E-learning Framework for Saudi Universities

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Abstract-The emergence of Information and Communication Technologies (ICT) in teaching and learning has brought significant changes in the educational settings of students and teachers. The usage of E-learning in the Kingdom of Saudi Arabia (KSA) academic institutions is still in its early stage and its impact is insignificant. In Saudi Arabian universities, there is a need to improve the understanding of how to deal with the new technology, how to meet the staff and students requirements for teaching and learning, and how to tackle students' lack of motivation concerning independent learning. Hence, this study aims to identify the main issues that are hindering the use of modern techniques of E-learning in Saudi Arabian educational system effectively, such as personal factor, and learning attributes. This study provides an initial framework that can be used as a detailed, structured E-learning roadmap by stakeholders in Saudi universities, as well as those in developing countries. A mixed-methods approach (an explanatory sequential design) will be carried out in Saudi Arabian universities. This study is part of research project and it is anticipated that the findings will increase the awareness of the use and effectiveness of E-learning systems in Saudi's higher education sector.

Keywords-E-learning; Saudi higher education; Initial framework.

I. INTRODUCTION

The education system in the KSA has developed to make sure that education becomes more effective, meets the country's religious, economic and social needs, and eliminates illiteracy among the Saudi youth. The KSA is one of the countries in the world spending the largest amount on education according to the 2014 National Budget. The education and healthcare sectors remain the priority sectors in the national budget. The education sector accounts for 25% of the total expenditure in the national budget and is considered the highest in the world [1]. The KSA has been expected to be one of the fastest developing countries in the world, particularly in establishing E-learning systems in the educational institutions. According to the Information and Communication Technology (CITC 2011), the number of internet users increased rapidly from 200,000 in 2000 to 11,400,000 in 2011, which accounts for 43.6% of the total population [2]. For this reason, Saudi's government has established a new vision and strategy to develop education systems. In particular, the plan is for the public universities in this country to be among the most advanced in the world by 2030. By the year 2030, the government aims to have at least five Saudi universities among the top 200 universities in the international rankings [3]. Currently, the KSA has twenty-six public universities and ten private universities located in various geographic regions. Hamdan [4] and Alharbi [3] pointed out that the Saudi government strives to overcome the challenges the universities encounter such as improving education quality, productivity, accreditation, and develop modern curriculum using different technologies to increase the interaction between teachers and students and focus on the rigorous development of standards in literacy, numeracy, skills, and character. A few studies from the Saudi Arabia perspective [5]-[7] have examined academics' perceptions of E-learning in Saudi higher education. Their findings showed that academics' perceptions toward E-learning integration in their teaching and learning are highly influenced by demographic factors such as age, gender, and education level. Female faculty members perceived less E-learning barriers and they displayed more willingness to implement it while compared to male equivalents.

In line with the aim of this study, an initial framework proposed to measure academics' and students' attitudes toward the effectiveness of E-learning usage in Saudi universities. This paper is organized as following: Section II introduces the current literature relating to E-learning in Saudi education system. Section III describes the research methods. Section IV outlines the research outcomes followed by an initial framework in Section V. The paper concludes the study and scopes future work in Section VI.

II. LITERATURE REVIEW

This paper reviews the current literature relating to E-learning in overall and in the KSA in specific.

A. E-learning definition

Dublin [8] and Rosenberg [9] mentioned that the literature on E-learning is vast, which makes it difficult to have a consensual definition of E-learning. In fact, there is no prevalent definition of E-learning. E-learning implies the use of ICT in various processes of education to enhance the learning and teaching, and it offers flexibility in terms of when, how and where information is received and delivered by staff and students [10]. In the context of this study, E-learning has been used in various ways in education. For instance, there is blended learning, online distance learning, and distributed learning. The E-learning environments offer a really interactive and engaging learning approach using various technological tools that are available today such as a whiteboard, video conferencing, audio chatting, online discussion, and Blackboard [11][12]. These technologies give students, academics, and other learners the opportunity to engage in an effective and flexible interaction.

