advantages are pointed out in detail (1) Reduced overall cost and time saving overall cost and time is the most influential factor in adopting e-learning [4, 5, 6, 7] (2) Convenience and Flexibility are other e-learning benefits. Users are not bound by time; the course is available 24/7 and does not require physical attendance as long as the necessary equipment is accessible [5, 8, 9] (3) Accessibility and higher retention access to quality education and higher retention is a significant benefit. The fact that instructors of the highest calibre can share their knowledge across borders allows learners to attend courses across physical, political, and social boundaries [9, 10, 11, 12] (4) The reduced learning time studies have found e-learning reduces learning time compared to those of instructor-led learning [5, 13, 14, 15] (5) Improve collaboration and interactivity are yet other benefits of e-learning. Technology tools make collaboration among users much more straightforward. Since many projects involve collaborative learning, the online environment is far easier (and often more comfortable) to work in since learners do not have to be face-to-face. E-learning also engages users and makes them active in the learning process, pushing them rather than pulling them through training [5, 16, 17, 18, 19] (6) Environment impact reduction some would argue that e-learning will reduce the environmental impact. E-Learning allows people to avoid travel, thus reducing energy consumption and overall carbon output [4, 5, 20, 21]. A recent study by Britain's Open University [22] found that producing and providing distance learning courses consumes an average of 90% less energy and produces 85% fewer CO2 emissions per student than traditional face-to-face courses [22, 23, 24, 25] (7) e-Learning can fewer chances of students missing out on classes, as they can access easily anytime and anyplace [9, 26].

Besides, drawbacks of e-Learning while the potential advantages of e-learning make it appealing, organizations embarking on e-learning implementations must keep two things in mind. There are several potential drawbacks to using e-learning, and successful implementation requires significant planning and effort. The up-front cost was the most frequently mentioned drawback of e-learning. E-learning initiatives can require considerable investment in information technology and staff [5, 27, 28, 29]. However, since users are not bound by time, the course is available 24/7 and does not require physical attendance which could reduce the social and cultural interaction. Also, Users, may become bored with no interaction [4, 30, 31]. The technology issues required for e-learning could become a problem for the learning process since learners need to access resources such as computers, the Internet, and software. They also need to have computer skills with programs such as word processing, Internet browsers, and e-mail [4, 12].

E-learning hinders the connection between the learner and the educator, that is, direct relation and human touch are lost. Time and location flexibility, though it is the strength of online learning, these aspects are fragile and create problems. Student's nonserious behaviour in terms of time and flexibility can cause many problems. All students and learn-

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ers are not the same; they vary in degrees of their capabilities and confidence level. Some do not feel comfortable while learning online, leading to increased frustration and confusion [4]. Inadequate compatibility between the design of the Technology and component of psychology required by the learning process; and inadequate customization of learning processes can obstruct the teaching process and creates an imbalance.

A. Problem Statement

In developing countries as the Kingdom of Saudi Arabia (KSA), the Ministry of Education has spent heavily on introducing Technology into education, and it has encouraged its use among Saudi education environments. Despite the effort made by the Saudi government, the level of use of Technology in education is still low [32, 33, 34, 35, 36, 37]. According to a study by Alharbi and Alotebi[32] stated the low Adoption might be due to may be due to a variety of challenges that affect educators and faculty members' use of Technology in an educational setting. These difficulties include a lack of skills, training, institutional support, technical support, knowledge and interest, and negative attitudes towards the use of Technology [38]. As a result, this study aims to examine in depth the factors that influence faculty members' use of Technology in their teaching. Accurately, this study will review and analyze the internal and external factors (Lack of knowledge and interest, and negative attitudes) that have been indicated by previous research to gain a comprehensive understanding of these issues discouraging the use of E-learning.

B. Research Objectives

1- Examine in-depth the factors that influence ICT adoption by educational members (instructors, students).
2- Develop a framework for the factors that influence the Adoption of ICT in Saudi Universities.

