Factors Affecting Students' Continuance Intention Toward the Use of the E-learning Platforms: An Integrated Model

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Abstract— In recent years, the use of E-learning platforms has become increasingly popular. Universities worldwide are embracing various E-learning platforms with various features to gain students' Satisfaction and their continued intent to use E-learning platforms. In developing nations, continuously attracting and motivating students to use E-learning platforms is still challenging. Many students drop out of E-Learning platform courses, indicating their reluctance to continue using the platform over the long term. Therefore, this study aims to investigate the primary variables that impact students' intention to continue using the E-Learning platform in developing nations. This study employs the Expectation Confirmation Model (ECM) combined with four variables: interactivity, social influences, computer self-efficacy, and perceived enjoyment. Online Google forms were sent to college students to collect. Smart-Pls 4 software is used to analyze the data. Due to its findings, this study provided a conceptual model for the continuous use of E-learning platforms in developing nations. Perceived enjoyment, Satisfaction, interactivity, computer self-efficacy, and social influences have the probability to affect continuous intention. The study indicates that the suggested factors have high reliability scores which may offer good opportunities for using these factors in future studies.

Keywords— Continuous Intention, E-Learning Platforms, Perceived Enjoyment, Interactivity.

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1. Introduction

In recent years, the trend towards using the E-learning platform has been increasing significantly with the spread of the COVID-19 pandemic around the world, which forces all educational institutes to close their doors. To combat this education crisis, various E-learning, such as Moodle, Google Classroom, Blackboard Learn, and MOOC platforms, have been developed and implemented as a recovery method for the complete shutdown of education facilities (Badaru, 2022). Moreover, ensuring the efficacy of the E-learning platform necessitates finding solutions to obstacles and predicting the user's intention to use the system in the future. Especially given that research indicates that attendance at E-learning platform lectures is low and fewer students intend to continue using E-learning platforms (Tawafak et al., 2020; Chen, 2021). Various

researchers indicated that the dropout percentage for E-Learning is increasing highly compared to traditional learning (Littenberg, 2020; Joshi et al., 2020; Mubarak et al., 2022). Different factors affect students' decision to continue using E-Learning platforms in sustainability. The researcher in (Luis et al., 2022) asserts that approximately 21% of students are willing to stop using E-Learning platforms, 47% drop out due to a lack of motivation, and 25% need more self-confidence to handle E-Learning platform courses. According to a different study, around 30 % of the surveyed students believe that a lack of interest and interaction are the primary factors discouraging students from using E-Learning platforms (Hussein et al., 2021). As we all know, learning is a continual process; therefore, learners must be more motivated to continue their studies despite these new challenges (Guo et al., 2022). Moreover, to ensure the continuity of the learning process and the success of their system, which is intended to attract students, academics and decision-makers must investigate students' continued intent to use the E-Learning platform. In addition, identifying the factors that influence users' intention to continue utilizing E-learning platforms will enable decision-makers to comprehend the factors that inhibit users' willingness to continue utilizing E-learning platforms and encourage them to develop solutions to address these obstacles.

Therefore, this study aims to investigate the elements that influence users' perceptions of their intention to continue using the E-learning platform by integrating a conceptual model. The study focuses primarily on continuous intention because it is a primary measure of user satisfaction and forecasts the user's propensity to use the E-learning platform.

2. Literature Review

In recent years, investigating users' continuous intention to use an e-learning platform has received significant attention, as it accurately predicts the platform's success or failure (Ansong et al., 2020; Hu et al., 2020). Various theories and models for examining users' continuous intentions have previously been applied to study users' acceptance (Ding et al., 2019; Rabaa'I et al., 2021). Different influences may alter users' perceptions in the future, so the initial acceptance stage cannot guarantee the individual's opinion for the long term (Huang et al., 2019). Moreover, users will be more attracted to the E-learning platform if it confirms their expectations and meets their needs (Dai et al., 2020). Therefore,

investigating users' post-adoption phase determinations necessitates research direction as the determination of the acceptance phase differs from the determination of the post-adoption phase (Foroughi et al., 2020; Sayyah et al., 2017). The expectation Confirmation Model (ECM) is widely utilized for studying continuous intention in the IS (Singh et al. 2020; Wang et al., 2021; Prasetya et al., 2021; Cheng et al., 2020). According to ECM theory, user satisfaction is crucial in determining their future intentions (Gu et al., 2021). Consequently, this study employs the ECM model in conjunction with additional factors to investigate users' continuous intentions and examine the impact of these factors on students' future intentions to continue using the E-Learning platform.

2.1 Expectation Confirmation Model (ECM):

The Expectation Confirmation Model is a widely applied theory for identifying whether a user will continue to use an information system, as opposed to simply whether he is satisfied with it (Bhattacherjee, 2001). It has been proven that ECM is effective in post-consumption research, as evidenced by the concept of perceived usefulness, which is believed to be a more influential factor of the theory (Overby, 2012; Park, 2020). The ECM model was created as an extended version of the TAM model by adding two additional elements, satisfaction and confirmation (Venkatesh et al., 2000). In addition, the ECM model includes four primary constructs: confirmation, satisfaction, perceived usefulness, and confirmation (Bhattacherjee, 2001). The theory suggests that user satisfaction is determined by the confirmation of expectations and perceived usefulness and that user satisfaction is the primary factor that motivates users to continue using an information system (Rajeh et al., 2021). Figure 1 depicts the ECM model and its constituent components.
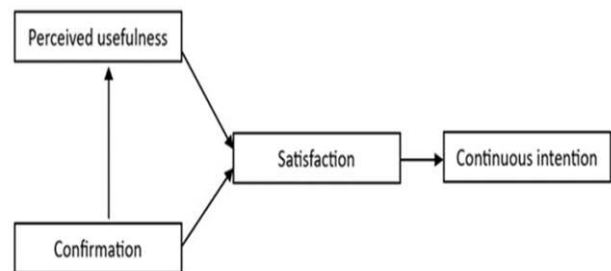

Fig. 1 : Expectation Confirmation Model (Bhattacherjee, 2001)

2.2 continuous intention:

The user's continuous intent is essential in determining the system's favorability. According to (Muqtadiroh et al., 2019), the high level of continuous intention to use the system is indicative of the system's actual usage and popularity. Therefore, looking into students' long-term intentions toward online learning is critical to encourage more students. Several studies examined users' continued intentions regarding the E-learning platform. Moreover, the ECM model investigates the users' continuous intention to use E-Learning as ECM is more related to the post-adoption stage (Singh et al. 2020; Nikou et al., 2021). Several studies investigating continuous intention suggest an extended model that combines TAM and TTF to examine the factors that affect users' intention for online learning apps (Tawafak et al., 2020; Kasula et al. 2020). The researchers in (Al-Emran et al., 2020) investigated the factors that affect the continuous intention of students in the UAE to use distance learning. The researcher in (Clary et al., 2022) suggested a model that merges Social cognitive theory and social cognitive career theory to investigate college students' continuous intention. Additionally, the researchers (Al-Adwan et al., 2022) proposed an enhanced version of the UTAUT model by incorporating Learning Management System-related components (LMS) (Venkatesh, 2003).