B. Saudi education system

The education system in the KSA has developed within the last decade due to the increased population, and the high demand to provide additional instructional opportunities for students. According to [3], the total population of the KSA in 2016 was 32,430,000, which means that most of the population ranges in age from 15 to 64 years. In addition, to meet the increased student enrolment, the number of Saudi public universities has now increased to twenty–six. However, more than 60,000 students are still unable to study in the Saudi public universities because they are

already filled to capacity [3]. Furthermore, because of the socio-economic conditions and increased population demands, more students are enrolling in universities and undertaking online learning or are studying overseas [3][13]. Alharbi [3] concluded that the performance of universities, outcomes of quality, and reputation need to be considered by university leaders and face these challenges throughout adopt a benchmark strategy. Therefore, the KSA in 2008 planned to adopt Information and Communication-based Technologies such as E-learning and distance learning in higher education. The mission of the Ministry of Education in the KSA, E-learning not only adds value to and simplifies the traditional education system, but it also improves the quality of education. It develops an environment that incorporates various components of the educational process, thereby not only providing a huge amount of information, but also helping to improve the quality of the education materials [2].

C. E-learning in Saudi higher education

Unnisa [1] reported that there are many reasons for the increase in the growth of E-learning in the KSA. First, E-learning has been suggested as a means of overcoming the increasing demand for higher education and solving the problems the universities face with the traditional delivery of education such the overcrowding, lack of facilities, and inadequate human resources. Second, since the KSA is one of a few large countries in the world in terms of its geographical area, and there are a number of communities distant from the major centres of population [14][15], the online E-learning system can provide education facilities to the remote areas without students having to travel to the main location, thereby reducing the geographical inequity. Third, the KSA has a different culture and religion. Especially in the universities, due to religious reasons, the female students study in isolation from the male students. Due to limited facilities and human resource available, it is easier for female students to access higher education via an E-learning system. Currently, E-learning enables course content to be conveyed to students, enabling them to access information and communicate with their teachers easily wherever and whenever they want [16].

D. National Centre of E-learning and Distance learning (NCEL)

In 2005, the Ministry of Education in the KSA established the National Centre of E-learning and Distance learning (NCEL) to assist the universities to develop information technology using E-learning [14]. The vision of the NCEL is to implement the techniques of E-learning in the education system, which will improve both learning and teaching outcomes. The NCEL strives to become a national reference for E-learning. Also, one of NCEL's projects is the Saudi Digital Library [17], which holds 310,000 e-books on diverse subjects from 300 international publishers [17].

E. Student's attitude toward E-learning

Al-Harbi [15] stated that E-learning success is affected by various factors. A student's attitude toward E-learning is the significant factor in determining a student's intention to utilise the E-learning facilities. Hence, the shaping of the students' behavioural intention about using the E-learning plays a critical role in perceived E-learning success. In the context of the KSA, a study conducted by Al Zumor, et al. [18] shows the impact of students' E-learning acceptance through the Blackboard at King Khalid University. They found that students are willing to use E-learning and accept technology. Similarly, Al-Dosari [7] revealed that academics' and students' attitudes were positive toward using E-learning in the department of English at King Khalid University and the educational system improved as a result of the E-learning environment compared with the traditional learning system. Quadri, Muhammed, Sanober, Qureshi and Shah [19] emphasised that the necessity of E-learning system is more prominent because of the gender-based educational system. Consequently, the E-learning system in Saudi Arabia offers equal opportunity to people seeking education regardless of their gender. In addition, there is a high demand from students who are working in part-time jobs and wish to continue their studies for better opportunities in the future. After inclusive review on the literature related to issues towards the use of E-learning, this study leads to uncovering the E-Learning influential factors that will be critical for understanding the basis of the effectiveness of E-Learning and its impact in Saudi higher educational system.

