

## WHICH IS MORE IMPORTANT IN E-LEARNING ADOPTION, PERCEIVED VALUE OR PERCEIVED USEFULNESS? EXAMINING THE MODERATING INFLUENCE OF PERCEIVED COMPATIBILITY

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### ABSTRACT

*This study acknowledges the potential synergy generated from intelligently synthesizing information technology (IT) and business operations, where educational systems are no exclusion. The strength of IT in enabling business process transformation has opened inconceivable venues for educational environment to change fundamentally. Indisputably, e-learning is perpetually growing and its presence is felt and clearly manifested in developed countries, whereby e-learning systems are delivering value effectively while minimizing waste and maximizing cost efficiency. However, in developing countries' cultures, the low adoption of e-learning is attributed to the concatenation effects of lack of both infrastructure and adoption-related research. This study was primarily and predominantly driven by the fact that inadequate research attention has been devoted to address e-learning in Jordan. To achieve the intentions and themes of this study, a conceptual model is recommended to assess which is more important perceived value or perceived usefulness in influencing behavioral intention towards e-learning technology adoption among Jordanian undergraduate students. Also, specific determinants were included to assess how they affect perceived value (facilitating conditions and quality of service) and perceived usefulness (perceived ease-of-use and social influence). Further, the moderating impacts of perceived compatibility on the model have been investigated. A questionnaire was developed using measurement items borrowed from prior studies. A stratified sampling technique was conducted to collect data from Al al-Bayt university students through paper-based questionnaire. The data was analyzed using the WarpPLS 5.0. The results demonstrate that perceived value and perceived usefulness positively influence behavioral intention, where perceived usefulness is more influential. Also, the proposed four determinants have been found to have influential role in this study. Furthermore, perceived compatibility is found to have significant moderating role. Also, this model explains 36.2%, 41.0% and 42.4% of the total variance in behavioral intention, perceived value and perceived usefulness respectively. The theoretical and practical implications are discussed.*

**Keywords:** *E-learning, perceived value, perceived usefulness, compatibility, Jordan*

### 1. Introduction

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Information technology (IT) is progressively playing more influential role in every business domain, and has dramatically transformed the way people and organizations interact with their environments, particularly learners and academic institutions (Bhuasiri et al., 2012). The new innovational technologies have richly contributed to deploying IT-delivered information systems that can operate with greater productivity and efficiency in a way that it has never been thought possible ever before. Indeed, the new technology can deploy IT-enabled systems to enhance the performance of education systems, particularly the trilogy: educators, learners, and academic institutions. Certainly, many exciting opportunities and features have been delivered by information technology for improving different educational fields and settings. The new setup of teaching and learning is referred to as e-learning. Definitely, the new revolutionary format of learning educational system has progressed from being a radical concept to become a mainstream paradigm, particularly in developed cultures. Without a doubt, this paradigm shift from teacher-centered forum to a potentially richer and more resourceful student-centered instructional and learning model has driven positive transformations/changes in teaching and learning philosophy, in which students and learners are becoming the main drivers of the new learning process (Chen et al., 2015).

E-learning is defined as a tool that utilizes computer network technology to deliver learning instructions to users (Cheng et al., 2011). Simply, e-learning is an Internet-delivered learning mechanism that intends to support and enhance learning practices. Apparently, there are many and diversified definitions in literature attached to this concept, depending on the context. Based on a review of literature, Sangrà et al. (2012) have attempted to clarify the controversies and challenges surrounding the definition of e-learning concept by recommending a world-wide accepted definition that satisfies the perceptions and perspectives of scientific community. They have practically confirmed that there are a plethora of perspectives surrounding the concept in today's' knowledge. Sangrà et al. classified, based on scientific literature, that there are trends and different tendencies upon which authors base their definitions, namely: Technology-driven definitions (Elearning portal, 2009), delivery-system-oriented definitions (Liao and Lu, 2008; Li et al., 2009), communication-oriented definitions (Bermejo, 2005), and educational-paradigm-oriented definitions (Aldrich, 2005). To this end, they have proposed a general definition as follows: E-learning is a method to teaching and learning, encompassing all or part of the educational model utilized, that is founded on the use of e-media and devices as instruments for enhancing access to training, communication and interaction and that assists the acceptance of novel techniques in order to understand and develop learning and teaching processes (Sangrà et al., 2012) Finally, Sangrà et al. have practically confirmed that e-learning is likely to continue to evolve in the future as needs change.