Other scholars explore students' continuous intention by adding factors to the ECM model to investigate more factors that affect continuous intention or to meet the requirements of the targeted domain or area of study (W. Wang et al., 2021; Prasetya et al.,2021). The researcher in [20] Investigates the effect of the quality factors (information quality, system quality and service quality) on continuous intention to utilize the MOOCs (massive open online courses) in E-Learning by extending the ECM model with quality factors (Prasetya et al.,2021). The researcher in (Shanshan et al., 2022) uses the ECM model, TTF and flow theory with two additional quality factors teaching-based quality and platform-based quality. The study of (Ashrafi et al., 2022) Examines the factors that affect students' continuous intention to use LMS (Learning Management System) by integrating the ECM model with the TAM model and using two additional factors subjective norms and hedonic value. Adding to that, another study (Yang et al., 2022) examines the learning performance of MOOCs in Chinese universities.

Moreover, the researcher used ECM, IS Success model with Gamification concepts to develop their model. Multiple research efforts are conducted to examine the most influential factors influencing users' continuous intention to use E-Learning platforms. However, few studies have been conducted in the context of developing countries. The researcher in (Rabaa'i et al., 2021) examined the factors that affect the user's continuous intention toward using Moodle platform in Kuwait, in which the researcher extended the ECM model with additional factors to investigate the post-adoption phase figure (2).
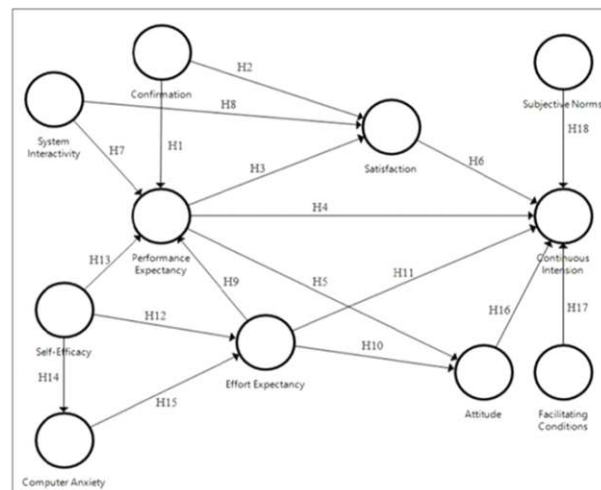

Fig. 2 : Continuous intention model for Moodle (Rabaa'i et al., 2021).

Examining the model proposed by (Rabaa'i et al., 2021) reveals that the researcher expanded the ECM model by adding factors such as social norms, facilitated conditions, computer anxiety, Attitude, computer-self efficacy, effort expectancy, and system interactivity. In addition, the researcher used system interactivity as an essential factor that affects users continuously in the interaction context from a communication perspective, ignoring synchronization and active control as three dimensions of interactivity (Faisal et al., 2020); (Manou et al., 2021). In addition, researchers emphasize the relationship between interactivity and continuous intention (Pozón et al., 2021; Faisal et al., 2020; Ghazawi et al., 2021; Manou et al., 2021; Guo et al., 2022; Shao et al., 2021), which Rabaa'i's research does not investigate. The study demonstrates that computer self-efficacy influences perceived usefulness, computer anxiety, and effort expectations. Computer self-efficacy will improve students' university performance and motivate them to continuously intention for using E-learning platforms. Other researchers, however, have examined the relationship between computer-self efficacy and

continuous intention and found a significant direct effect (Bai et al., 2021; Wang et al., 2019). Therefore, greater emphasis should be placed on the role of computer self-efficacy in the continued use of E-Learning platforms (Almahamid et al., 2011). In addition, (Rabaa'i et al., 2021) employs ease of use (effort expectancy) and Attitude as two factors affecting the post-adoption phase, whereas (Bhattacherjee, 2001) believes that these two TAM model constructs are more closely related to the pre-acceptance phase. In addition, (Davis et al., 1989; (Bhattacherjee, 2001) suggest that ease of use affects the initial phase but none on the later phase. Additionally, an individual's Attitude may be dubious or unrealistic, whereas satisfaction focuses on the individual's experience with IS. (Bhattacherjee, 2001). The study results indicate that social norms have no relationship with continuous intention. Other researchers, however, demonstrate that social norms influence continuous intention (Al-Okaily et al., 2020; Chandradasa et al., 2021; Sabah, 2020; Hossain et al., 2021; Ibrahim et al., 2018; Al-Emran et al., 2020). After the pandemic, a complete shift to E-learning necessitates a heightened focus on this relationship, particularly considering the shift to E-learning in its entirety.

Examining the model proposed by Rabaa'i, it is necessary to modify the ECM model to apply to the study context. In addition, the research was conducted at a single private international university in Kuwait, which represents Western culture. Therefore, it cannot be generalized or used to represent the views of other public institutions in developing countries (Rabaa'i et al., 2021). Moreover, perceived enjoyment and interactivity factors can influence users' intent to continue using E-Learning platforms in developing countries (Liu and Wang, 2022; Al-Maroof & Salloum, 2021; Cheng, 2020; Wu and Shang, 2019).

Based on the reviewed literature, it is apparent that students' confidence in dealing with technology, the effects of social influences, interactivity, and Enjoyment toward the continuing intention to use E-learning platform has received little consideration. Regarding this constraint, this study proposes an integrated model that uses ECM with four factors to predict students' continuous intention to use E- the learning platform. This combination will examine the influence of Enjoyment, social influence, computer self-efficacy and interactivity on students' intention to continue utilizing E-learning platforms in developing countries.

1) Interactivity

Interactivity is "the extent to which users can influence the form and content of the mediated environment in real time" (Steure, 1995). Interactivity is "the interactions between instructors and learners and the collaboration in learning that results from these interactions" (Pituch et al., 2006). Experts believe that interactivity is a crucial element of the E-learning process because it enables learners to discover the materials, engage in dialogue with other entities, and acquire new skills (Bashir et al., 2019). Moreover, (Faisal et al., 2020) assert that interactivity is a "multi-dimensional" concept that considers three attributes: active control, synchronicity, and two-way communication. Consequently, these three aspects evaluate interactivity because they improve the learning process, the management of information on the platform, and the facilitation of bidirectional communication, all of which are more strongly linked with technological attributes (Manou et al., 2021). Evidence suggests that interactivity with the E-Learning platform can increase users' long-term commitment (Ghazawi et al., 2021; Manou et al., 2021; (Faisal et al., 2020). According to the researcher in (Bashir et al., 2019) , interactivity is associated positively with a continued intent to use the E-Learning platform.

2) Perceived Enjoyment

Enjoyment refers to "the extent to which the activity of using a specific technology is perceived to be enjoyable, aside from any performance consequences resulting from technology use" (Venkatesh, 2003). Moreover, if the user believes using the E-learning platform is pleasant, then the user is highly motivated to use that system in the future (Tawafak et al., 2021; Liu et al., 2020). Besides that, when users perceive using technology as a pleasurable experience, it encourages their adoption of that technology (Tawafak, 2021). In addition, the researchers (Wu et al., 2019; Ashrafi et al., 2022) indicated that to guarantee the users' continuity intention towards using the E-learning platform, the education system should consider incorporating enjoyment with the technology to motivate more students to use it. Prior research highlighted that Perceived enjoyment has a significant influence on Satisfaction and continuous Intention (Winarno et al., 2020; Muqtadiroh et al., 2019).

