TECHNOLOGY ACCEPTANCE MODEL (TAM) AND E-LEARNING SYSTEM USE FOR EDUCATION SUSTAINABILITY

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ABSTRACT

In higher education around the world, e-learning is considered a necessary teaching and learning solution. Despite its value and success, there are quite a few questions about how to use it and how powerful it is. Universities are grappling with issues of e-learning use by students and even academic personnel in order to ensure the long-term viability of schooling. This research uses an updated TAM paradigm to look at students' adoption of e-learning in university, which includes seven constructs: computer self-efficacy, subjective norm, perceived enjoyment, perceived usefulness, perceived ease of use, attitude towards use, and behavioral intention to use e-learning system for education sustainability. As a result, the research methodology for this thesis was an expanded variant of the Technology Acceptance Model (TAM), and quantitative data collection and interpretation techniques were used to sample 174 university students who were selected by stratified random sampling. Student responses were sorted into eight research constructs and evaluated using structural equation modeling (SEM) to describe their plans to use an e-learning system for educational sustainability. Computer self-efficacy (CSE), subjective norm (SN), and perceived enjoyment (PE) were found to be major determinants of perceived ease of use (PEU) and perceived usefulness (PU). Students' intentions to use an e-learning system for educational sustainability were influenced by PEU, PU, and attitudes toward use. As a result, the frameworks were effective in demonstrating Saudi university students' plans to use an e-learning system for educational sustainability.

Keywords: E-Learning, Sustainability, Technology Acceptance Model (TAM), Structural Equation Modeling (SEM).

INTRODUCTION

Universities must keep up with students' expectations, preferences, and standards in today's higher education system, which is constantly changing. As a result, information technology and E-learning platforms are seen as critical components of universities' operations, with these organizations increasingly investing in multimedia systems and devices (Popovici & Mironov, 2015) However, in this technological age, one of the most significant problems facing universities is the integration of groundbreaking E-learning platforms to help and strengthen both teaching and learning (Fischer et al., 2014). Many concepts for the idea of E-learning system have been suggested due to its scope. E-learning, to put it simply, is the use of information and computing technology and programs to create and design learning environments (Horton, 2006). E-learning system, according to Ellaria Engelbrecht, is a term that uses interactive platforms such as the internet, CDs, cell phones, and even television to provide distance learning and teaching (Engelbrecht, 2005). In a summary, E-learning is the process of transmitting information and education through the use of different electronic devices (Koohang & Harman,

2005) and the term is best understood when placed in the light of technology being used to satisfy people's desire to learn and develop (Cohen & Nycz, 2006). E-learning system, according to a more nuanced and inclusive concept is a form of teaching and learning that incorporates electronic tools and mediums with the goal of fostering growth and improving education and training quality (Sangrà et al., 2011). E-learning system may also refer to a system for formal education or a network through which knowledge is disseminated to a wide audience through electronic media. Computers and the internet are the primary components that guarantee the smooth operation of those networks (Babu & Sridevi, 2018). E-learning system has many features that facilitate and foster the learning-teaching process by providing a broad variety of options for exchanging knowledge and downloading documents in various formats. Since it is a web-based framework, no extra resources are needed, and once the content is posted, users can access it at any time (Raheem & Khan, 2020). Given that the evolution and application of programs and technology favored the creation and extension of educational opportunities (Sarikhani et al., 2016), the use of E-learning system in higher education, as well as students' perceptions of its utility, became subjects of concern for many researchers. The Technology Acceptance Model (TAM), which has proven to be useful in assessing and comprehending how students expect to use E-learning system (Almarabeh, 2014), is important in exploring the use of E-learning system. Various multimedia tools are used in the E-learning system in higher education. Many terms, such as Computer-mediated learning (Anaraki, 2004), Web-based teaching, E-learning system, and Learning Management Systems (Costa et al., 2012), have been used to describe online learning over time. In the event of a pandemic, online learning is a viable option (Basilaia & Kvavadze, 2020; Taha et al., 2020). Since it can be accessed anywhere and at any time, online learning is very realistic (Silverman & Hoyos, 2018). Do not, however, believe that implementing online learning can solve all of the problems (Hung & Chou, 2015; Smart & Cappel, 2006). As a result, higher education institutions with little to no familiarity with e-learning or e-learning services face challenges, especially where lecturers are unfamiliar with how to use online applications (Zaharah et al., 2020). There are benefits and drawbacks of implementing online learning in higher education. The benefits of online learning include its flexibility and ability to be used extensively, while the disadvantages include the propensity for plagiarism, internet signal power, and devices that allow it (Arkorful & Abaidoo, 2015). As a result, e-learning system usage for educational sustainability among students is a starting point for assessing and then designing technology integration training to see to what degree they follow and are pleased with using accessible e-learning system is a starting point for assessing and then designing technology integration training. Also, as a result, the aim of this research is to look at students' attitudes toward using e-learning systems and their behavioral intentions to use them for educational sustainability. This research adds to the Technology Acceptance Model (TAM) literature by looking at the relationship between TAM variables and students' attitudes toward using e-learning systems and their behavioral plan to use them in the long run. As a result, the following seven variables were used in this study: computer self-efficacy, subjective norm, perceived enjoyment, perceived usefulness, perceived ease of use, attitude toward use, and behavioral desire to use an e-learning system for educational sustainability. This research could help researchers build and test hypotheses about e-learning systems for educational sustainability, as well as practitioners who design and promote e-learning systems for educational sustainability. The present study's second section covers model construction and hypotheses, the third section covers research methods, and the fourth section covers findings and interpretation, as well as debate and consequences. The final section of the report is the thesis, which discusses prospective research.