III. RESEARCH METHODS

To find out the most factors that may influence the effectiveness of E-learning implementation at Saudi higher education, a mixed method will be employed. Mingers [20] has defined the research methodology as the activities and guidelines that assist a researcher to obtain valid and reliable research findings. Silverman [21] agreed with this, and indicated that the research methodology helps a researcher to choose the appropriate research strategy, and data collection techniques, etc. in planning and executing a research study. Hence, Information Systems (IS) researchers frequently encounter challenges in obtaining adequate results and theories that offer fundamental thoughts into a phenomenon of interest [22].

A. Pragmatism philosophy

The philosophy of this research is pragmatism with an abductive approach to determine the use of E-learning systems in Saudi higher education and then generate an initial framework [23]. Pragmatism philosophy was proposed for IS researchers. They advocate the use of mixed methodologies as one of the favored paradigms for amending the usage of mixed-methods research [22]. In this paper, the research method is the mixed-methods design to achieve the research aims and answer the research questions by using Explanatory Sequential Design. This means that the data will be gathered equally through a quantitative approach using an online survey and a qualitative approach using semi-structured interviews to understand the research problem, then the data from each approach is analysed separately and then merged into one study [24][25].

Venkatesh et al. [22] stated that if the Information Systems researcher decides to conduct a research for which a powerful theoretical basis previously exists. However, if the study context is novel or past results were unsatisfactory or indecisive, the researcher should take into account using a quantitative approach first, followed by a qualitative

approach to offer further insights based upon the context-specified results. This research methodology is adopted based on the understanding of the study objective that can be delivered by the quantitative approach and the subsequent data analysis. In the qualitative phase, Creswell et al. [26] mentioned that the statistical findings for participants' views will be processed and clarified by means of interviews. This research will use the mixed-methods approach to offer a general understanding regarding the use of E-learning systems in Saudi higher education.

In the first phase, this research will investigate the academics' and students' attitudes toward using E-learning systems in Saudi higher education through a quantitative (deductive) approach to understand their reactions to using E-learning systems and to develop a range of new factors from the survey [27]. The online survey will be used to examine the five factors that may influence the use of E-learning. In the second phase, a qualitative (inductive) approach will be conducted with the help of semi-structured interviews to analyse the data in depth and to obtain an understanding of the phenomena in its real-life context and through the meanings that people assign to them. The validity and reliability of mixed methods research are achieved by fundamentally measuring the quality of results or deductions from all of the quantitative and qualitative data in the research inquiry [22]. Tashakkori and Creswell [28] report that the surveys in a quantitative data gathering approach can bring breadth to a research by assisting researchers to collect data about various aspects of a phenomenon from many participants. Subsequently, the validation of the qualitative data collection will be used by conducting the interviews to provide the depth in the research inquiry and allow the researcher to obtain deep insights from rich data.

For the purpose of this study, the researcher will also use the quantitative data to determine the factors that may influence the use of E-learning systems in Saudi higher education followed by a qualitative approach so as to understand academics' attitudes toward the use of E-learning systems. In this regard, the factor analysis will be applied to achieve a rigorous picture of what might create a successful set of factors for a framework for E-learning within the context under examination. Hence, the factor analysis technique can be used to reduce data by grouping it into factors. According to Pallant [29], factor analysis has been used as a compression methodology that manages a large set of factors by decreasing it based on correlations that exist between variables, and can then be utilized in other tests.

B. The participants

The participant population for this research will include all academics and students who are currently enrolled in Saudi universities. In order to obtain valuable results, three public universities will be selected to identify the factors influencing the E-learning systems in Saudi higher education.