C. Significance of the Study

It is significant for any organization to be informed of the possible factors driving the implementation and Adoption of innovative Technology and the possible performance outcomes. Sound research would be instrumental in providing the organization with the required information needed to decide on the Adoption of new ICT, such as CC in educational organizations. The findings emerging from this research will assist educational organizations as universities to make informed strategic decisions concerning the integration of CC technology in its computing systems. Lacking prior research has looked at the above issues facing educational organizations in a rapidly developing country such as Saudi Arabia. This study can be considered a pioneering research enterprise making contributions to knowledge in the realm of technology adoption literature in the educational organizations' context.

D. Contribution

Although numerous studies exist on E-Learning adoption, the current study aims to add a new contribution to the existing literature on the investigation of the main challenges and factors influencing successful E-Learning adoption in a modern context by developing a framework, which is KSA, which may set an example for other developing countries. The outcomes for the current research will significantly affect the make informed strategic decisions on ICT innovation in educational organizations. Besides, developing a culture of collaboration and innovation.

E. Organization

The rest of the paper is organized as follows.
1. Section 2 presents the background and related work.
2. Section 3 presents the research methodology.
3. Section 4, result and discussion, finally
5. We give a conclusion in Section 6.

II. BACKGROUND AND RELATED WORK

Recent studies refer to ICT can have a positive effect role by building on traditional learning and teaching methods, enabling students to have easy access to the information they need and leveraging academic accomplishment [39, 40, 41, 42, 43, 44].

In the educational sector, institutions as universities are ever more dependent on ICT devices to collect, store, and process their data. ICT as Electronic Records Systems (ERS), Academic Records Management (ACM), Mobile Learning Systems (MLS), Electronic Management Records Systems (EMRS), LMS, and electronic learning (e-learning) is essential for providing the smooth administration of all types of information processing, supporting routine service, informing management decisions, and assuring policy implementation [44, 45]. Once processed, the information in records will produce the knowledge that can assist timely and well-informed decision making in organizations. More specifically, the detail in students' records is invaluable in developing strategies, enhancing performance, and, ultimately, delivering a nuanced assessment of student and teacher performance evaluation [44, 46, 47].

In this context, the Adoption of ICT has been a particularly significant shift in developing countries that are shifting

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from an agriculture-based economy to a knowledge-based economy. This shift suggests that information is increasingly recognized as a resource that directly affects the Development of the nation and its prudent use of production and its natural resources. Computer-based information systems are a significant contributor to national growth [44].

Furthermore, there is no specific and agreed-upon definition of an e-learning system. Some tend to define an e-learning system as application software through which education materials are sent [48, 49, 50], whereas some others have used different terms to introduce it, such as Course Management System (CMS) or Virtual Learning Environment (VLE) [50]. However, each system differs from others in terms of specifications, components, and features. Some may provide only a few features, such as online courses, while some provide multiple functions such as online courses, grade tables, students' management. On the other hand, [51] defined an e-learning system as a software system that is built to support learning and educational environments.

Krishnan [52] and Rhema [53] defined E-learning as "a method of teaching and learning that fully or partially signifies the educational model used, based on the use of electronic media and devices as tools for enhancing the availability of training, communication, and interaction, and that helps in accepting novel ways of comprehending and establishing learning" [52, 53] .

The study by Rissa [54] indicated that e-learning takes place using various forms of technologies and media. An essential element of e-learning is the use of electronic media, and in present times, e-learning is explained as the learning that is employed through different computational devices, such as computers, mobile phones, tablets, and virtual environments [54].

In this context, according to a study by El-Ghareeb and Haitham [55] stated E-learning could be defined as any technology used to enhance or facilitate the learning process through interaction with digital services, aid or Content [55]. The uses and implementations of E-learning are broad and complex; nevertheless. Same Authors proposed three recognized educational models: traditional learning, distance learning, and hybrid learning. Educational models' details are shown in Figure 2.