LITERATURE REVIEW

According to the TAM model, emerging technology adoption is determined by four factors: perceived ease of usage (PEOU), perceived utility (PU), attitude toward use (ATU), and behavioral purpose to use (BIU). To analyze the adoption and use of inventions, a variety of models have been used. The Technology Acceptance Model (TAM) is one of the most well-known methods for analyzing users' acceptance of innovations, and it has been used extensively in several studies (Binyamin et al., 2017; Alharbi & Drew, 2014; Binyamin et al., 2017; Mohammadi, 2015). The model has been quoted over 36,000 times, according to Google Scholar. Fred Davis introduced TAM in 1989 as a scientific paradigm focused on the principle of rational behavior (TRA) (Davis 1989). TAM discusses the interaction between consumers and devices in order to estimate the user's technology adoption (Holden & Rada, 2011). Most acceptance models have struggled to integrate psychological and technical frameworks into a single theory; however, TAM is one of the few hypotheses that will do (Holden & Rada, 2011), see Figure 1.

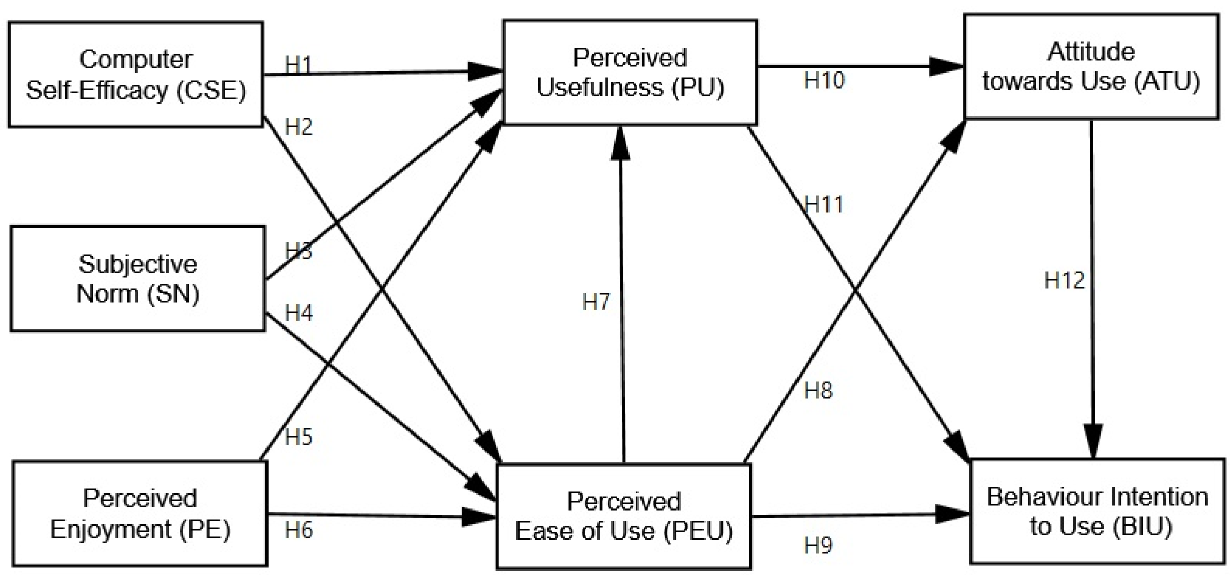

FIGURE 1
RESEARCH MODEL AND HYPOTHESES

Computer Self-Efficacy (CSE)

CSE is the first and most commonly used vector to extend TAM in the area of e-learning (Abdullah & Ward, 2016). Venkatesh and Davis proposed this element as a PEOU determinant in 1996 (Davis, 1989). CSE is a test that assesses a person's ability to use computer technology (Compeau & Higgins, 1995). As a result, whether a person believes he or she has a high potential to use computer technology, they are more likely to use it. CSE refers to the students' confidence in their abilities to use the e-learning system offered by their institution for the purposes of this report. CSE has been reported to impact students' PEOU and PU of e-learning systems based on

TAM in Saudi Arabia (Al-Mushasha, 2013). The TAM3 model (Venkatesh & Bala, 2008) and Venkatesh's model (Venkatesh, 2000). investigated the impact of CSE and hypothesized that CSE has an impact on PEOU. TAM3 (Al-Gahtani, 2016) was used to explain this hypothesis in Saudi Arabia.

Subjective Norm (SN)

SN is the second most commonly used vector to apply TAM in the field of e-learning (Abdullah & Ward, 2016). Scholars exchange the words *"external power"* and *"subjective norm"* (Tarhini et al., 2014). This dimension shows how much people believe others believe they can or should not engage in a specific action (Venkatesh & Davis, 2000). In this research, a student is more likely to use an e-learning system whether he or she believes that people who matter to him or her agree that he or she does. It is fair to assume that subjective norms influence technology use in developed countries (Baker et al., 2010). The impact of SN on TAM constructs in e-learning has been examined in the literature, with conflicting results (Tarhini et al., 2014).