3) Social Influences

Represent the influence of the surrounding people or groups on the person's belief, which can reflect the group decision or attitude toward doing a particular job (Chandradasa et al., 2021). The effects of social influence on the users may influence their perception of continuous intention toward using the E-learning platform (Mussa et al., 2020). Therefore, it is important to focus on that factor as it is important to influence user future decision about continues intention to use the platform. According to (Al-Okaily et al., 2020; Chen, 2021). social influence is playing a leading role in motivating more users to continuous use of the E-Learning platform, which proves the importance of considering that factor in this study. Apart from that, the researcher in (Saeed et al., 2020) suggested that more attention should be given to the effect of family members, friends, and social media as they believed to have a major influence on students continues intention and their attitude.

4) Computer Self-Efficacy (CSE)

According to Compeau et al. (1995) computer self-efficacy can be identified as "people's beliefs about their ability to use computers to solve problems and handle situations." Also, when users have a high CSE toward the system, it will be easy for them to use, and they may be able to take advantage of all the system features, which will help them do better academically and make them more likely to keep using the system (Hossain et al., 2021) .Also, different studies have shown that CSE may affect users' continuous intention to keep using technology (Kuadey et al.,2023; Almahamid et al., 2011). Researchers in (Daneji et al., 2019; Al-Adwan et al., 2022) suggested that CSE is one factor that has a significant effect on the intention to continue using the system.

3. Methodology

Most researchers use research methodology to guide achieving their objectives along a predetermined path. In this study, the methodology is chosen based on various criteria, the most examined method and dependable via the literature studies that support it. The research methodology in this study consists of several phases, each introducing beneficial outcomes and guidelines for the subsequent phase. Starting from data collection and analysis process, targeted sample and size, developing instrument, measurements and pre-test, validation of the instrument and finally conducting the pilot study.

A. Data collection and analysis

Using Google forms, data for this study were collected through the distribution of questionnaires in Malaysia, and Iraq. The researcher in (Al-Emran et al., 2020) claimed that questionnaire surveys had been the predominant tool for analyzing the relationship between model constructs when investigating the adoption and acceptance of technology. The study was limited to a population using E-Learning platforms in their education platforms to reflect their perceptions of their interactions with the platform accurately. Furthermore, purposive sampling is a non-probability sampling method appropriate when a filter is required to select the sampling based on the researcher's experience and knowledge (Denieffe, 2020). Moreover, the researcher in (Sibonaet al., 2020) argues that purposive sampling effectively selects the appropriate sample using judgement and quota sampling based on specific principles. Google online forms are created to be filled by the participant students in different universities who used E-learning platforms in their education process. In addition, the survey questionaries were published online to the students in January 2023 to collect data from students at both undergraduate and graduate levels. The survey includes information about respondents, their experience with the platform, E-learning platform uses and the number of hours they spent learning to ensure the validity of the data obtained through the questionnaires. This study collects data from the intended population through "Purposive Sampling."

Moreover, to analyze the collected data, the Smart-Pls software (version 4) is used to assess the measurement and structural model. Smart-PLS is the most reliable and consistent software for data analysis in scientific research (Henseler, 2017). Moreover, according to (Sarstedt et al., 2019; Hair et al., 2022) Smart-Pls software is the most used software in relevant disciplines.

B. Targeted sample and size

The cohort population comprises college students (undergraduate and graduate) utilizing E-Learning platforms for their educational endeavors. Respondents are eligible if they employ E-learning platforms in their educational endeavors. The scope of
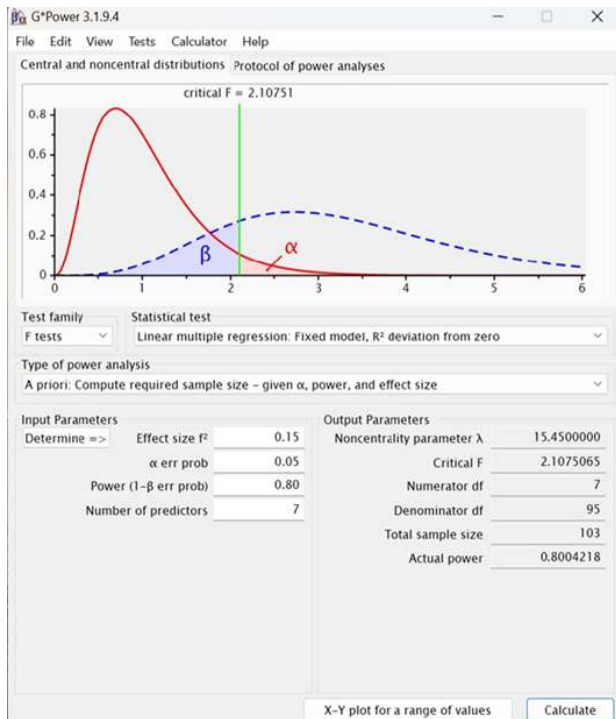
Fig. 3 : G* power sample calculation

this pilot investigation includes students from Iraq and Malaysia. The researcher in (Hair et al. 2014) states that PLS-SEM and all statistical approaches require sample sizes based on the model's properties (largest number of predictors). Because the results depend on selecting the appropriate sample size, the G*Power software is employed to find the adequate sample size based on the independent constructs (Faul et al., 2007). The researcher in (Dattalo, 2008) asserts the following settings for the Programme (alpha a=0.05, beta ß= 0.80, and effect size = 0.15) with seven predictor items; the mini-mum number of respondents is 103 (Figure 3).

According to (Johanson et al. 2010) the sample size for the primary study of the primary questioners consists of 24 and 36 participants. In contrast, some experts believe that the 10% sample size of the primary survey is sufficient for a pilot study (Hertzog, 2007). This study will analyze the thirty-six participants in the pilot study's sample size. Reliability and validity tests are vital to evaluate the pilot study to ensure the research's quality and analyze the instrument's efficacy (Malmqvist et al., 2019). The pilot study is an integral aspect of the research design (In, 2017). The reliability and validity measurements are conducted according to the standards of the recommendations (J. Hair & Alamer, 2022).

C. Instrument

We developed a close-ended questionnaire to investigate users' continuous intention toward using the E-learning platform in the education system. The survey consists of three parts using 5 Likert scales to answer, and the five Likert scale ranges start from (strongly agree to strongly disagree). The first part is demographic information about participants' gender, age, and education level. The second part is an open question to check users' familiarity with online education and their perceptions about using distance learning. In addition, open questionaries include questions to check students' perceptions about their experience and satisfaction in learning with the E-Learning platform. The final part includes questions adapted from prior research that has been approved in previous studies, and these questionaries are modified to be compatible with our research. In addition, eight constructs and thirty-eight items are considered in the questionnaires to assess the student's intent to utilize the E-learning platform continuously.

D. Measurement and pre-Test

The model comprises eight constructs, and thirty-six items examine their relationship. Previous researchers utilized items with minor wording adjustments to fit our study. In addition, five items for social influence constructs are selected from the works of (Ajzen and Fishbein, 1980; Shao et al., 2021). According to the research (Tawafak et al.,2021; Venkatesh et al., 2000) five perceived usefulness items are considered [23]. Items derived from (Ashrafi et al., 2022) serve as confirmation measurements. Moreover, satisfaction measurements were employed based on research (Alzahrani & Seth, 2021; Rajeh et al., 2021; Cheng, 2020a). Five items derived from (Choi et al., 2021; Cheng, 2020) are employed to assess the perceived enjoyment construct. Based on the research of (Sabah, 2020) four items to measure computer self-efficacy. Nine items from the research of (Faisal et al., 2020; Shao and Chen, 2020) are used to measure interactivity. Strongly agree (5), agree (4), neutral (3), disagree (2), and strongly disagree (1) comprise the Likert scale used to measure the respondent's agreement with the suggested statement.