C. Quantitative online survey

In the first phase, quantitative data will be used to examine the factors that will ensure the effectiveness of E-learning in the Saudi higher education framework and to identify the factors for the proposed framework. Consequently, an online survey utilising Qualtrics software will be distributed via E-mail to all participants (academics and students). Data analysis will be conducted using IBM SPSS (version 25) statistics, and exploratory factor analysis (EFA) will be applied for statistical testing of the gathered data to identify the factors for the proposed framework for the E-learning usage in Saudi higher education.

D. Qualitative interviewing

In the second phase, semi-structured questionnaire will be conducted to collect information regarding the opinions and attitudes of experts toward the use of E-learning systems in Saudi higher education. A suitable strategy for gathering the data is to ask open-ended questions through face-to-face interviews or to use other technological applications such as Skype in order to allow the researcher to explore various opinions of individuals. The sample size of semi-structured interviews in this study will be determined between six to ten interviews. In terms of the upper limits of qualitative sample size, previous Information Systems studies pointed out that there is no recommended number of interviews. Recent studies suggest that the sample size should be 5-10 interviewees so that the researcher ensures that the state of theoretical saturation has occurred [30][32]. A thematic analysis technique will be employed in order to develop themes based on analysing and detecting data and also grouping the information according to identified patterns. Following this grouping of themes, the data will be analysed using NVivo software (version 11) [31][33]. Furthermore, King and Horrocks [34] highlighted interview methods involving connecting elements, recording, interview venue, the introduction and conclusion of the interviews.

IV. RESEARCH OUTCOMES

Numerous studies [1][2][5][6][15][35][36] have been conducted in Saudi Arabia to implement E-learning in the education sector to improve students' learning outcomes. However, none of the articles which have been reviewed identify these factors such as, Technological Pedagogical Content Knowledge (TPACK), ICT factors, teaching principles, learning attributes, and personal factors on the effectiveness of E-learning use. After reviewing these studies, some of the factors were missing in some models, and hence an initial framework will be developed to examine the gap in the literature of a theoretical framework for the effectiveness of E-learning use in teaching and learning especially in Saudi Arabia. Education is the most important sector in any country, especially developing countries like the KSA. Therefore, educational institutions need to extensively use the Information and Communication Technologies as an alternative method of course delivery to students in order to guarantee that technologies are utilized efficiently within education sectors [2]. One of the modern common technologies is E-learning which plays a significant role in developing learning environments. The academics and students are likely to face some problems when adopting E-learning in the Saudi universities such as meeting staff and students requirements for teaching and learning, and the poor understanding of the new technology such as web 2.0 [19]. Currently, the Saudi universities face extensive pressure

due to an increase in the number of prospective students and the limited number of places available [37]. Hence, with the opportunity of remote learning being facilitated through the successful incorporation of E-learning into teaching practice, this issue may be mitigated or even resolved. The lectures and lesson times are short in certain subjects such as applied science, medical, and engineering programs offered by faculties in Saudi universities. So, the provision of E-learning in these faculties will provide various teaching methods involving the computerised methods of blended learning practices which can help to address this issue [18].

The lack of knowledge in the use of technologies, and the underdeveloped university websites need to improve in updating their information and presenting the information in a usable manner to the students and academics, and offering training programs to help staff design their modules. ICT infrastructure is one of the biggest challenges in the implementation of E-learning in the higher education sector due to interruption problems with the internet. Furthermore, the KSA has a different culture because the delivery of education is segregated according to gender as it is not permitted for the male lecturer to teach female students face-to-face according to Islamic law [15][37][38]. KSA is one of the most conservative Muslim countries in the world, particularly regarding the situation of women, and it has solid roots in religious and family histories compared to developing countries [39][42]. For this reason, E-learning could help to solve this issue as male lecturers can teach female students through Blackboard or video-conferences by using such technologies.

Moreover, gender is a significant factor and believed to be of influence on academics' attitudes toward E-learning implementation [6]. Consequently, female faculty members held more positive attitudes toward E-learning integration in teaching and learning compared to their male counterparts [5][7]. However, to the best of the researcher's knowledge, none of the previous literature yet has examined all of these factors inclusively, such as TPACK, ICT factors, teaching principles, learning attributes, and personal factors. These factors have been chosen as they are the most prominent in existing E-learning literature.