Perceived Enjoyment (PE)

PE refers to how enjoyable an activity provided by an e-learning system is viewed, regardless of predicted output outcomes (Van der Heijden, 2004). This construct can be interpreted as a bi-perspective mode of pleasure derived from using an e-learning device with friends and assisting others (Hsu et al., 2009). The PE of students is characterized in this study as the degree to which they enjoy using the e-learning method.

Perceived Usefulness (PU)

The level of belief that using technology can increase one's work efficiency is referred to as PU (Davis, 1989). In this report, PU refers to the extent to which students perceive the use of an e-learning method to be beneficial to their learning. PU has been shown to affect attitudes toward technology and user intentions in recent research (Teo & Zhou, 2014; Al-Rahmi et al., 2018; Alamri et al., 2019 & 2020). Since PU has a direct effect on behaviors, it is believed that it would have an indirect effect on intention to use an e-learning scheme.

Perceived Ease of Use (PEU)

PEU is the degree to which a person believes that using an e-learning device is painless. According to Davis (1989); Venkatesh et al. (2003), when a technology is perceived to be simple to use, people are more inclined to cultivate a favorable outlook about it (Teo & Zhou, 2014). PEU refers to a student's belief that using an e-learning method is both simple and useful in this analysis. Though PU is concerned with the impact of technology on job efficiency, perceived ease is concerned with the impact of technology on performance processes (Davis, 1989).

Attitude towards Use (ATU)

ATU is affected by their classroom (Fabunmi et al., 2007) or their dedication to and recognition of their learning activities (Riaz et al., 2011), according to the literature. PEU and the TAM, according to Davis (1989), affect PU and, when combined, affect consumer approaches to e-learning system use. PEU and PU were considered key cues for interactive course identification in another study (Alalwan et al., 2019; Tan, 2019) PEU has an effect on learners' attitudes toward the BIU e-learning framework and their plans to use it. The BIU for e-learning system use in this study relates to the degree to which students believe that using an e-learning system enriches their learning, which increases their ATU e-learning system use.

