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FACTORS DRIVING E-LEARNING ADOPTION IN PALESTINE: AN INTEGRATION OF TECHNOLOGY ACCEPTANCE MODEL AND IS SUCCESS MODEL

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Abstract

One of the most significant changes in the field of education in this information age is the paradigm shift from teacher-centered to learner-centered education. Along with this paradigm shift, understanding of students' e-learning adoption behavior among various countries is urgently needed. Despite being one of the many countries that are still at the early stages in implementing e-learning, Palestine is a country that has recently seen an expansion in the number of students and the quality of education, which has involved high investment in e-learning. Hence, studies in this area of research interest have yet to be made known within the field of education. This study attempted to address the disparity within the literature for an individual country, Palestine, on the significant influences towards adopting e-learning. A model that investigates the effects of quality features, perceived ease of use, perceived usefulness on the intentions and satisfaction of the learners towards the effects of e-learning is proposed in this study. This model encompassed the constructs and variables embedded in TAM and ISSM along with instructor quality. The outcomes of the model, such as actual use and the moderating effect of technical support towards e-learning in Palestine, were investigated. The study proposed that the quality of the course, instructor, service and system as well as perceived usefulness determined the satisfaction among students in use e-learning.

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Introduction

The continuous advancement in the field of Information and Communication Technology (ICT) since the early 1980s (Al-Emran & Salloum, 2017), has meant changes in acquiring information could be observed, especially in terms of the length in time and the strategies in processing the available and accessible information. By the 2000s, the information boom through the extensive use of the Internet has resulted in teachers and learners integrating current technology and electronic resources in the teaching and learning practices (Alkandari, 2015). Hence, the education industry has transitioned to incorporate multiple ICT tools in different aspects and areas of study, which require additional skill sets that enhances the existing learning strategies. While the professionals and educators are continually being exposed to new inventions in ICT to broaden the world of teaching and learning experiences, support from the authorities and management is equally essential. Most universities around the world have included e-learning as an extension to conventional physical learning to allow more extensive opportunities for accessibility and lifelong learning. Besides, with the progress of ICT, and the advancement of gadgets and tools used to explore the Internet, e-learning has become more adaptable, collaborative and well-constructed (Alkandari, 2015). In Palestine, the Ministry of Education has conceded the potential responsibility of ICT and the critical aspects associated with the teaching and learning processes (Obaid & Alias, 2015). Tertiary education institutions, such as Alazhar University and the Islamic University, have integrated ICT as an approach that could enhance the teaching and learning processes. Numerous software and applications are used during classes and lectures, such as Moodle, which is one of the educational tools that represent an effective virtual learning management system.

As the ICT advances with time, the environment for e-learning, as well as the relevant ICT tool, are highly influential in the field of education. With numerous benefits gained from e-learning, instructors from higher institutions have shown a positive response to using related systems, which would be incorporated and utilised to a certain extent by the students. Nonetheless, numerous studies have maintained that multiple factors could affect the success and effectiveness of theelearning system. Most learners are found to move away from continuing the courses that employed the e-learning approach, which could be due to having only a "passive experience, which leads to surface learning" (Alkandari, 2015), among other setbacks. These existent issues would impact the degree of acceptance, readiness, and decisions of learners towards adopting e-learning (Kanwal & Rehman, 2017), and the success in sustaining these systems (Van Raaij & Schepers, 2008), within the field of education. Some researchers, such as (Lee, 2006), assert that external factors significantly affect the adoption of e-learning, which should be investigated and listed accordingly to consequence. Hence, this study aims to investigate the factors that affect the adoption of e-learning in Palestine within the education sector.

Literature review

Technologies involved in education have evolved alongside the advancement of ICT (Salloum, 2019). Since the emergence of the Internet in the 1980s, numerous sectors, including education, have witnessed the transition from utilising conventional books and physical archives to electronic and virtual information systems in terms of teaching and learning approaches. Software and applications, such as Moodle, have expanded the mode of delivery for courses and lectures, which was still face-to-face, though remotely (Tarhini et al., 2013), which assisted distant learners who were able to access information without having to be physically at the campus. Nonetheless, e-learning required a specific set of skills that involves digital literacy and investment in compatible devices to access information such as the tablet, smartphone and laptop (Nguyen et al. 2014). Hence, there could be potential diversity in the perception of purposes and goals by different users, as well as digital knowledge and competencies to utilise the electronic tools in adopting e-learning systems and approaches (Lee, 2003).

Past studies have explored the acceptance of e-learning, which was employed from the technological, organisational, and environmental perspective (Jaradat, 2014). Urbach and Müller (2012) developed the IS success model, which was revised to stay relevant to the changes and progress of ICT over time. The model had identified six components towards successful adoption of e-learning, which were system quality, information quality, service quality, intention to use/not to use, user satisfaction, and net benefits. System use was acknowledged to be more important than user satisfaction, and positive experience because of the contribution in enhancing satisfaction, which led to higher intention for use (Petter et al., 2008). The revised IS success model was one of the most widely used models in studies on the successful adoption of e-learning systems.