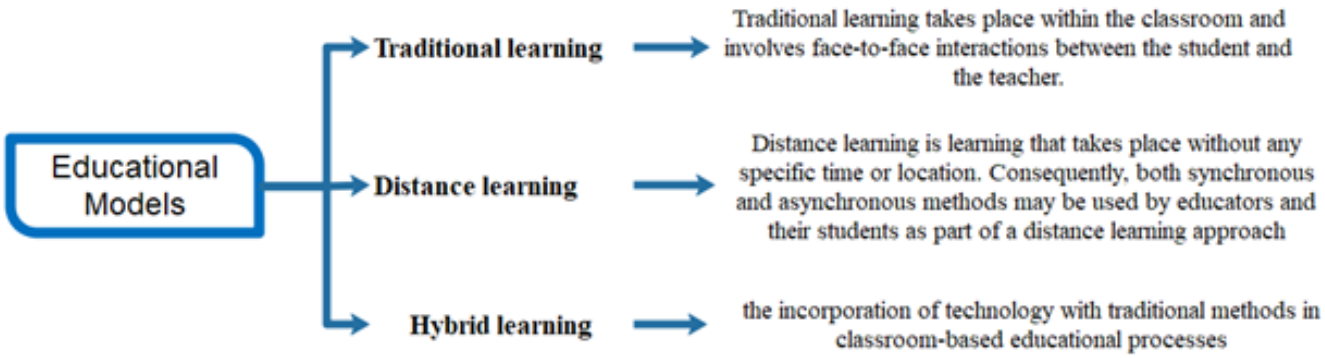

Fig. 2. Educational models [55]

In this context, according to study by Al-Ismaiel [56] refer to, the "traditional learning "educational model is preferred by most higher-education students in Saudi Arabia [56]. On another site, Hybrid learning technology becomes just one aspect of the learning process [38]. The essential characteristics of hyper-learning, according to [57] may be able to increase the effectiveness of costly applications; furthermore, the integration of an array of varied skills and techniques increases the overall efficacy of the programs offered [38, 57]. Hybrid learning is also able to increase cooperation among members, between the educational program and the learner according to their requirements; using a hybrid-learning model means that learners can adopt numerous approaches to education and educational materials, increasing the chance of them finding a particular solution that meets or satisfies their personal preferences [38, 55]. In this research paper focused on distance learning "E-learning" by identifying the factors that influence the Adoption of ICT in Saudi Universities. The following section discusses the research methodology.

Furthermore, e-Learning in developing countries, most of the developing countries, in general, have been a late follower when it comes to the Adoption of e-learning. This can be significantly attributed to the delay in the Adoption of the Internet as a whole by most governments of the developing countries. As a result, little research concerning the benefits, limitations, barriers, and acceptability of e-learning has been published. Generally, however, most of the published

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research seems to indicate a high approval level by both faculty and students [5]. We look in this section at a few research efforts that highlight the value of e-learning in some developing countries.

A study by Tubaishat [58] of Zayed University, an all-girl university in the UAE, conducted a study regarding E-learning's impact on social and cultural limitations of higher education. He pointed out the fact that in the middle east region, social values and expectations about males and females are different. This study results revealed that 74.2% of the students were more comfortable posting their opinions on discussion boards than having to speak-up in the classroom. 71.2% felt that they had become more confident in expressing their ideas. Additionally, 85.6% of the students were satisfied with the online class environment [58] .

According to a study by the Ambient Insight Regional Report (AIRP, 2011-2016), Africa has an improved growth rate in e-learning compared to other countries in the world [59, 60]. For example, the growth rate for self-paced e-learning in Africa is 15.2%. Nevertheless, despite the progress made, the continent still faces e-learning system challenges related to internet connectivity, infrastructure, availability of locally developed e-content that is aligned with national curriculums and training and professional development development its e-learning staff [59]. However, despite all these challenges, HEIs are more eager to protect their critical market as well as to maintain the standard of their services and products through the provision of quality e-learning [61]. The growing concern with quality has made institutions to look for ways of managing quality holistically by trying to identify the factors that influence the quality and then using them for evaluating and eventually enhancing the quality of the e-learning systems [62, 63, 64].