Behavioral Intention to Use (BIU)

BIU is the probability that individuals will engage in the behavior in question is known as behavioral intention to use (BIU) (Al-Rahmi et al., 2019). According to Ajzen (1991), BIU is a clear antecedent of actual behavior, because the stronger an individual's purpose towards a certain behavior, the more likely such behavior will occur (Ajzen, 1991). A significant number of studies have been published that support the connection between BIU and user behavior (Davis, 1989; Al-Rahmi et al., 2019). The vast majority of research on technology adoption in the e-learning world has shown that behavioral intention has a strong positive impact on e-learning system utilization (Alshehri et al., 2019; Salloum & Shaalan, 2018)

METHODOLOGY

Many institutions have promoted the use of available e-learning systems for educational sustainability. As a result, through an observational investigation of students' adoption of e-learning system usage for education sustainability, this report aims to create a model of calculation of students' intention to use e-learning system for education sustainability. Undergraduate and postgraduate students who used an e-learning system for education sustainability made up the research group. For objects containing the TAM constructs and demographic features, a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used. Respondents were asked to provide input on e-learning system usage for education sustainability, its impact on students' attitudes toward use, and behavioral intention to use an e-learning system for education sustainability in the future using self-administration. To check the quality and efficiency of the calculation model, the data was evaluated using the Statistical Package for the Social Sciences (SPSS) and Partial Least Squares–Structural Equation Modeling (PLS-SEM) using Smart PLS 2.0. Factor loadings were used to ensure construct validity, composite reliability, Cronbach's alpha, and convergence validity for the model's goodness of fit, as recommended by Hair et al. (2012).

Instruments of Measurement

The build elements adopted from previous research confirmed the measurement scales' material validity. There were two sections of the sample questionnaire: Basic demographic data (gender, age, educational level, and specialization) and questionnaire items measuring machine self-efficacy and subjective norm were adapted from [28], as were items measuring perceived enjoyment, perceived usefulness, perceived ease of use, attitude toward use, and behavioral intention to use were adapted from Davis (1989); Al-Rahmi et al. (2019).

RESULTS

The Cronbach's alpha reliability coefficient was found to be 0.891, indicating that the variables that affected attitude toward usage and behavioral intention to use an e-learning system for education sustainability was reliable. Three criteria were used to assess discriminant validity:

According to Hair et al. (2012), variable indices must be less than 0.70, the Average Variance Extracted (AVE) of each construct must be equal to or greater than 0.5, and the AVE square root of each construct must be greater than the Inter-Construct Correlations (IC) for a factor. Aside from the above factors, build factor analysis results with factor loadings of 0.70 or greater (Cronbach's alpha 0.70 and composite reliability 0.70) is sufficient (Hair et al., 2012).

Construct Validity of Measurements

Build validity (Alamri et al., 2020) refers to the degree to which individual objects assess the definition for which they were created. This was measured using a systematic analysis of previously reviewed products in the literature. Table 1 lists the items and their loadings, which are required to load into the construct that they were designed to test (Chow & Teicher, 2012).