Numerous models have investigated and evaluated the success of IS (Manchanda & Mukherjee, 2014) such as Technology Acceptance Model (TAM) by Davies, Information System (IS) success or impact model by Gable, Sedera and Chan, and Information System Success Model (ISSM) by DeLone and McLean. Davis proposed the Technology Acceptance Model (TAM) in 1989, which addressed the acceptance and willingness of users towards information technology, instead of success in use. On the other hand, ISSM prioritised net benefits as the primary focus for the successful use of IS. Hence, there was no particular model that best fit all purposes that could categorise the benefits and purposes of IS. These models were adopted to match the objective of this study.

Davis and Bagozzi proposed the Technology Acceptance Model Lee (2010), in 1989 which became an essential innovation adoption model that many researcher sused to explore the influence of new technology on the users (Abbad, 2009). Davis (1989) suggested that the temporal association between belief, attitude, intention and behaviour, can assist in predicting the use of new technologies. Based on IS in terms of perceived usefulness and perceived ease of use, TAM was an adaptation of TRA, which determined an individual attitude towards the intention to use (Al-Fuqaha et al., 2015). Also, perceived ease of use had been considered to affect perceived usefulness directly (Talebian, 2014).

DeLone and McLean initially proposed ISSM in 1992 based on studies by Shannon and Weaver. (1963), as well as Mason in 1978 (Rabaa'i & Gable, 2009). The model mirrored success measures from past studies based on six constructs, which included the quality of the system, the information, the use of technology, user satisfaction, the individual impact, and the organisational impact. These constructs were determined to be interdependent except for the individual impact, and the organisational impact that had been identified as dependent variables. Hence, the model explained that the quality of the information and the system affected the use of technology, which influenced the satisfaction of use for individuals or groups. Rabaa'i and Gable (2009) also observed that ISSM was the most widely used model as the success measure for IS. Similarly, (Chan, 2008) measured the information system and success of use holistically based on the information, individual, and organisation dimensions.

Several studies (Ajoye & Nwagw, 2014) have used these models to examine user satisfaction in e-learning. Therefore, this study intended to examine user satisfaction in higher institutions of the e-learning system on an individual scale based on the ISSM constructs proposed by DeLone and McLean. Nonetheless, the scope of this study was limited to the learners, instead of advancement and consumption of the system.

Related theories

Several related theories that underpinned this study included the Theory of Planned Behaviour (TPB), the Social Cognitive Theory (SCT), the Diffusion of Innovation Theory (IDT), the Decomposed Theory of Planned Behavior (DTPB), and the Unified Theory of User Acceptance of Technology (UTAUT). TPB described how individual attitudes and beliefs preceded the behavioural intention to adopt behavior towards the extent of behavioural control, which could be influenced by other external factors. On the other hand, SCT was a framework developed to understand, predict, and change an individual due to interactions between personal factors, behaviours, and the environment. IDT considered the adoption of IS as a social construct that would progressively develop as the society expands. At the same time, DTPB perceived ease of use and perceived usefulness as mediators of behavioural intention as an extended version of TAM. UTAUT highlighted four critical constructs, which were performance expectancy, effort expectancy, social influence, and facilitating conditions, to determine the intention of use and behaviour among users (Hanafizadeh et al., 2014).