E. Validating of the instrument

An instrument's content and face validity are evaluated to assure validity and reduce measurement

error. To ensure the validity of the survey before distribution, experts in information system and E-learning was invited to review the survey items' relevance to the E-learning platform context, as well as their convenience and clarity concerning the research topic. Content validity is used to evaluate an instrument to endorse items pertinent to the research domain and eliminate items irrelevant to the research domain (Taherdoost, 2018). Face validity can verify whether the proposed questions are well-planned, have a high level of clarity, and are of an appropriate length (Daud et al., 2021). After receiving the feedback and recommendations of the experts, the survey was modified slightly, and the next phase was prepared.

F. Pilot study

The second phase required conducting a pilot study before distributing the primary survey and collecting data. A pilot study is being conducted to identify any failures or inaccurate results that may have occurred while using the initial instrument to test its validity and reliability (Kasunic,2005). Pilot studies are performed to avoid costly, time-consuming, and resource-intensive errors; in other words, they prevent researchers from beginning a large-scale investigation without adequate information on the proposed approach (Polit & Beck, 2017). A group of respondents is selected to review the questionnaires for completeness, relevance, and clarity, and to make any necessary modifications to prevent future errors in the primary survey, the questionnaires are walked through by this group (Ismail et al., 2018). The pilot study is the first stage of the "research protocol", in which a small sample of respondents are surveyed to determine the structure of

Table 1:
Validation And Reliability
Assessment Procedure For The Pilot Study.

Assessment	Measurement type	Criteria	References
Pilot study reliability assessment	Cronbach's Alpha	≥0.6 accepted ≥0.7 sufficiently good	
	Composite Reliability	≥0.6 accepted	[81]
Pilot study validity assessment	Average Variance Extracted (AVE)	≥0.5 accepted	
	Heterotrait-monotrait (HTMT)	All items must be no higher than 0.85 to be accepted	

Table 2 :
Cronbach's Alpha Measurements For Pilot Study.

Variable	Code	No. of items	Cronbach's alpha results	Composite reliability (rho_a)
Continuous intention	Ci	4	0.925	0.928
Confirmation	CONF	5	0.787	0.834
Computer Self - Efficacy	CSE	4	0.793	0.804
Interactivity	INT	8	0.837	0.874
Perceived Enjoyment	PENJ	5	0.926	0.931
Perceive Usefulness	PU	4	0.926	0.929
Satisfaction	SA	3	0.859	0.867
Social influence	Si	5	0.799	0.829

the main survey (In, 2017). Table 1 illustrates the assessments of the pilot study.

Cronbach's Alpha (CA) and composite reliability are used to assess reliability, and all items should have a Cronbach's Alpha of 0.6 and a score ≥0.6 for composite reliability, as is typical for Smart-PLS analysis software [91]. Table 2 depicts Cronbach's Alpha and composite reliability analysis results of the study's items.

To assess the validity of the suggested variables in the study, there are two parts of assessments: discriminate and convergent validity (J. F. Hair et al., 2017). Average Variance Extracted (AVE) measurement is used to validate convergent validity, and each item's criterion must be greater than or equal to 0.5. (Hair et al., 2014). While for discriminate validity 'Heterotrait-Monotrait Ratio' (HTMT) is used to determine whether one construct is conceptually distinct from others used in the study (J. Hair & Alamer, 2022).

For the convergent validity (INT1) scored less than 0.5 on the AVE assessment's preliminary round, which is unacceptable. Researchers in (Sarstedt et al., 2020; Hair et al., 2014) assert that if an item's outcome is less than 0.5, the item should be eliminated, thereby enhancing the construct's validity. Therefore, the item (INT1) with a score of (0.458), which is below the minimum permissible value of (0.50), has been removed, resulting in an increase of the construct's score to (0.557) As suggested by (Sarstedt et al., 2020). Table 3 depicts the second round of evaluation following the elimination of items with a score below 0.5.

Table 3 :
Validity Measurement (ave) For Pilot Study.

Variable	Code	No. of items	Average variance extracted (AVE)
Continuous intention	Ci	4	0.818
Confirmation	CONF	5	0.527
Computer Self-Efficacy	CSE	4	0.505
Interactivity	INT	8	0.577
Perceived Enjoyment	PENJ	5	0.772
Perceive Usefulness	PU	4	0.818
Satisfaction	SA	3	0.780
Social influence	Si	5	0.557

The 'Heterotrait-Monotrait Ratio' (HTMT) is used to determine the discriminate validity of the pilot study's validity. The suggested range provided by (Henseler, 2017) has a cutoff of 0.9, indicating that no value exceeds 0.90; therefore, validity between two constructs exists when all values fall below 0.90. As shown in the table below (Table 4), after performing the HTMT assessment using the Smart-PLS software, some items scored higher than the prescribed cutoff score.

Table 4 :
Heterotrait-monotrait Ratio (htmt)
For Pilot Study 1st Round.

	CI	CONF	CSE	INT	PENJ	PU	SA	SI
CONF	0.693							
CSE	0.845	0.786						
INT	0.534	0.6	0.689					
PENJ	0.527	0.651	0.692	0.469				
PU	0.719	0.707	0.92	0.431	0.734			
SA	0.967	0.778	0.952	0.564	0.695	0.894		
SI	0.805	0.697	0.806	0.401	0.601	0.854	0.741	

According to (Sarstedt et al., 2020; J. F. Hair et al. 2014), by removing the items that exceed the threshold value (PU4, Config 5 and SA1) displayed in Table 4, the second phase of HTMT analysis is conducted after the elimination of the items; it presents values that are suitable for the system and satisfies the suggested requirements (Table 5).

Table 5 :
Heterotrait-monotrait Ratio (htmt)
For Pilot Study 2nd Round.

	CI	CONF	CSE	INT	PENJ	PU	SA	SI
CI								
CONF	0.693							
CSE	0.845	0.786						
INT	0.534	0.6	0.689					
PENJ	0.527	0.651	0.692	0.469				
PU	0.659	0.707	0.871	0.408	0.728			
SA	0.899	0.714	0.88	0.488	0.658	0.704		
SI	0.805	0.697	0.806	0.401	0.601	0.846	0.636	

4. Conceptual Model And Hypotheses

The integrated research model was constructed based on the theory of ECM with four additional constructs social influences, interactivity, computer self-efficacy and perceived enjoyment. This study considers eight variables and sixteen hypotheses to identify the factors influencing students 'continued intention and enjoyment of using the E-learning platform. Model constructs and hypotheses are present in Figure 4.
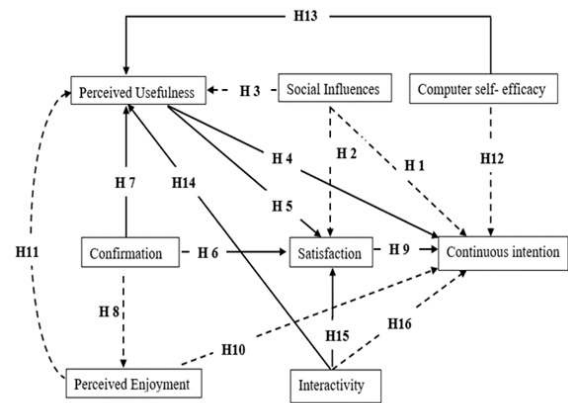

Fig. 4 : Suggested Research Model For
Investigation Of Continuous Intention.