Table 1
LOADINGS AND CROSS-LOADINGS OF ITEMS

Factors	Items	ATU	BIU	CSE	PE	PEU	PU	SN
Attitude towards Use	ATU1	0.854489	0.585720	0.094517	0.356804	0.625866	0.621607	0.163071
	ATU2	0.868354	0.534915	0.093805	0.654040	0.417070	0.555444	0.129753
	ATU3	0.841266	0.468622	0.055914	0.602425	0.372779	0.508893	0.008887
	ATU4	0.823617	0.450444	0.066075	0.405158	0.416847	0.583883	0.013183
Behavioral Intention to Use	BIU1	0.452069	0.803486	0.217293	0.297294	0.443521	0.433156	0.296703
	BIU2	0.499467	0.849453	0.285775	0.340338	0.434555	0.577988	0.207029
	BIU3	0.519881	0.845686	0.158930	0.317575	0.587341	0.665157	0.172384
	BIU4	0.550362	0.843148	0.123046	0.320580	0.443348	0.509175	0.160918
Computer Self-Efficacy	CSE1	0.081468	0.230974	0.886301	0.033532	0.272345	0.268148	0.354914
	CSE2	0.044079	0.237678	0.816209	0.076791	0.260064	0.150673	0.494894
	CSE3	0.025947	0.110081	0.859065	0.015642	0.135133	0.238790	0.392306
Perceived Enjoyment	PE1	0.522873	0.385895	0.012291	0.889702	0.254769	0.379052	0.011363
	PE2	0.491143	0.321050	0.027522	0.897108	0.235417	0.345636	0.035830
	PE3	0.544539	0.294872	0.098668	0.856047	0.256969	0.273096	0.098971
Perceived Ease of Use	PEU1	0.542575	0.586688	0.299414	0.233823	0.974260	0.721889	0.262220
	PEU2	0.583842	0.448994	0.140555	0.397367	0.845558	0.749668	0.032480
	PEU3	0.408736	0.536209	0.207712	0.172353	0.830115	0.551454	0.273368
	PEU4	0.378149	0.462753	0.307134	0.168581	0.875392	0.607062	0.183905
Perceived Usefulness	PU1	0.660877	0.633345	0.241988	0.430695	0.696700	0.908846	0.142758
	PU2	0.548527	0.640864	0.233992	0.328033	0.630728	0.918926	0.071483
	PU3	0.631249	0.581858	0.144502	0.318810	0.667321	0.898084	0.101168
	PU4	0.568004	0.520083	0.317188	0.280788	0.701986	0.860687	0.095794
Subjective Norm	SN1	0.016100	0.047942	0.372317	0.035026	0.126771	0.071839	0.792699
	SN2	0.069134	0.312479	0.508708	0.076200	0.160443	0.064045	0.744956
	SN3	0.129045	0.212870	0.319398	0.065180	0.205653	0.130247	0.887879

Convergent Validity of Measurements

The factor loadings of 25 products were considered suitable because they were greater than 0.70, and their composite reliability was over 0.70, varying from 0.851215 - 0.942675. Cronbach's alpha coefficient values ranged from 0.742610 - 0.918775, indicating that the findings were adequate. In terms of AVE, the numbers ranged from 0.657220 - 0.804441. The results of the Confirmatory Factor Analysis (CFA) are mentioned in Hair et al. (2012), see Table 2.

Table 2
FACTORS LOADINGS AND CONFIRMATORY FACTOR ANALYSIS RESULTS

Factors	Items	Loadings	AVE	Composite Reliability	Cronbach's Alpha
Attitude towards Use	ATU1	0.854489	0.717566	0.910384	0.869083
	ATU2	0.868354			
	ATU3	0.841266			
	ATU4	0.823617			
Behavioral Intention to Use	BIU1	0.803486	0.698310	0.902478	0.856559
	BIU2	0.849453			
	BIU3	0.845686			
	BIU4	0.843148			
Computer Self-Efficacy	CSE1	0.886301	0.729907	0.890086	0.817270
	CSE2	0.816209			
	CSE3	0.859065			
Perceived Enjoyment	PE1	0.889702	0.776396	0.912375	0.856438
	PE2	0.897108			
	PE3	0.856047			
Perceived Ease of Use	PEU1	0.974260	0.779888	0.933842	0.904616
	PEU2	0.845558			
	PEU3	0.830115			
	PEU4	0.875392			
Perceived Usefulness	PU1	0.908846	0.804441	0.942675	0.918775
	PU2	0.918926			
	PU3	0.898084			
	PU4	0.860687			
Subjective Norm	SN1	0.792699	0.657220	0.851215	0.742610
	SN2	0.744956			
	SN3	0.887879			

Convergent Validity of Measurements

Differences between collections of definitions and their metrics are referred to as discriminant validity. The discriminant validity of all constructs was verified with values greater than 0.50 and meaningful at p=0.001, as required by Fornell & Larcker (1981). Table 3 shows that the AVE square root shared by objects in a single construct should be smaller than the correlations between items in the two constructs (Hair et al., 2012).