In sum, in educational institutions, a shift in attitude towards ICT adoption could reduce the gap between the demand and supply of education [29]. This has led educational institutions to increase their investment in e-learning systems in many countries around the world to enhance the whole educational system [40, 65, 66]. Furthermore, the Adoption of ICT is recognized as essential to delivering education in the modern world. ICT is seen as a set of processes that are instrumental in improving educational institutions' effectiveness. Prior studies in this area have revealed several barriers that developing nations face when adopting ICT such as EMRS [39, 67, 68, 69].

Recent research has shown that ICT adoption, particularly e-learning systems adoption, is still early [40, 41, 46, 70]. Most of these studies have been conducted in other fields outside education to determine barriers in ICT adoption. They have highlighted three significant categories of barriers: human-related barriers, organizational barriers, and technological barriers [71, 72]. According to a study by Heeks [73] and Mukred [39] information systems combining technical, social, organizational, and environmental aspects are generally successful [39, 73]. Unfortunately, there have been very few studies about the individual and environmental issues impacting ICT adoption.

III. RESEARCH METHODOLOGY

In the reviewing process, this study adopted the Literature Review Paper (LRP) by [74] and also the method proposed by [75]. The scope of the review is on the Adoption of ICT in Saudi universities. The studies were accessed from five literature databases, namely ScienceDirect, Emerald, IEEE Xplore, Scopus, and Web of Sciences (WOS), as these databases provide access to leading IS journals and high-quality peer-reviewed IS conference publications. The search query applied Boolean "AND" and "OR" operation emphasizing on a keyword like an ICT, online learning, E-learning, Adoption, and acceptance. The search query including "(ICT AND (adoption OR acceptance))" and "((online learning * AND (adopt* OR accept*)). Wee and Banister [74] recommend making use of all operators explicit about gaining more result. Figure 3 shows Article Selection Criteria, an overview of the search process and initially resulted in 197 articles in total, including recurrences. To ensure the articles' relevance to be analyzed, search criteria are limited to the title of the articles, and the publication year is during 2005-2020 and publication types that focus on journals or proceedings only. The selection of the featured article involves abstract reading to determine the relevancy of the articles. Initially, 197 articles were identified using the search queries from the selected databases. Then, the criteria were refined by setting aside repetitive, non-English, and research-in-progress articles. These exclusion criteria delimit the sample of articles so that the literature review becomes practically manageable [75]. After conducting the quality assessment, only 20 articles were selected for further analysis.