V. E-LEARNING INITIAL FRAMEWORK

The proposed framework in this research is designed to integrate a set of the influential factors drawn from existing literature which must be considered when addressing E-learning systems in Saudi's higher education as well as achieving the research aims. It consists of five factors: TPACK, ICT factors, teaching principles, learning attributes, and personal factors (see Figure 1).
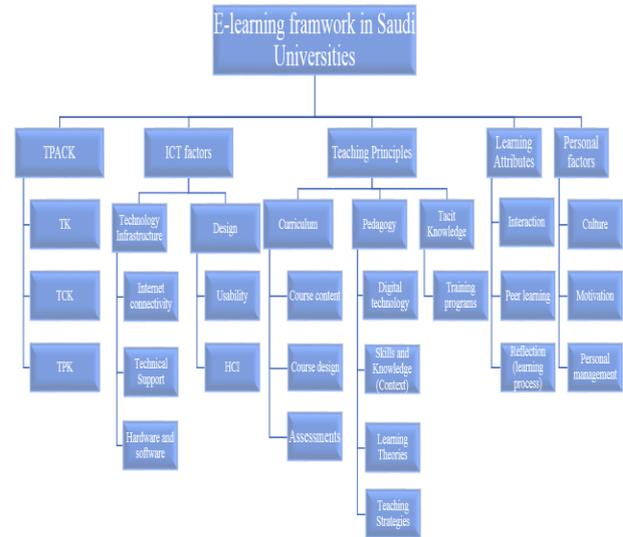

Figure 1: E-learning Framework in Saudi Universities

A. Technological Pedagogical Content Knowledge (TPACK)

A few decades ago, Shulman [43] developed the concept of Pedagogical Content Knowledge (PCK), combining the relationships between content knowledge that the academics view as the need to teach subject matter separately from the way it needs to be taught, and the technological knowledge that refers to knowledge of E-learning such as the Internet, digital video, blackboards etc. Twenty years later, Mishra and Koehler [44] integrated the third domain and created the technology-based conceptual framework proposed by Shulman (PCK-TPACK) framework to become the Technological Pedagogical and Content Knowledge (TPACK). TPACK defines as, a framework that is used to include an understanding of the complexity of the relationships between academics, students, content, technologies such as (E-learning), practices, and tools [45]. Also, TPACK describes teacher knowledge for the technology integration into the learning environment. Niess [46] indicates that the TPACK framework develops academics' knowledge of subject content using technology such as E-learning to facilitate student learning and pedagogical knowledge.

Mishra and Koehler [44] noted that TPACK is the integrated forms of knowledge that develop the interaction between these three main forms, namely, Technological Pedagogical Knowledge (TPK) that encourages interactivity among students in E-learning and the understanding of how E-learning can influence learning and teaching, and the Technological Content Knowledge (TCK) that the academics use in E-learning to enhance students' skills and understanding of the concepts in a specific subject matter, and Pedagogical Content Knowledge (PCK) [14][47][48].

In this study, the researcher focuses on the type of knowledge that include technology (E-learning) such as TK, TPK, TCK, TPACK since these are directly related to the study objectives. A study was conducted by Habowski and Mouza [47] to investigate the use of technology for pre-service science teachers in a Mid-Atlantic University in the USA. They found that the pre-service teachers had

opportunities to integrate content, pedagogy, and technology in their practice. They used online resources such as YouTube video clips to present topics in biology and physics. Habowski and Mouza [47] used the survey of TPACK framework to measure pre-service teachers' knowledge and technology in science, and their findings show that pre-service teachers' TPK documents more than their TCK. Similarity, a study conducted on pre-service elementary teachers [49] through open-ended pre-service teachers' responses found that out of 55 teachers, 22 agreed with TPK compared with TCK. Evidently, the TPACK framework could be used as a determinant to measure the extent to which academics actually use E-learning in their educational practice. Also, the results could provide better ways to prepare pre-service teachers for the integration of E-learning in education [50].