5. Hypotheses Development

Investigating the effect of the social influence on the users' perception toward the continuous use of E-learning platforms, reveal that there is a notable influence of encircling people or groups on a person's beliefs, which may reflect the group's decision or attitude towards performing a specific task (Chandradasa et al., 2021; Daneji et al., 2019). It is shown that sur-rounding the user may affect their attitude, decisions, and feelings. The effects of social

influence on the users may influence their perception of continuous intention toward using the E-learning platform (Daneji et al., 2019; Saeed et al., 2020) Therefore, it is important to focus on that factor as it is important to influence user future decision about continues intention to use the platform. According to (Al-Okaily et al., 2020; Chen, 2021) social influence is playing a leading role in motivating more users to continuous use of the E-Learning platform, which proves the importance of considering that factor in this study.

The researcher (Ashrafi et al., 2022) said that the variable "social influence" could predict how satisfied people will be with using an E-learning platform. Also, it was found that social influence positively affects the perceived usefulness of the E-Learning platform (Chen, 2021). Suppose family members or classmates are convinced that the E-Learning platform provides valuable information that aids students in their learning process. In that case, they might serve as a source of motivation for increased student participation.

Moreover, prior studies show that social influences affect satisfaction which may predict the users' satisfaction with the continuous use of E-learning (Ashrafi et al., 2022; Shao et al., 2021). Additionally, the researchers in (Chen, 2021; Tawafak et al., 2020) suggested that social influence impacts the perceived usefulness of the continuous use of an E-Learning platform. From the above description, these hypotheses are suggested:

Hypothesis1: Social influences (Si) positively affect Continuous Intention (CI) toward the use of the E-learning platform.

Hypothesis2: Social influences (Si) positively affect Satisfaction (SA) toward the use of the E-learning platform.

Hypothesis3: Social influences (Si) positively affect Perceived usefulness (PU) to-ward the use of the E-learning platform.

The experience a user has while employing a particular system may encourage continued use. In addition, if the user finds the E-learning platform pleasant, he or she will be eager to use it in the future (Salloum et al., 2019; Kuadey et al., 2022; L. Y. K. Wang et al., 2019). Enjoyment refers to "the extent to which the activity of using a specific technology is perceived to be enjoyable, aside from any performance consequences resulting from technology use" (Venkatesh, 2003). Adding to that, the researchers in (Al-Maroof and Salloum, 2021; Ashrafi et al., 2020) suggested that to ensure the users' continuity intention toward the use of E-learning platform, the university should consider including enjoyment with the technology so that it can helps to attract more students to use the technology. Prior research highlighted that Perceived enjoyment has a major influence on satisfaction and continuous (Winarno et al., 2020; Muqtadiroh et al., 2019). It is essential to explore the links between Perceived Enjoyment and the continuous utilization of the E-learning platform. Previous research has shown that perceived enjoyment impacts continuous intention (Salloum et al., 2019; Alam et al., 2022).

Hypothesis 10: Perceived Enjoyment (ENJ) has a positive effect on Continuous intention (CI) toward the use of the E-learning platform.

Hypothesis 11: Perceived Enjoyment (ENJ) has a positive effect on perceived use-fulness (PU) toward the use of the E-learning platform.

A user's Computer self-efficacy can indicate how well he or she can use computers independently (Sghari & Bouaziz, 2022). Users with a high Computer self-efficacy are consequently more likely to believe the platform is functional and continue using it (Sabah, 2020). Also, when users have a high CSE toward the system, it will be easy for them to use, and they may be able to take advantage of all the system features, which will help them do better academically and make them more likely to keep using the system (Sabah, 2020), (Taylor and Todd 1995). The researchers in (Shiau et al., 2020) found that CSE is a good predictor, especially when it comes to describing a particular "phenomenon". So, users can figure out how well they can use the technology, which helps predict whether they will stop using the E-Learning platform or keep using it. Also, different studies have shown that CSE may affect users' continuous intention to keep using technology (Jyothi and Savitha, 2022; Al-Adwan et al., 2022).

Several studies have examined the effect of Computer self-efficacy on perceived usefulness and found that it has an impact (Al-Maroof et al., 2021; Wang et al., 2019). Furthermore, several studies have demonstrated that Computer self-efficacy may influence users' intent to continue using E-learning

platforms (Wu et al., 2019; Saeed et al., 2020). So, the following hypotheses are pro-posed:

Hypothesis 12: Computer self-efficacy (CSE) has a positive effect on Continuous intention (CI) toward the use of the E-learning platform.

Hypothesis 13: Computer self-efficacy (CSE) has a positive effect on perceived usefulness (PU) toward the use of the E-learning platform.

According to (Bashir et al., 2019), interactivity is an essential component of the E-learning process because it enables students to explore the materials, engage in dialogue with other entities, and acquire new skills. Moreover, the researcher in (Bashir et al., 2019) asserts that interactivity is a "multi-dimensional" concept that considers three characteristics: active control, synchronicity, and two-way communication. According to (Shao and Chen, 2020) the three interaction characteristics "stimulate" users' intent to continue utilizing the E-learning platform. Several research studies verify that interactivity enhances the users' perception of the e-learning platform, which indicates the users' future desire to continue using the platform (Pozón et al., 2021; Shao & Chen, 2020; Ghazawi et al., 2021; Guo et al., 2022; Manou et al., 2021). Additionally, scholars (Cheng, 2020; Lee et al., 2019) argue that interactivity influences perceived usefulness toward the continuous intention to use the E-learning platform. Consequently, a platform with a high level of interactivity reflects a high level of perceived usefulness and user satisfaction and thus will show a great willingness to continue using the e-learning platform (Rabaa'i et al., 2021; Guo et al., 2022). Thus, the following hypotheses are proposed:

Hypothesis 14: Interactivity (INT) has a positive effect on perceived usefulness (PU) toward the use of the E-learning platform.

Hypothesis 15: Interactivity (INT) has a positive effect on Satisfaction (SA) toward the use of the E-learning platform.

Hypothesis 16: Interactivity (INT) has a positive effect on Continuous intention (CI) toward the use of the E-learning platform.

The following three constructs are adopted from the ECM model (Bhattacherjee, 2001) for this study. Satisfaction is one of the primary constructs used to measure users' continuous intention and has been shown to impact continuous intention positively (Kuadey et al., 2023). Moreover, perceived usefulness positively affects continuous intention, mainly when users believe using the platform will facilitate a rapid and effective learning process (Shanshan et al., 2022). Similarly, confirmation appeared to affect E-Learning platform users' satisfaction positively and perceived usefulness (Bhattacherjee, 2001; Winarno et al., 2020). Moreover, confirmation is believed to affect the perceived enjoyment of using an E-Learning platform (Kim et al., 2019). Consequently, we postulate the following hypotheses:

Hypothesis 4: Perceived Usefulness (PU) has a positive effect on Continuous Intention (CI) toward the use of the E-learning platform.

Hypothesis 5: Perceived Usefulness (PU) has a positive effect on Satisfaction (SA) toward the use of the E-learning platform.

Hypothesis 6: Confirmation (CONF) has positive effect on satisfaction (SA)toward the use of the E-learning platform.

Hypothesis 7: Confirmation (CONF) has positive effect on Perceived Usefulness (PU) toward the use of the E-learning platform.