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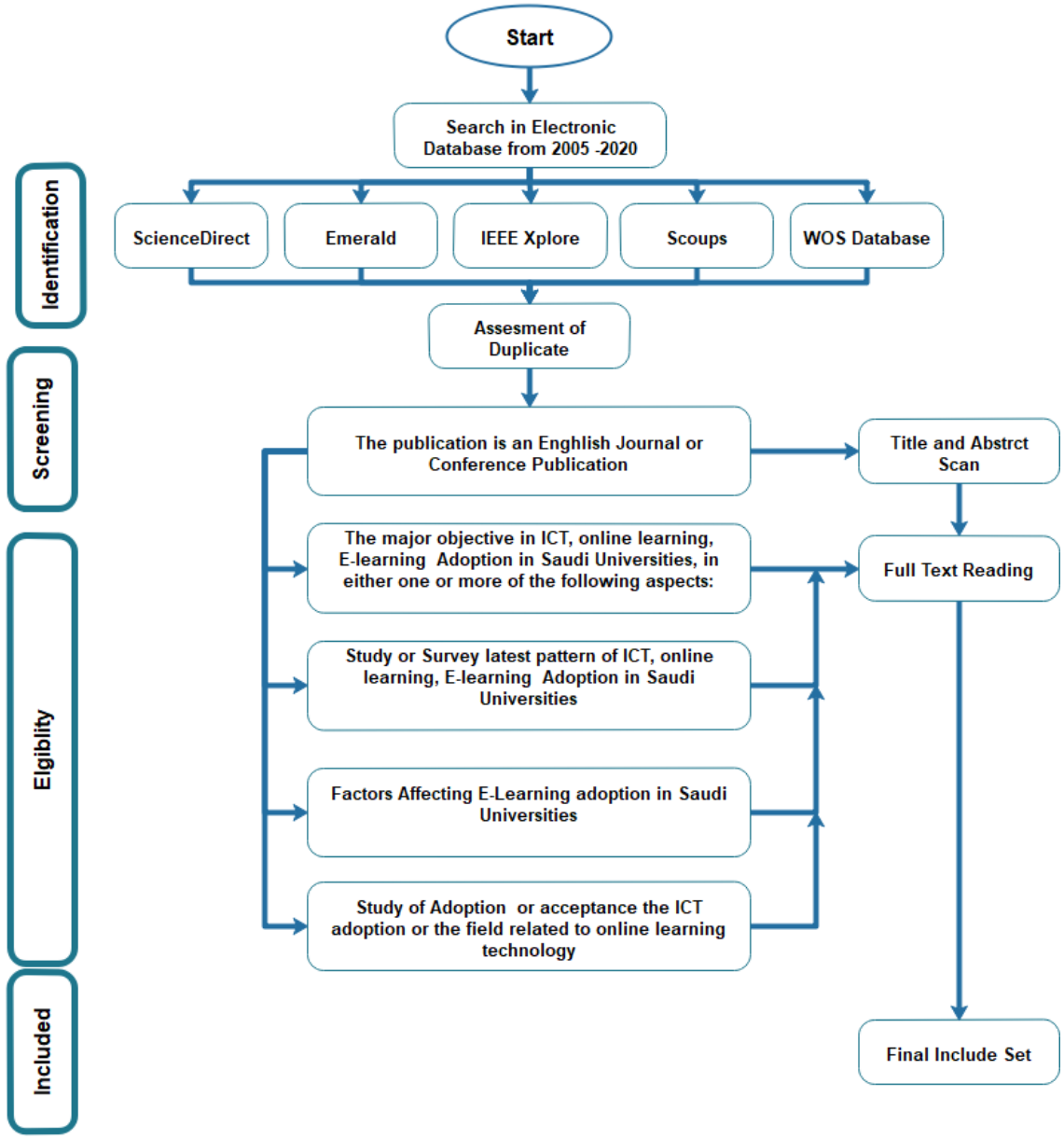

Fig. 3. Article selection criteria

The thematic analysis method [76] was applied during the analysis stage. The next step was to determine a list of factors presented in the set of studies stated. All the proposed and used factors in the previous study were recorded and compiled in the full list of factors. Next, the factors are collected, combined, and filtered to separate the same definition factors [77]. Furthermore, the factors that have been identified will be linked to the authors who have used such factors as variables in their study.

IV. FINDINGS AND DISCUSSION

In what follows, the results from the studies will be discussed and presented. This study aims to identify factors influencing E-learning adoption in Saudi Arabian Universities from 2005 to 2020 in order to develop a theoretical framework that assists educational organizational as universities to adopt E-learning systems to improve learning outcomes. As earlier mentioned, 20 studies were included in this research. Fifty-three factors were extracted from recent studies, Table 1 As earlier mentioned, 20 studies were included in this research. In this study, several factors that have the same meaning have been combined into one term. For example, lack of internet labs, insufficient computer, lack hardware to fit with the existing deficiency of equipment.