B. ICT Factors

According to Kabilan and Rajab [51] and Al-Adwan and Smedley [10], ICT infrastructures can be used in teaching and learning environments. Implementation of ICT in teaching and learning is challenging not only for the students, academics and instructional materials but also for the teachers'/lecturers' awareness, acceptance, technical and skills. A suitable infrastructure for ICT development such as the availability of the internet, extranet, intranet and LAN networks is also necessary for the implementation of E-learning in higher education, especially in developing countries [10][11]. Hence, dealing with the challenges in the implementation of E-learning is important. In the Saudi higher education system, Altameem [52] revealed that some technical constraints in several universities such as inadequate ICT infrastructures preventing the successful development and implementation of E-learning systems. For example, the lack of the availability of the internet facility at any time, and the inadequate bandwidths hamper the academics' teaching and the students' learning when there is access. Mokhtar, Alias and Rahman [53] suggest that the lack of resources and ICT equipment such as software and hardware especially those related to computers, teaching-learning materials and classroom size [54], shortcomings in teacher development [55], and lack of online IT support [11] made teachers less inclined to implement the online-based teaching and learning methods. Also, a critical factor recognized by the students is that more attention needed to be paid by Saudi universities to this aspect of E-learning [52]. Moreover, higher education institutions must invest in the right ICT infrastructure that allows academics and students to readily access the ICT hardware, utilizing friendly software and offering permanent technical support [10].

Another ICT factor in this research is the usability of the developed software which is easy to use [56]. Usability is the main consideration when developing E-learning technology, as it is also for other kinds of software since usability helps to develop the systems with improved instructional and pedagogical approaches. According to Juristo, Lopez, Moreno and Sánchez [56], usability is often ignored in the design of E-learning software. Bevan and Azuma [57] mentioned that usability means that the software is simple to learn, effective to use, easy to remember, has few errors, and is subjectively satisfactory, [58] as well having performance, acceptance, and learnability. Additionally, web usability is becoming a significant issue for E-learning and an important factor in the planning and use of E-learning applications. Battleson, Booth and Weintrop [59] considered usability as a component of Human-Computer Interaction (HCI); it is defined as "the ease with which a user can learn to operate, prepare inputs for, and interpret outputs of a system or component" [60]. Hence, HCI is about the interaction between computers and users [61]. However, an E-learning system that aligns with students' and academics' needs is desirable and more useful. Obviously, lecturers and students should be involved in the HCI development process in order for their reactions and other behavioural factors to be taken into account at the time they use the computer [62]. Therefore, as many Saudi universities have introduced E-learning systems, the current study aims to help the universities in the KSA in their endeavour to successfully use E-learning systems by discovering the key challenges such as ICT infrastructure, Internet connectivity, technical support, usability and Human-Computer Interaction (HCI) that enable the academics and students to use E-learning effectively.

C. Teaching principles

The traditional curriculum design is such that the academics focus on the content delivery and on the assessment by means of which the students' knowledge and absorption of the taught material can be ascertained. Tam [63] reported that the curriculum designers and academics reflect through planning what should be learned, and select the learning activities appropriate for the desired outcomes. They are required to create and develop the learning environments not only for the academics to be proficient in their discipline but also for the use of a diversity of resources, methods, technologies. These include the E-learning systems, assessment resources, and e-mail so that the students achieve valuable outcomes. The academics need to change their role from the subject- proficient teacher to being facilitators of the learning process. Through this, the learning and teaching activities will be aligned with the educational process instead of being just content-driven [63]. The focus on learning requires the academics to develop the syllabus [64], and establish a course syllabus which becomes a central for documentation and demonstration of curriculum intentions [65]. Syllabi can make particular course outcomes clear in the context of broader program outcomes and can direct the students to work when the assignments are due and identify the kind and level of anticipations, and what are the aims that will be reached [65]. In regards to using E-learning in higher education, Meyen, et al. [66] stated that the pedagogy of online teaching involves "teaching methods related to the presentation of experiences, engagement of learners, reinforcement, motivation, an organization of teaching tasks, feedback, evolution, and curriculum integration" (2002, 40).