Hypothesis 8: Confirmation (CONF) has a positive effect on Perceived Enjoyment (PENJ) toward the use of the E-learning platform.

Hypothesis 9: Satisfaction (SA) has a positive effect on continuous intention (CI) to-ward the use of the E-learning platform.

6. Discussion

This study aims to construct a conceptual model by incorporating additional factors to the ECM model to investigate the continuous intent to use E-Learning platforms in developing nations. Additional model factors include perceived enjoyment and interactivity. The study demonstrates that interactivity has three perspectives (active control, synchronicity, and two-way communication). These three dimensions must be studied because interactivity is crucial in enhancing the learning process. Most studies examine interactivity as a two-way communication method between instructors and students or students and students but pay little attention to the interaction with

the machine or the system. The second factor considered is perceived enjoyment, which is hypothesized to affect user satisfaction, making the learning process more pleasurable and increasing the user's propensity to continue using E-Learning platforms. The study's findings indicate that the surrounding environments of students have a significant impact on their future decision to continue using E-learning platforms.

Due to the COVID-19 pandemic necessitating a complete shift to E-learning, students are more influenced by family, social networks, and friends. Therefore, decision-makers and developers of E-Learning platforms should consider these elements as important motivators and attractants for students' continued use of E-Learning platforms. This study's findings significantly affect E-Learning platform designers, decision-makers, and researchers. Future research will focus on developing survey instruments to capture data from university students in Iraq who participate in the E-Learning process. Furthermore, analyze the collected data and evaluate the proposed model using the Smart-PLS software. This is the first study to investigate users' continuous intention to use an E-learning platform in developing countries (Iraq), considering the influence of three dimensions of interactivity (active control, syn-chronicity, and two-way communication.) and perceived enjoyment.

Conclusion

This study's objective is to construct a conceptual model to investigate the factors that influence the continuous intention of E-Learning platform users in developing nations. According to the researched literature, the issue of the ongoing use of E-Learning platforms is identified. Examining the ECM model and the effect of entirely shifting to E-Learning environments opens up new research avenues for examining other factors influencing students' perceptions regarding their continued use of E-Learning platforms. Interactivity, computer self-efficacy, social influences and perceived enjoyment are chosen to extend the ECM model, as the results of an experimental study indicate that these variables affect the intention to continue using E-Learning platforms. Future research is required to validate and demonstrate the proposed model's efficacy and ascertain the significance of the interrelationships between model constructs.

References

Badaru, K. A., & Adu, E. O. (2022). Platformisation of Education: An Analysis of South African Universities' Learning Management Systems. Research in Social Sciences and Technology, 7(2), 66-86.

Tawafak, R. M., Romli, A. B., Arshah, R. B. A., & Malik, S. I. (2020). Framework design of university communication model (UCOM) to enhance continuous intentions in teaching and e-learning process. Education and Information Technologies, 25, 817-843.

Chen, M., Wang, X., Wang, J., Zuo, C., Tian, J., & Cui, Y. (2021). Factors affecting college students' continuous intention to use online course platform. SN Computer Science, 2(2), 1-11.

Littenberg-Tobias, J., & Reich, J. (2020). Evaluating access, quality, and equity in online learning: A case study of a MOOC-based blended professional degree program. The Internet and Higher Education, 47, 100759.

Joshi, A., Desai, P., & Tewari, P. (2020). Learning Analytics framework for measuring students' performance and teachers' involvement through problem-based learning in engineering education. Procedia Computer Science, 172, 954-959.

Mubarak, A. A., Cao, H., & Zhang, W. (2022). Prediction of students' early dropout based on their interaction logs in online learning environment. Interactive Learning Environments, 30(8), 1414-1433.

Luis, R. M., Llamas-Nistal, M., & Iglesias, M. J. F. (2022). On the introduction of intelligent alerting systems to reduce e-learning dropout: a case study. Smart Learning Environments, 9(1), 1-18.

Hussein, M. H., Ow, S. H., Ibrahim, I., & Mahmoud, M. A. (2021). Measuring instructors continued intention to reuse Google Classroom in Iraq: a mixed-method study during COVID-19. Interactive Technology and Smart Education, 18(3), 380-402.

Guo, Q., Zeng, Q., & Zhang, L. (2022). What social

factors influence learners' continuous intention in online learning? A social presence perspective. Information Technology & People, (ahead-of-print).

Ansong-Gyimah, K. (2020). Students' Perceptions and Continuous Intention to Use E-Learning Systems: The Case of Google Classroom. International Journal of Emerging Technologies in Learning (iJET), 15(11), 236-244.

Hu, L., Pan, G., Wang, H., Zhang, X., Wang, Z., & Zhu, T. (2020). The synergy and DFT study of TT-LYK and potassium oleate on chemical mechanical polishing of cobalt in alkaline medium. Materials Chemistry and Physics, 256, 123672.

Ding, Y. (2019). Looking forward: The role of hope in information system continuance. Computers in Human Behavior, 91, 127-137.

Rabaa'i, A. A., ALmaati, S. A., & Zhu, X. (2021). Students' continuance intention to use Moodle: An expectation-confirmation model approach. Interdisciplinary Journal of Information, Knowledge, and Management, 16, 397.

Dai, H. M., Teo, T., & Rappa, N. A. (2020). Understanding continuance intention among MOOC participants: The role of habit and MOOC performance. Computers in Human Behavior, 112, 106455.

Huang, Y. M. (2019). Examining students' continued use of desktop services: Perspectives from expectation-confirmation and social influence. Computers in Human Behavior, 96, 23-31.

Foroughi, B., Iranmanesh, M., & Hyun, S. S. (2019). Understanding the determinants of mobile banking continuance usage intention. Journal of Enterprise Information Management.

Sayyah Gilani, M., Iranmanesh, M., Nikbin, D., & Zailani, S. (2017). EMR continuance usage intention of healthcare professionals. Informatics for Health and Social Care, 42(2), 153-165.

Singh, S. (2020). An integrated model combining ECM and UTAUT to explain users' post-adoption behaviour towards mobile payment systems. Australasian Journal of Information Systems, 24.

Wang, W., Duan, Y., Wang, Q., & Liu, H. (2021). An ECM-ISC Based on College Students' Continued Learning Intention toward E-Learning Space Post COVID-19. Open Journal of Social Sciences, 9(12), 377-395.

Prasetya, F. H., Harnadi, B., Widiantoro, A. D., & Nugroho, A. C. (2021, November). Extending ECM with quality factors to investigate continuance intention to use E-learning. In 2021 Sixth International Conference on Informatics and Computing (ICIC) (pp. 1-7). IEEE.

Cheng, Y. M. (2020). Students' satisfaction and continuance intention of the cloud-based e-learning system: Roles of interactivity and course quality factors. Education+ Training, 62(9), 1037-1059.

Gu, C., Zhang, Z., & Hou, Y. (2021). Do we always follow others? The impact of psychological distance on consumers' observational learning modes. European Journal of Marketing, 55(10), 2569-2592.

Bhattacherjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. MIS quarterly, 351-370.

Overby, E. (2012). Migrating processes from physical to virtual environments: Process virtualization theory. Information Systems Theory: Explaining and Predicting Our Digital Society, Vol. 1, 107-124.

Park, E. (2020). User acceptance of smart wearable devices: An expectation-confirmation model approach. Telematics and Informatics, 47, 101318.