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TABLE 1
FACTORS INFLUENCING E-LEARNING ADOPTION IN SAUDI ARABIAN UNIVERSITIES 2005-2020

Factors	Study	Year	Findings
Internet access, cost, teaching and learning, interactivity, organizational issues, novelty and speed, technological issues, others are culture issues	[78]	2005	This study revealed to set of factors affect e-learning program access, cost, teaching and learning, interactivity, organizational issues, novelty and speed, technological issues, others are culture issues
Motivation online teaching skills training administrative support, inadequate infrastructure funds	[79]	2007	The study by Al-Jarf [79] stated that factors affect online courses the lack of motivation, online teaching skills, training, administrative support, inadequate infrastructure and funds
Learning are Internet connectivity, intellectual property issues, and concerns with the loss of privacy	[80]	2008	The study by Al-Wehaibi et al. [80] refers to factors that affect online learning are Internet connectivity, intellectual property issues, and concerns with the loss of privacy.
Time Training Financial	[80]	2009	Oyaid [80] reported that teachers' use of the LMS was constrained by time, inadequate training and financial problems.
IT skills Lack of internet labs Resistance to change Pedagogical issues	[81]	2010	In 2010, Alebaikan's [81] study indicated that poor Internet Services, students' and teachers' Lack of IT skills, a lack of internet labs, resistance to change and pedagogical issues were the primary factors affecting instructors' use of Technology, according to the participants.
Resistance to change insufficient computer Administrative Support Technical support	[82]	2011	[82] The results stated that resistance to change, insufficient computer to student ratio, deficiency of administrative support, inadequate awareness among faculty members and a lack of technical support were the main elements that delayed educators' Adoption of Technology in their teaching methods.
Deficiency of knowledge deficiency of equipment	[83]	2012	In 2012, Alenezi researched two institutions that aimed to investigate educators' perceptions of the use of Technology in Saudi universities. This study added new factors to those discovered by previous research. These were deficiency of knowledge and deficiency of equipment in classes for the implementation of E-learning tools
Computer anxiety, e-learning course flexibility, e-learning course quality, technology quality, perceived usefulness, perceived ease of use, diversity in assessment, and learner perceived interaction	[84]	2012	Result revealed that 61.5% of participant students were unsatisfied with their e-learning experience and learner attitude towards the computer, learners' computer anxiety, e-learning course flexibility, e-learning course quality, technology quality, perceived usefulness, perceived ease of use, diversity in assessment, and learner perceived interaction with others were the critical factors affecting learners' perceived satisfaction
Lack of time	[85]	2013	in 2013 Alharbi [85] conducted a case study in KSA and the USA to understand educators' attitudes towards the integration of Technology into teaching methods. The results indicated that teachers had negative attitudes towards the use of Technology in the education process and that a lack of time was another major factor preventing them from adopting Technology in their teaching.
System design appropriate, university policy supporting	[86]	2013	The results showed that a positive attitude leads to the behavioural intention to use m-Learning. Therefore, the university administration should focus on the design of the m-Learning system that appropriates with student's perception. Sound perception and university policy supporting were two significant factors that lead to success m-Learning system
Negative attitudes, knowledge, poor infrastructure, policy, planning, administrative support, skills, time, a lack of access to IT training	[87]	2014	Studies by Alharbi [85] was a review of the literature about the challenges to the use of Technology in education stated that negative attitudes, a lack of knowledge, poor infrastructure, policy, planning, administrative support and skills, a lack of time, a lack of access to IT and a lack of training
Negative attitudes, lack of IT resources, lack of ICT policy, lack of technical support, time limitations, lack of training resistance	[88]	2015	Albugami and Ahmed [88] found that negative attitudes, a lack of IT resources, a lack of ICT policy, a lack of technical support, time limitations, a lack of training and resistance to change were the major factors delaying the employment of new Technology in education in Saudi institutions.

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TABLE 1
CONTINUE....