Another study by Dron [67] mentioned that pedagogies are, in a true and essential sense, the area of study relating to teaching and as a strategy for education; and technologies represent a series of techniques and tools for education. For instance, technologies involve the use of computers, discussion boards, virtual classrooms, and institutional constructions. Hence, the adoption or

acceptance of new technologies (like E-learning) needs to create pedagogical concepts that could not be applied without technology and considers the current and future needs of the students, which are essential in a digital world. To use new technologies and create digital pedagogies, we need to know what to use, how to use, and when, and for what purpose. In the education field, the academics and students have access to the internet. So, there is a need to change their knowledge about using the technology so that it is more useful.

Lawless and Pellegrino [68] and Dron [67] pointed out that knowledge sharing has become more significant than the knowledge itself. Therefore, creating digital pedagogies will shift the concentration from technology and skills to one that consists of connectivity, knowledge process, interaction, and development of knowledge by working in the digital world. Palomba and Banta [69] indicated that the academics deliver course content to students by determining what should be learned in order to achieve the desired learning outcomes; and whether their expected learning outcomes are introduced and reinforced in the given educational course. In the same context, Biggs [70] pointed out that the learning outcomes, the teaching and learning activities should be aligned, and this is determined by the assessment system. The alignment of these three components will ensure the coherence in the curriculum in terms of the desired learning outcomes which should correspond with the teaching and learning activities, and the assessment tasks should be consistent [63][70]. However, in the case of the Saudi higher education system, Saudi vision 2030 wants the academics to have effective training and academic processing for teaching online courses in order to improve the teaching curriculum and enhance the E-learning systems in all subjects [3][71].

D. Learning Attributes

Maor [72] stated that the learning attributes were utilized as the basis for the students' perception of the courses and the students' interaction. For more explanation, Interaction means that students share knowledge and interact with their peers and teachers by using discussion boards. Peer learning refers to students reflecting on the comments made during peer conversations on and offline. Reflection practice means that students create reflective journals by using technology such as Blackboards to show their understanding and transformation in their thinking over time. For instance, reflection refers to the learning process that assists students to express their attitudes, feelings, experiences, actions, and beliefs. It provides students with opportunities to examine the knowledge they have absorbed [73]. The interaction between the lecturer and students enables the lecturer to pose questions to encourage students to engage in reflective thinking.

In E-learning environments, the term 'interaction' could refer to learning activities and includes the online communication between lecturers and students, sharing information, and exchanging learning experiences. There are various types of interactions such as learning content interaction, student-student communication, and student-lecturer communication [74]. In an E-learning, students engage in interpersonal interaction over computer networks and interfaces instead of face-to-face communication. The synchronous communication or interaction may occur online between students and lecturers, and among students in E-learning environments, and may involve questions, answers, and discussions [75].

In previous studies, the interaction between students and lecturers means that lecturers must perform a variety of tasks in the process of teaching such as providing an overview of the course contents, giving feedback on achievements, stimulating students' motivation to process and reflect on the content, and helping them to engage in learning activities, supporting knowledge construction, and establishing the foundation for a social relationship [74][76]. Students' peer interactions comprise the communication processes among the students, where students exchange information about the course contents and socio-emotional information. Students benefit from working in small groups to construct understanding, provide socio-emotional support, and learn within a consistent and positive environment [75][77]. According to Wong and Bakar [78], the interactive learning environment is an important factor in promoting students' positive attitudes through perceived satisfaction, usefulness, and peer learning, and reflect students' skills required for problem-solving in the E-learning environment [74].