Alzahrani, L., & Seth, K. P. (2021). Factors influencing students' satisfaction with continuous use of learning management systems during the COVID-19 pandemic: An empirical study. Education and Information Technologies, 26(6), 6787–6805. https://doi.org/10.1007/s10639-021-10492-5

Rajeh, M. T., Abdul-Jabbar, F. H., Alqahtani, S. M., Waly, F. J., Anaemia, I., Aljurayyan, A., & Alzaman, N. (2021). Students' satisfaction and continued intention toward e-learning: A theory-based study. Medical education online, 26(1), 1961348.

Muqtadiroh, F. A., Herdiyanti, A., Wicaksono, I., & Usagawa, T. (2019, August). Analysis of factors affecting continuance intention of e-learning adoption in lecturers' perspectives. In IOP Conference Series: Materials Science and Engineering (Vol. 588, No. 1, p. 012022). IOP Publishing.

Nikou, S. A. (2021). Web-based videoconferencing for teaching online: Continuance intention to use in the post-COVID-19 period. Interaction Design and Architecture, 47(Winter), 123-143.

Al-Emran, M., Arpaci, I., & Salloum, S. A. (2020). An empirical examination of continuous intention to use m-learning: An integrated model. Education and information technologies, 25, 2899-2918.

Clary, G., Dick, G., Akbulut, A. Y., & Van Slyke, C. (2022). The after times: College students' desire to continue with distance learning post pandemic. Communications of the Association for Information Systems, 50(1), 3.

Al-Adwan, A. S., Yaseen, H., Alsoud, A., Abousweilem, F., & Al-Rahmi, W. M. (2022). Novel extension of the UTAUT model to understand continued usage intention of learning management systems: The role of learning tradition. Education and Information Technologies, 1-27.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS quarterly, 425-478.

Shanshan, S., & Wenfei, L. (2022). Understanding the impact of quality elements on MOOCs continuance intention. Education and Information Technologies, 27(8), 10949-10976.

Ashrafi, A., Zareravasan, A., Rabiee Savoji, S., & Amani, M. (2022). Exploring factors influencing students' continuance intention to use the learning management system (LMS): a multi-perspective framework. Interactive Learning Environments, 30(8), 1475-1497.

Yang, H., Cai, J., Yang, H. H., & Wang, X. (2022). Examining key factors of beginner's continuance intention in blended learning in higher education. Journal of Computing in Higher Education, 1-18.

Shao, Z., & Chen, K. (2021). Understanding individuals' engagement and continuance intention of MOOCs: The effect of interactivity and the role of gender. Internet Research, 31(4), 1262-1289.

Faisal, C. M. N., Fernandez-Lanvin, D., De Andrés, J., & Gonzalez-Rodriguez, M. (2020). Design quality in building behavioral intention through affective and cognitive involvement for e-learning on smartphones. Internet Research, 30(6), 1631-1663.

Manou, E., Lazari, E. C., Thomopoulou, G. E., Agrogiannis, G., Kavantzas, N., & Lazaris, A. C. (2021). Participation and interactivity in synchronous e-learning pathology course during the COVID-19 pandemic. Advances in Medical Education and Practice, 1081-1091.

Pozón-López, I., Higueras-Castillo, E., Muñoz-Leiva, F., & Liébana-Cabanillas, F. J. (2021). Perceived user satisfaction and intention to use massive open online courses (MOOCs). Journal of Computing in Higher Education, 33, 85-120.

Ghazawi, E., Gouda, E., & Al-Sagheer, A. S. (2021). Moving from Face to Face to Virtual Learning Using Blackboard: Faculty and Students' Perceptions. Asian Journal of Education and Social Studies, 21(1), 29-37.

Lee, J. H., & Lee, C. F. (2019). Extension of TAM by perceived interactivity to understand usage behaviors on ACG social media sites. Sustainability, 11(20), 5723.

Bai, B., Wang, J., & Chai, C. S. (2021). Understanding Hong Kong primary school English teachers' continuance intention to teach with ICT. Computer Assisted Language

JEET

Learning, 34(4), 528-551.

Lu, Y., Wang, B., & Lu, Y. (2019). Understanding key drivers of MOOC satisfaction and continuance intention to use. Journal of Electronic Commerce Research, 20(2).

Almahamid, S., & Rub, F. A. (2011). Factors that determine continuance intention to use e-learning system: an empirical investigation. In International conference on telecommunication technology and applications Proc. of CSIT (Vol. 5, No. 1, pp. 242-246).

Kumar, J. A., Bervell, B., Annamalai, N., & Osman, S. (2020). Behavioral intention to use mobile learning: Evaluating the role of self-efficacy, subjective norm, and WhatsApp use habit. IEEE Access, 8, 208058-208074.

Masmali, A., & Alghamdi, F. (2021). Factors Influencing Teachers' Continuation of Online Learning in Elementary Schools. International Education Studies, 14(12), 31-39.

Al-Okaily, M., Alqudah, H., Matar, A., Lutfi, A., & Taamneh, A. (2020). Dataset on the Acceptance of e-learning System among Universities Students' under the COVID-19 Pandemic Conditions. Data in brief, 32, 106176.

Chandradasa, A. H. I., & Galhena, B. L. (2021). University students' intention of continuous use of Zoom for eLearning.

Sabah, N. M. (2020). Motivation factors and barriers to the continuous use of blended learning approach using Moodle: students' perceptions and individual differences. Behaviour & Information Technology, 39(8), 875-898.

Hossain, M. N., Talukder, M. S., Khayer, A., & Bao, Y. (2021). Investigating the factors driving adult learners' continuous intention to use M-learning application: a fuzzy-set analysis. Journal of Research in Innovative Teaching & Learning, 14(2), 245-270.

Ibrahim, M. M., & Rahim, M. K. I. A. (2018). MOOCs continuance intention in Malaysia: The role of interactivity and enjoyment. Journal of Global Business and Social Entrepreneurship (GBSE),

4(11), 114-121.

Eraslan Yalcin, M., & Kutlu, B. (2019). Examination of students' acceptance of and intention to use learning management systems using extended TAM. British Journal of Educational Technology, 50(5), 2414-2432.

Saeed Al-Maroof, R., Alhumaid, K., & Salloum, S. (2020). The continuous intention to use e-learning, from two different perspectives. Education Sciences, 11(1), 6.

Wu, W., & Shang, D. (2019). Employee usage intention of ubiquitous learning technology: An integrative view of user perception regarding interactivity, software, and hardware. IEEE Access, 7, 34170-34178.

Steuer, J., Biocca, F., & Levy, M. R. (1995). Defining virtual reality: Dimensions determining telepresence. Communication in the age of virtual reality, 33, 37-39.

Pituch, K. A., & Lee, Y. K. (2006). The influence of system characteristics on e-learning use. Computers & Education, 47(2), 222-244.

Bashir, K. (2019). Modeling E-Learning Interactivity, Learner Satisfaction and Continuance Learning Intention in Ugandan Higher Learning Institutions. International Journal of Education and Development Using Information and Communication Technology, 15(1), n1.

Liu, Z. Y., Lomovtseva, N., & Korobeynikova, E. (2020). Online learning platforms: Reconstructing modern higher education. International Journal of Emerging Technologies in Learning (iJET), 15(13), 4-21.

Tawafak, R. M., Romli, A., Malik, S. I., & Alfarsi, G. (2021, May). Integration of TAM and MOOC for e-learning purpose. In AIP Conference Proceedings (Vol. 2339, No. 1, p. 020056). AIP Publishing LLC.