Table 3
DISCRIMINANT VALIDITY

Factors	ATU	BIU	CSE	PEU	PE	PU	SN
Attitude towards Use	0.943332						
Behavioral Intention to Use	0.606682	0.893733					
Computer Self-Efficacy	0.063295	0.232352	0.907733				
Perceived Ease of Use	0.550250	0.576726	0.268390	0.899878			
Perceived Enjoyment	0.588019	0.381989	0.048975	0.282202	0.908864		
Perceived Usefulness	0.673141	0.663488	0.260665	0.751991	0.381118	0.887646	
Subjective Norm	0.599258	0.244631	0.477303	0.209057	0.051850	0.115690	0.893332

The Structural Model's Analysis

Smart PLS 2.0 was used to test the analysis theories and investigate construct relationships. Figure 1 shows the hypothesis development, Figure 2 shows the path coefficient findings, and Figure 3 shows the path coefficient (T-Values) findings.

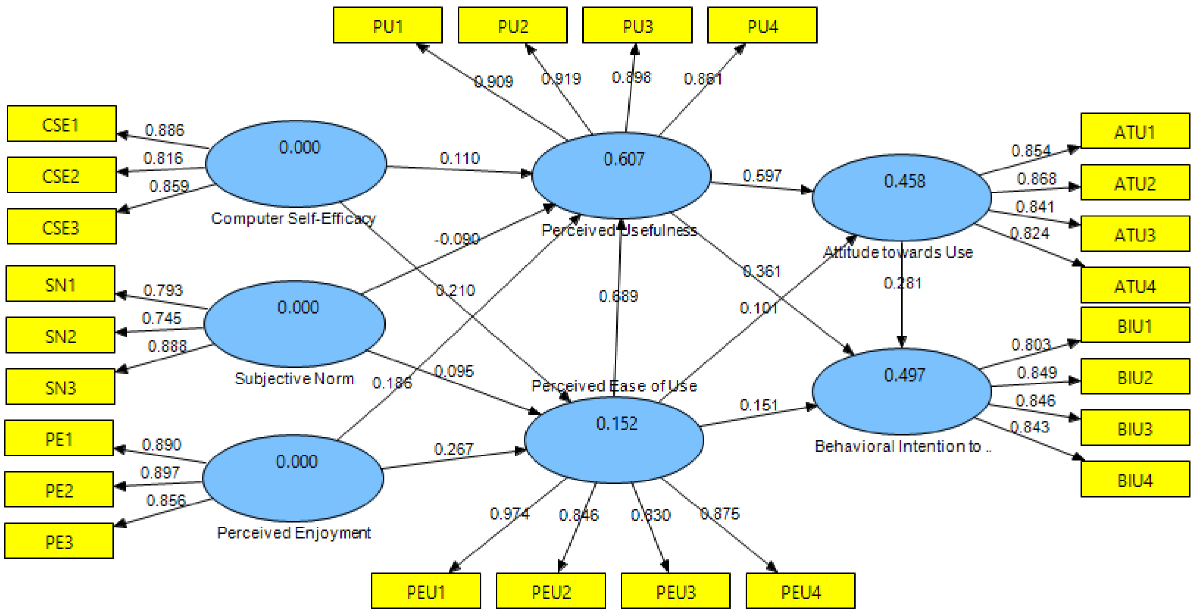

FIGURE 2
PATH COEFFICIENT RESULTS

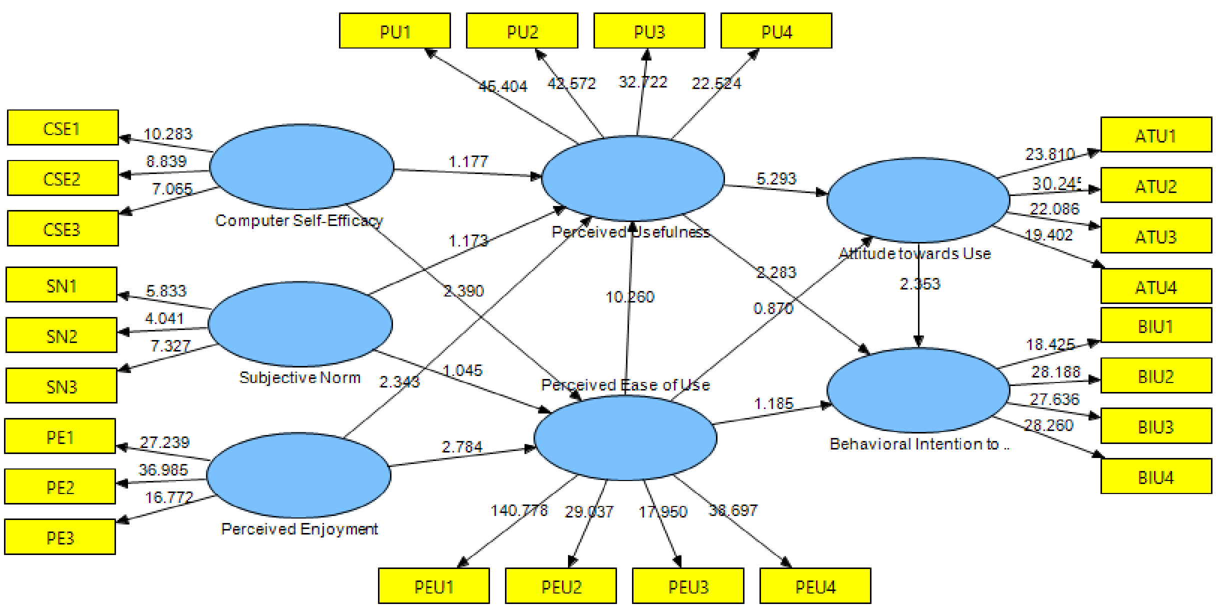

FIGURE 3
PATH T-VALUES

Table 4
HYPOTHESES TESTING

Path and Hypotheses	Path coefficient	Standard Error	T-values	Results
Computer Self-Efficacy -> Perceived Usefulness (H1)	0.109796	0.093312	1.176651	Accepted
Computer Self-Efficacy -> Perceived Ease of Use (H2)	0.209974	0.087853	2.390059	Accepted
Subjective Norm -> Perceived Usefulness (H3)	0.090385	0.077054	1.173009	Accepted
Subjective Norm -> Perceived Ease of Use (H4)	0.094992	0.090945	1.044504	Accepted
Perceived Enjoyment -> Perceived Usefulness (H5)	0.186011	0.079376	2.343403	Accepted
Perceived Enjoyment -> Perceived Ease of Use (H6)	0.266993	0.095909	2.783814	Accepted
Perceived Ease of Use -> Perceived Usefulness (H7)	0.688926	0.067146	10.260074	Accepted
Perceived Ease of Use -> Attitude towards Use (H8)	0.101388	0.116581	0.869676	Accepted
Perceived Ease of Use -> Behavioral Intention to Use (H9)	0.150581	0.127091	1.184832	Accepted
Perceived Usefulness -> Attitude towards Use (H10)	0.596898	0.112771	5.293028	Accepted
Perceived Usefulness -> Behavioral Intention to Use (H11)	0.361404	0.158268	2.283493	Accepted