Factors	Study	Year	Findings
English skills lack of incentives technical support poor internet services lack of hardware lack of time	[88]	2016	the study conducted by [88] indicated Lack of English skills and a lack of incentives. This study's results also repeated some of the barriers that were found in previous studies, such as a lack of technical support, low internet services, a lack of hardware and a lack of time
Training administrative support workload	[89]	2017	Bajabaa [89] studied found that a lack of training, lack of administrative support and a heavy workload were the primary problems that educators encountered when they used the LMS in their teaching
Lack of motivation, time and training.	[90]	2019	A study by Ibrahim, Mohamed, Aldhafeeri and Alqdah [90] indicated that a lack of motivation, time and training were the essential factors that prevented educators' use of the Blackboard system at the university.
Training, Time as policy, equipment, technical issues, administrative support, attitude to towards changes, knowledge, skills, interests, motivations, pedagogical issues, English skills, workload, financial issues, IT resources	[33]	2019	The study by Alharbi [33] indicate a lack of training and a lack of time were the major factors that delayed the use of Technology by educators in Saudi institutions, and other factors assisted a negative effect in technology educators in Saudi institutions as policy, equipment, technical issues, administrative support, attitude to towards changes, knowledge, skills, interests, motivations, pedagogical issues, English skills, workload, financial issues, IT resources.
Content quality system navigation, ease of access, system interactivity, instructional assessment system learnability learning support instructional assessment ease of use	[34]	2019	the results revealed that perceived ease of use is affected by six factors (content quality, system navigation, ease of access, system interactivity, instructional assessment and system learnability). The findings confirmed that perceived usefulness has five determinants (content quality, learning support, system interactivity, instructional assessment and perceived ease of use).
Lack of motivation Lack of awareness Lack of ethical-related study, Shortage of feedback provided to the student, Inappropriate guideline training	[91]	2020	the results revealed Lack of motivation, Lack of awareness Lack of ethical-related study, Shortage of feedback provided to students, Inappropriate guideline, training have negative effect e-learning
1) Technological factors, (2) e-learning system quality factors, (3) cultural aspects, (4) self-efficacy factors and (5) trust factors. Besides, the results indicated that three main challenges impede the usage of the e-learning system	[92]	2020	Based on the results, the respondents stated that the critical factors that affect the usage of e-learning system and should universities take them into the plans were: (1) technological factors, (2) e-learning system quality factors, (3) cultural aspects, (4) self-efficacy factors and (5) trust factors. Besides, the results indicated that three main challenges impede the usage of e-learning system, namely, (1) change management issues, (2) e-learning system technical issues and (3) financial support issues.
Trust, hedonic motivation, students' expectation and intention to use readiness	[93]	2020	Based on the findings, there is a positive and significant relationship between trust, hedonic motivation, students' expectation and intention to use, with the mediating role of e-learning readiness.

Additionally, the literature findings indicate that there is a need for a framework that covers multiple perspectives to improve E-learning adoption in educational institutions [94]. A holistic approach considers the importance of the whole institution rather than performing a separate analysis of isolated units [95]. Recent studies have shown the need for a multidisciplinary holistic framework when studying the Adoption of educational institutions [96]. Shifting towards E-learning needs a multiple perspectives strategy that supports E-learning capabilities. In this respect, the researcher develops a holistic framework for E-learning Adoption in Saudi Arabia universities, as shown in Figure 4. Besides, this study highlights that there are seven contexts to be considered when adopting new Technology in educational organizations, especially in higher education, such as universities. The research framework does not deal only with technology context but also covers related contexts such as Organizational, Human, Relative advantages, Financial, Decision-Maker, Environmental.

In follows, operational definitions of the contexts shown in Figure 5.