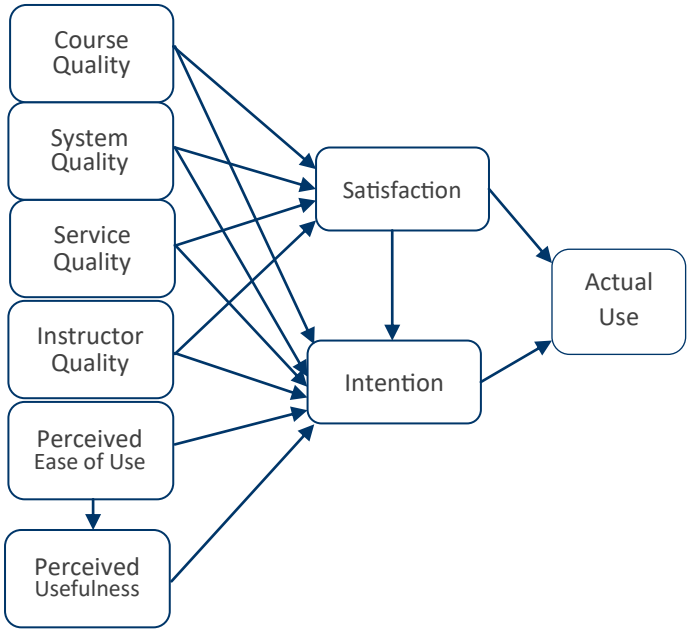
Research model

The satisfaction of use primarily determined individual use of IS systems through the specific service, which supported the associations between determinants, satisfaction, behaviour and outcomes within the IS model (Islam, 2013). On the other hand, quality aspects, perceived ease of use and usefulness were found to be the primary determinants of past studies that had employed TAM in exploring the use ofe-learning that could influence the outcomes. Hence, a framework that incorporated the components ofe-learning between the IS success model and TAM was developed in this study (Islam, 2013). The components included in the framework included quality aspects, perceived ease of use and usefulness, and learning outcomes, which were satisfaction, actual use, and perceived learning assistance. This study proposed that individual use of e-learning system would be affected by satisfaction, which was a significant measure to evaluate the success of IS.

Learners were found to experience improved and developed learning performance when there was satisfaction with the e-learning system used (Xu et al., 2014). As argued by (Islam, 2013), an effective online learning system would be valuable for learners in managing and controlling the learning process, which offered an influential and significant construct towards perceived learning assistance. Learners would perceive that the specific e-learning system being used assisted the learning experience and enhanced the learning performance. This study considered this learning assistance as an outcome of e-learning as higher institutions should offer quality information, service, and a system that catered to the many intentions to use. More importantly, the IS success model theoretically supported these indirect influences (Islam, 2013).

Multiple past studies that were carried out from different view points on e-learning have resulted in challenges inidentifying a proper model that could accurately determine a single approach towards the success in adopting e-learning. Hence, commonalities in variables emphasised by past studies have been one of the most appropriate ways to as certain the suitable approach in predicting the successful adoption of e-learning. The significant factors and indicators for each factor were as certained, extracted and hypothesized from previous literature for this study. Results from this study will hopefully inform decision-makers and future researchers in Palestine on the aspects that affected the use of e-learning.

Figure 1: The proposed research model



Source: Own elaboration

Course quality

The quality of a course can be referred to as the judgement made by learners based on the extent to which the e-learning system was viewed as valuable content that met specific needs (Adeyinka & Mutula, 2010). Quality course content included both content richness and update regularity (Chengh, 2012) that could be measured against timeliness, accuracy, relevance, and format of the information (Seddon & Kiew, 1996). Tarigan (2011) described how learner satisfaction could also be influenced more by the course quality than by the type of technology used to deliver the instructions.

System quality

The quality of a system was usually based on the extent of the system was free from computer virus, and

the ease of use (Seddon & Kiew, 1996). The quality of the system could significantly affect the satisfaction of the learners, primarily through the features that could impact the ways learners would use the system. These features included ease of use, ease of learning, and user-friendliness (Petter et al., 2008). Therefore, learners would often use the system if the system was easy to use, which would result in increased use that can be viewed as a positive impact based on satisfaction.

Service quality

Service quality could be measured from the value of support services received from the IT department or IT support personnel (Delone & McLean, 2003). In the e -learning context, service quality can be considered as the support services delivered by instructors and IT technicians (Ozkan & Koseler, 2009). These services included training, hotline, and helpdesk (Urbach & Müller, 2012). On the other hand, Raphael and Mtebe (2016) argued that the student support services was one of the most critical responsibilities of a higher institution, which could profoundly impact the extent of success for learning among the learners. Therefore, service quality should be included as a factor that can impact the satisfaction of the learners towards theelearning system used at UDSM.

Instructor quality

The quality of an instructor was considered to be a crucial reason in recognising the satisfaction of learners towards e-learning systems (Chengh, 2012). Instructors in this current world of technology were expected to have both the technical skills and the pedagogical skills to facilitate courses offered via e-learning systems. Many researchers had argued that the quality of instructors significantly influenced the satisfaction of learners towards e-learning systems (Ozkan & Koseler, 2009). Chengh (2012) believed that response timeliness and teaching style by lecturers, as well as help that was given to learners through e-learning system, were some of the measurements that can be used to determine the quality of an instructor. Similarly, Ozkan and Koseler (2009) asserted that the satisfaction of learners towards e-learning system would be positive when instructors responded to learners in a timely fashion, as well as having effective teaching methods and control over the technology used.

Perceived ease of use

Although clearly defined within the models, this study intends to describe the constructs within the parameters of this study. Hence, perceived ease of use would be the extent of belief by a learner in using a particular system based on the effort of use (Davis, 1989). Through the extent of effort needed to use the system, the learner would be influenced towards accepting the lastest applications in ICT (Venkatesh, 2000). Multiple past studies had revealed positive associations in the effects of perceived ease of use on the intention to use e-learning (Obaid et al., 2020). Besides, perceived ease of use had always been assumed to have an indirect effect on the intention to use through perceived usefulness (Jouda, 2020).