Attitude towards Use -> Behavioral Intention to Use (H12)	0.280549	0.119217	2.353268	Accepted

Table 4, the relationship between Computer Self-Efficacy -> Perceived Usefulness (H1) (β = 0.109796, T= 1.176651, p <0.001), thus, hypothesis 1 was accepted. Next hypothesis 1 the relationship between Computer Self-Efficacy -> Perceived Ease of Use (H2) (β = 0.209974, T= 2.390059, p <0.001) thus, hypothesis was accepted. The hypothesis 3 the relationship between Subjective Norm -> Perceived Usefulness (H3) (β = 0.090385, T= 1.173009, p <0.001), thus, hypothesis was accepted. Also, the relationship between Subjective Norm -> Perceived Ease of Use (H4) (β = 0.094992, T= 1.044504, p <0.001), thus, hypothesis was accepted. Next hypothesis 5 the relationship between Perceived Enjoyment -> Perceived Usefulness (H5) (β = 0.186011, T= 2.343403, p <0.001), thus, hypothesis was accepted. Similarly, the relationship between Perceived Enjoyment -> Perceived Ease of Use (H6) (β = 0.266993, T= 2.783814, p <0.001), thus, hypothesis was accepted. The relationship between Perceived Ease of Use -> Perceived Usefulness (H7) (β = 0.688926, T= 10.260074, p <0.001), thus, hypothesis was accepted. And the relationship between Perceived Ease of Use -> Attitude towards Use (H8) (β = 0.101388, T= 0.869676, p <0.001), thus, hypothesis was accepted. Also, the relationship between Perceived Ease of Use -> Behavioral Intention to Use (H9) (β = 0.150581, T= 1.184832, p <0.001), thus, hypothesis was accepted. Additionally, relationship between Perceived Usefulness -> Attitude towards Use (H10) (β = 0.596898, T= 5.293028, p <0.001), thus, hypothesis was accepted. Similarly, the relationship between Perceived Usefulness -> Behavioral Intention to Use (H11) (β = 0.361404, T= 2.283493, p <0.001), thus, hypothesis was accepted. Finally, the relationship between Attitude towards Use -> Behavioral Intention to Use (H12) (β = 0.280549, T= 2.353268, p <0.001), thus, hypothesis was accepted.