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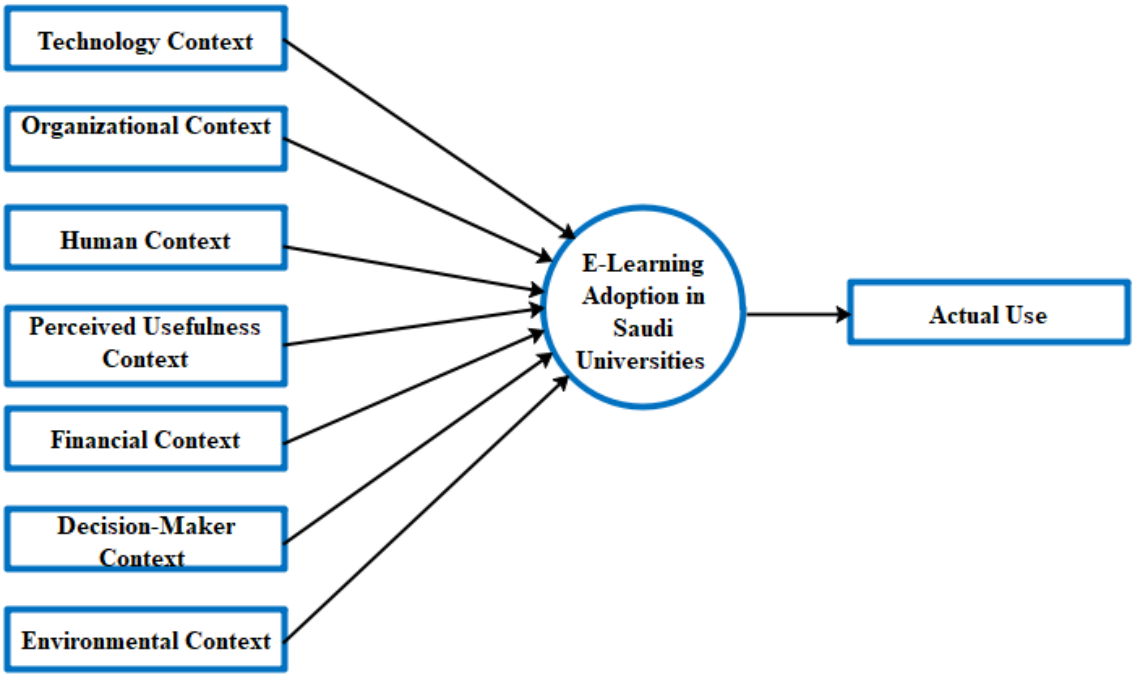

Fig. 4. Holistic framework for E-learning adoption decision-making in Saudi Arabian universities

1.1. Technology Context: Refers to the technical issues that will affect the decision E-learning adoption in educational institutions.

1.2. Organizational Context: This context refers to internal factors of the organization that are controlled by itself.

1.3. Human Context: This context covers the factors are about the capability of e-skills for staff.

1.4. Relative Advantages Context: This context covers the perceived usefulness effect on task performance in organizations

1.5. Financial Context: This context refers to financial issues related to adoption.

6. Decision-Maker Context: The knowledge that is important to realize the advantages of E-learning systems adoption, knowledge can add value to the organizations

1.7. Environmental Context: cover different factors of the external world in which the organization conduct its work.

Fig. 5. Operational definitions

V. RECOMMENDATIONS

This research recommends that the educational organizations' "universities" of Saudi Arabia should adopt ICT as CC technology in its environment. Therefore, according to the findings of this research, the implementation of CC would lead to the delivery of on-demand service, reduce system maintenance, boost collaboration, reduce the cost of ICT equipment, improve performance, enhance system quality and accessibility, and availability of data. Any organization needs to know the perceived outcomes of adopting such Technology into their organization. Saudi Arabia should keep pace with technological improvements around

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the world. Thus, the implementation of cloud computing would be a significant step towards improving the current technical system in the kingdom, especially with COVID-19 pandemic.

VI. FUTURE WORKS

Future research should consider using more advanced statistical techniques such as PLS, stepwise regression and SEM to advance this field of study. Therefore, future research should concentrate on the actual data relating to Adoption and outcomes before and after CC is implemented in Saudi educational organizations.

VII. CONCLUSION

The main aim of this research was to develop a holistic framework for E-Learning adoption decision-making in Saudi Arabian Universities by examining the findings of recent studies regarding the internal and external factors influence it. The current research covers the studies between 2005 to 2020. The proposed framework might assist in improving E-learning adoption in educational institutions. To sum up, it could be argued that despite the Saudi government's sustained efforts to promote the country's Development of the latest ICT such as Blackboard in education, there are still internal and external challenges that limit the effective utilization of this Technology. These challenges include time, training, technical-support and top management support. Therefore, efforts must be made with the aid of using decision-makers in Saudi institutions to remedy those problems.

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