Perceived usefulness

The adoption of more innovative and accessible technologies could be an effect of perceived usefulness, which this study asserted to be a primary determinant of intention (Pikkarainen, et al. 2004). The perception of using highly influenced the willingness of an individual to use a specific IS in carrying out digital and virtual activities (Hanafizadeh et al., 2014). Since perceived usefulness had significant positive effects on the intention of use towards e-learning services (Islam, 2013) this study hypothesised that higher perceived usefulness of e-learning system would have a more positive intention and likelihood to be used. Hence, the following hypothesis was developed.

Satisfaction

Satisfaction is defined as the individuals' perceptions of the extent to which their needs, goals, and desires have been fully met (Sanchez-Franco, 2009) and refers to their overall view of IS (Sanchez-Franco, 2009). It sounds better to note that user satisfaction refers to the extent to which users are pleased with IS and support services (Petter et al., 2008). The updated IS success model assumes that system use precedes user satisfaction which leads to an increased satisfaction which sequentially results in a higher intention to use (Petter et al., 2008). Satisfaction has been found to have a significant positive effect on intention towards use of e-learning services in some studies (Chang, 2013;

Islam, 2013). Satisfaction has been found to have a significant positive effect on actual use as well. Hassanzadeh et al. (2012) in their study uncovered the positive effect of satisfaction on actual use of e-learning system. Therefore, in the context of this study, satisfaction assumed to have a positive impact on both intention to use and actual use.

Intention

Intention, which is the main dependent variable identified in the studies conducted based on the TAM, is defined as the likelihood that an individual will use an IS. Intention plays a critical role in the actual use of a new technology (Davis, 1989). Intention to use can also be considered as an attitude (Delone & McLean, 2003). In the acceptance domain, some researchers have studied the relationship between intention and actual use in e-learning context (Hassanzadeh et al. 2012) note that to refrain more complexity, IS success model did not distinct between intention to use and system use in their updated model, but intention to use is generally an individual level construct. Venkatesh (2000) confirms the positive relationship between intention to use and actual use. Thus, in the context of this study, intention assumed to have a positive impact on actual use.

Conclusion and recommendations

In this globalised educational environment, there is a need to have a whole some understanding of the transitions and uses of e-learning. Due to the limitations of time and contextual parameters, learners undergoing the conventional approach of learning would be required to study within specific designated time and location, which would be a challenge for many, especially those in remote or areas. In contrast, the e-learning approach is more flexible in terms of time and space, whereby learners have accessibility to study at their own pace or through distant learning. Moreover, this contemporary approach of learning could also help learners save costs and facilitate the process of learning, both intensively and extensively. As educational institutions and commercial corporations are increasingly adopting e-learning, the success factors for adoption by the learners require extensive attention and intensive consideration to develop systems that are efficient, relevant and sustainable.

The population of students and high standards of education in Palestine has resulted in cost-effective investments for e-learning. Since Palestine is a developing country that is beginning to implement e-learning, there is limited literature from Palestine in this area of research interest. By examining the crucial factors on the adoption of e-learning in Palestine, this study attempts to contribute to the literature and address the knowledge gap at the level of a developing country. Moreover, this study also intends to determine the factors that affect the intentions of learners at higher institutions to accept e-learning, whereby a model has also been proposed to describe the aspects involved. The model proposed in this study is an integration of TAM and ISSM to investigate the perceptions of e-learning, and factors that affect the intentions and satisfaction of use. Hence, the aspects that have been used to investigate the factors are actual usage of the system, the effects of quality in the instructors, perceived usefulness and ease of use. The study has also included the use of the e-learning system as a mediator between ease of use and intention to understand behavioural patterns of the learners further. The outcomes have provided invaluable information on the patterns of behaviour among learners.

Nonetheless, several differences should be made aware of in this study. Firstly, this study has developed an integrated model of the revised IS success model and TAM within the context of e-learning. Hence, the focus of this study was on the effects of influential variables towards the learning outcomes. These outcomes, such as the actual use based on the intention to use, are different from past studies that have examined the influential variables directly on the intention to use the e-learning system. Different outcomes are expected from the results of this study, which could contribute to further insight into the behavioural patterns of the learners. Nonetheless, these factors need to be included in future researches to build a more comprehensive model, while maintaining clarity of the model. Besides, this study has focused on e-learning within the higher education institutions in Palestine, which does not reflect on the perceptions of employees towards e-learning in business settings at large. This study also recommends the need to address the perceptions of learners within the context of corporate employees to analyse the perception and differences between these two scopes of samples in future studies. As the world becomes globalised, there is also a need to understand cross-cultural issues that can emerge from e-learning.

Researchers, education institutions, and business organisations are encouraged to investigate the use of e-learning system from a cross-cultural perspective that could shed more valuable insights to contribute to the literature.

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