DISCUSSION

Based on a survey and study of e-learning studies, the researcher created a systematic model. Studies that used TAM to look at the influence of seven variables, including computer self-efficacy, subjective norm, perceived enjoyment, perceived usefulness, perceived ease of use, attitude toward use, and behavioral intention to use an e-learning system for education sustainability. Many scholars have performed studies on the use and implementation of e-learning programs (Almaiah et al., 2016, 2018 & 2019). However, observational studies focusing exclusively on Saudi Arabia were scarce (Almaiah et al., 2017 & 2019a). While the majority of Saudi Arabian universities effectively adopted the e-learning scheme, the percentage of teachers and students who used it was low (Selim, 2007). This inspired the current research, which aimed to fill a gap in the literature on the use of e-learning systems for long-term educational sustainability. This was undertaken in order to figure out what aspects influenced students' decision to use the university's e-learning scheme. The results of this study will be addressed in this section, and professionals, scholars, and educators will gain valuable insight into the reasons that improve the use of e-learning programs in universities for educational sustainability. The results about model characteristics specifically showed that e-learning system authors, programmers, and purchasers use for educational sustainability. Sustainability of online learning in higher education and task-technology-fit (TTF) and compatibility on students' satisfaction and success have an effect on its use in higher education (Almaiah et al., 2015a). As a result, consumer expectations and principles should be considered to ensure that the device addresses student needs. This perceived fit between system features and student needs has the potential to improve e-learning system use and education sustainability. According to Almaiah et al. (2015b & 2019b, all of the hypotheses were endorsed and positively linked to educational sustainability, confirming important links between online learning and student interactivity and utility. Indirectly, considerations such as machine self-efficacy, subjective standard, and presumed satisfaction influence students' behavioral intention to use an e-learning system for education sustainability. In terms of the study's implications, it reinforces the well-known importance of belief structures in e-learning system usage for education sustainability in Saudi Higher education, as measured by perceived usefulness, perceived ease of use, and attitude toward using e-learning systems for education sustainability. The results also revealed the role of faculty in explaining how students should use e-learning systems for education sustainability to learn course material, as attitude toward e-learning systems for education sustainability improves behavioral intention to use one.

CONCLUSION

This study contributes to the body of knowledge about the use and implementation of e-learning systems. The factors that influence students' actual use of e-learning systems in Saudi Arabia were identified using an adapted TAM model. To begin, the findings demonstrate a connection between the TAM model and the use of an e-learning system for educational sustainability. Second, the findings show that perceived utility and perceived ease of use both add to the decision to use e-learning platforms for education sustainability, according to the TAM model constructs. Finally, this indicates that machine self-efficacy, subjective norm, and perceived enjoyment affect perceived usefulness, perceived ease of use, and attitude toward use, as well as behavioral intention to use an e-learning system for educational sustainability. As major determinants of e-learning environment for educational sustainability, this research used eight novel TAM model characteristics. However, mixed findings in the literature suggest that the association between machine self-efficacy, subjective standard, and perceived pleasure and TAM model variables should be investigated further. In light of the study design's limitations and the quantitative methodology selected, subsequent experiments might use interview methods to address these concerns. Furthermore, prospective scholars should investigate these areas by using this model and cross-validate them across cultures by including cultural aspects.

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