E. Personal Factors

Al-Adwan and Smedley [10] reported that any institution wants to have a successful E-learning strategy should be prepared culturally as well technologically. Cultural factors have a massive influence on how students learn, involving the style of interaction and communication, establishing the core basis of E-learning. These factors strongly impact two key elements of online learning systems: 1) system development and design, and 2) system usability and usage [79]. Hence, the engagement of cultural characteristics of academics and students is an important motivational factor in designing E-learning system and in contributing to the acceleration of the usage process toward the technology [80]. However, the KSA has a different religious and cultural influence on people's attitudes, practices, and behaviour [14]. Also, their social life and living standards are different and this may influence the success of the E-learning in higher education [19].

Baki [39] notes that the Saudi system and methods of education differ from those of other countries around the world due to the different culture and religious beliefs. Asiri [44] agreed with him as the KSA is one of the most conservative Muslim countries in the world, particularly regarding the situation of women. In the KSA, male and female students in the universities are completely segregated. Consequently, the male academics cannot teach female students to face-to-face due to the Islamic restriction imposed by the Saudi government. The faculty members provide lectures to female students separately in buildings equipped with the audio-visual materials. This puts a substantial pressure on the available resources and facilities [41]. Therefore, Saudi universities are encouraged to introduce E-learning system to offer online courses for the female students in different faculties via a variety of E-learning systems [15][19].

Another study conducted by Hussein [81] investigated the attitudes of Saudi universities' faculty members towards using the learning management system (JUSUR). His findings show that 85% of the participants have a

positive attitude towards the E-learning management system JUSUR, and no variances in the attitudes among the faculty members regarding gender or the college classification type, whether it be the humanities, sciences or health subjects. In addition, the research results demonstrate that the faculty members have sufficient awareness of the significance of E-learning and usage of technology in teaching. This indicates a significant encouraging sign for the development of the use of E-learning management systems by faculty members [82]. However, Hussein [81] suggests some weakness in the activation of E-learning management systems based on the participants' responses: the shortage of awareness regarding the basics of using the E-learning system; concerns of some faculty members and students' families regarding the E-learning; and the resistance of the community to the E-learning systems as they consider that technology is for entertainment, not for learning.

Yahya et al. [83] indicated that personal management is the different needs and preferences of learner which involves the learning style and technical skills needed to solve the problems that occur when the learner access the E-learning system. Personal management means that academics become more knowledgeable about the technology that they use in the classroom. Academics must overcome personal confusion and uncertainty through being aware of the issues that they face such as time management of non-academic problems related to technology and thereby helping IT developers recognize their academics needs and providing them easily [84].

VI. CONCLUSION AND FUTURE WORK

As a conclusion, the main purpose of this research is to develop the awareness of academics and students regarding the use of E-learning technology in Saudi higher education. This research is expected to have a practical implication. To the best of the researcher's knowledge, none of the previous literature yet has examined all provided factors in the proposed framework inclusively. The deliverable outcome of this research will be a framework that provides a clearly structured roadmap for the stakeholders to use E-learning within the Saudi universities and it can be carried out in those developing countries especially, the Gulf Cooperation Council (GCC) countries due to they share the same factors such as culture, languages, religion, and education system. Centred on the university level, it is anticipated that the findings will enlighten stakeholders about the different uses of E-learning, and how these can be encouraged to develop learning and teaching at the university itself, and in the KSA higher education sector in general.

In future work, we plan to extend current research by investigating the influential factors on the effectiveness of E-learning usage in Saudi universities and its impact on student learning outcomes. In addition, this paper is part of a broader research project and the findings will be utilized as the basis of an in-depth survey which will be published in future research.

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