Salloum, S. A., Alhamad, A. Q. M., Al-Emran, M., Monem, A. A., & Shaalan, K. (2019). Exploring students' acceptance of e-learning through the development of a comprehensive technology acceptance model. IEEE access, 7, 128445-128462.

Tsai, Y. Y., Chao, C. M., Lin, H. M., & Cheng, B. W. (2018). Nursing staff intentions to continuously use a blended e-learning system from an integrative perspective. Quality & Quantity, 52, 2495-2513.

Aulia Winarno, D., Muslim, E., Rafi, M., & Rosetta, A. (2020, November). Quality Function Deployment Approach to Optimize E-Learning Adoption among Lecturers in Universitas Indonesia. In 2020 The 4th International Conference on Education and E-Learning (pp. 161-166).

Mussa, Ibtihal Hassan. "AN INVESTIGATION OF E-LEARNING MOTIVATION OF IRAQI SECONDARY STUDENTS." E-Learning 3, no. 02 (2020).

Kasula Munabi, S., Aguti, J., & Mutambo Nabushawo, H. (2020). Using the TAM model to predict undergraduate distance learners behavioral intention to use the Makerere University learning management system.

Henseler, Jörg. "Partial least squares path modeling." Advanced methods for modeling markets (2017): 361-381.

Kuadey, N. A., Mahama, F., Ankora, C., Bensah, L., Maale, G. T., Agbesi, V. K., ... & Adjei, L. (2023). Predicting students' continuance use of learning management system at a technical university using machine learning algorithms. Interactive Technology and Smart Education, 20(2), 209-227.

Daneji, A. A., Ayub, A. F. M., & Khambari, M. N. M. (2019). The effects of perceived usefulness, confirmation, and satisfaction on continuance intention in using massive open online course (MOOC). Knowledge Management & E-Learning, 11(2), 201-214.

Denieffe, S. (2020). Commentary: Purposive sampling: complex or simple? Research case examples. Journal of Research in Nursing, 25(8), 662-663.

Johanson, G. A., & Brooks, G. P. (2010). Initial scale development: sample size for pilot studies. Educational and psychological measurement, 70(3), 394-400.

Sibona, C., Walczak, S., & White Baker, E. (2020). A guide for purposive sampling on twitter. Communications of the association for information systems, 46(1), 22.

Dattalo, P. (2008). Determining sample size: Balancing power, precision, and practicality. Pocket Guide to Social Work Re.

Choi, Y., Wen, H., Chen, M., & Yang, F. (2021). Sustainable determinants influencing habit formation among mobile short-video platform users. Sustainability, 13(6), 3216.

Sarstedt, M., & Cheah, J. H. (2019). Partial least squares structural equation modeling using SmartPLS: a software review.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. Behavior research methods, 39(2), 175-191.

Malmqvist, J., Hellberg, K., Möllås, G., Rose, R., & Shevlin, M. (2019). Conducting the pilot study: A neglected part of the research process? Methodological findings supporting the importance of piloting in qualitative research studies. International journal of qualitative methods, 18, 1609406919878341.

Sarstedt, M., Ringle, C. M., Cheah, J. H., Ting, H., Moisescu, O. I., & Radomir, L. (2020). Structural model robustness checks in PLS-SEM. Tourism Economics, 26(4), 531-554.

In, J. (2017). Introduction of a pilot study. Korean journal of anesthesiology, 70(6), 601-605.

Johanson, G. A., & Brooks, G. P. (2010). Initial scale development: sample size for pilot studies. Educational and psychological measurement, 70(3), 394-400.

Hertzog, M. A. (2008). Considerations in determining sample size for pilot studies. Research in nursing & health, 31(2), 180-191.

Awad, R., Aljaafreh, A., & Salameh, A. (2022). Factors affecting students' continued usage intention of e-learning during COVID-19 pandemic: Extending Delone & Mclean IS

JEET

success model. International Journal of Emerging Technologies in Learning, 17(10), 120-144.

Hair, J., & Alamer, A. (2022). Partial Least Squares Structural Equation Modeling (PLS-SEM) in second language and education research: Guidelines using an applied example. Research Methods in Applied Linguistics, 1(3), 100027.

Alam, S., Mahmud, I., Hoque, S. S., Akter, R., & Rana, S. S. (2022). Predicting students' intention to continue business courses on online platforms during the Covid-19: An extended expectation confirmation theory. The International Journal of Management Education, 20(3), 100706.

Wirani, Y., Nabarian, T., & Romadhon, M. S. (2022). Evaluation of continued use on Kahoot! as a gamification-based learning platform from the perspective of Indonesia students. Procedia Computer Science, 197, 545-556.

Taylor, S., & Todd, P. (1995). Assessing IT usage: The role of prior experience. MIS quarterly, 561-570.

Taherdoost, H. (2016). Validity and reliability of the research instrument; how to test the validation of a questionnaire/survey in research. How to test the validation of a questionnaire/survey in research (August 10, 2016).

binti Daud, R. (2021). Face and Content Validity For The Special Education Leadership (Integration) Questionnaire In Malaysia. Turkish Journal of Computer and Mathematics Education (TURCOMAT), 12(11), 5172-5178.

A. Khan, R., Qudrat-Ullah, H., A. Khan, R., & Qudrat-Ullah, H. (2021). Adoption of LMS in the Cultural Context of Higher Educational Institutions of the Middle East. Adoption of LMS in Higher Educational Institutions of the Middle East, 1-5.

Kasunic, M. (2005). Designing an effective survey.

Ismail, N., Kinchin, G., & Edwards, J. A. (2018). Pilot study, does it really matter? Learning lessons from conducting a pilot study for a qualitative

PhD thesis. International Journal of Social Science Research, 6(1), 1-17.

Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. Research in nursing & health, 30(4), 459-467.

Hasan, N., Bao, Y., Miah, S. J., & Fenton, A. (2021). Factors influencing the young physicians' intention to use Internet of Things (IoT) services in healthcare. Information Development, 02666669211064114.

In, J. (2017). Introduction of a pilot study. Korean journal of anesthesiology, 70(6), 601-605.

Hair, J., & Alamer, A. (2022). Partial Least Squares Structural Equation Modeling (PLS-SEM) in second language and education research: Guidelines using an applied example. Research Methods in Applied Linguistics, 1(3), 100027.

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., & Thiele, K. O. (2017). Mirror, mirror on the wall: a comparative evaluation of composite-based structural equation modeling methods. Journal of the Academy of marketing science, 45, 616-632.

F. Hair Jr, J., Sarstedt, M., Hopkins, L., & G. Kuppelwieser, V. (2014). Partial least squares structural equation modeling (PLS-SEM) An emerging tool in business research. European business review, 26(2), 106-121.

Rekha, I. S., Shetty, J., & Basri, S. (2022). Students' continuance intention to use MOOCs: empirical evidence from India. Education and Information Technologies, 1-22.

Malureanu, A., Panisoara, G., & Lazar, I. (2021). The relationship between self-confidence, self-efficacy, grit, usefulness, and ease of use of elearning platforms in corporate training during the COVID-19 pandemic. Sustainability, 13(12), 6633.

Al-Maroof, R. S., Alhumaid, K., Akour, I., & Salloum, S. (2021). Factors that affect e-learning platforms after the spread of COVID-19: post acceptance study. Data, 6(5), 49.