The new trend of Internet-based learning has brought about many exciting features and generated many inconceivable opportunities to the world of teaching and learning. Certainly, e-learning framework delivers an array of diversified benefits to its stakeholders, predominantly educators and learners. One of the most important qualifying aspects of e-learning is the power of providing a learning framework unconstrained by time and space (Keengwe et al., 2014), this gives learners the convenience to study in the time frame and location as they desire. In the same time, the new

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technology innovation offers a self-paced learning environment that gives learners the flexibility and control to study at their own pace without disrupting their daily lives and commitments (Kumar et al., 2010; Tullis and Benjamin, 2011). E-learning systems also provide personalized learning environments which tailor learning processes and activities to meet learners' individual needs and challenges through constructing personalized learning paths that based on individual learners' knowledge and learning style, thereby promoting and enhancing individuals' lifelong learning requirements (Lin et al., 2013; Alshammari et al., 2015). In the meantime, e-learning delivers a flexible, accessible, reachable, consistent, cost effective and efficient learning approaches (Alshwaier et al., 2012; Jethro et al., 2012; Tait, 2014). In addition, e-learning infrastructure provides many interesting benefits to learners and organizations such as: Scalability, high learning retention and capacity to draw large number of learners (Dong et al., 2009; Garrison, 2011). Finally, e-learning can offer a learning environment capable of providing learning services to people of different abilities by developing innovative and creative ways to draw more learners of different abilities by means of raising their awareness of the importance and flexibility of this new learning mediums (Jethro et al., 2012).

Jordan is selected as a research site for this empirical investigation for many reasons. First, Jordan is historically part of the Arab world. The Arab world shares a common language, religion, culture and much of the same historical background. Normally, global regional analysis of information technology adoption and diffusion recognizes the Arab world as a separate region (Deloitte, 2013). However, the Arab world virtually seems to be slow in the uptake and adoption of many e-based technologies, particularly online-delivered information technologies such as electronic-learning educational environment. This sluggishness in the adoption of e-learning environments has been attributed to a multiplicity of reasons and an array of barriers. However, there is an imperative necessity for acknowledging the reasons behind the slow uptake of e-learning technology in the Arab world in general and Jordan in particular. Second, irrespective of the high penetration of the Internet among citizens in Jordan which reaches almost 89% of the total population (Internet World stats, 2015); the rate of adoption of e-learning technological innovation is still relatively below expectations. Historically, developed cultures, particularly the US, have largely embraced and used the web-delivered technologies, unlike developing countries which have been sluggish in assuming these technologies worthy of attention and investment. Undeniably, it is a formidable task to completely capture the social complexity perspective of the e-learning dynamics. Indeed, there are streams of research that have tackled this concept, particularly in different environments and different cultural settings of developed countries' cultures. However, the academic research of e-learning technology adoption and acceptance in Jordan as well as in the Arab world is somewhat inadequate. There have been limited attempts investigating e-learning adoption and acceptance in Jordan. As a result, this study intends to fill the knowledge gap in the existing literature. In effect, this study recognizes that e-learning paradigm is a promising IT artifact for reinforcement of learning activities, and this innovation is currently perceived as a potential contributor and facilitator for developing innovative structures of educational framework, and is already offering unique perspectives to the effectiveness of educational systems in developed cultures. However, in order to successfully drive consumers to adopt and use the technology of e-learning and enhance prospectively the proliferation of e-learning technology in the Arab world in general and Jordan in <http://worldconferences.net/home>

particular, understanding learners' perception is of primary consequence that can offers valuable knowledge and insights for system developers to consider in system development processes, so that the new e-driven educational structure will be able to achieve more popularity and recognition among potential users.

Adoption studies on different information technology domains have demonstrated that perceived value and perceived usefulness parameters exhibit an influential role on determining the behavioral intention to adopt and accept the technology in question. Consequently, the primary intention of this study is to investigate empirically which of these two parameters have stronger influence on intentional behavior of e-learning adoption behavior among Jordanian university students. In addition, it is unequivocally important contribution to empirical literature if we uncover the determinants that have the influence to predict and determine both constructs: Perceived value and perceived usefulness. This study will examine the influence of facilitating conditions and quality service determinants on the aspect of perceived value and perceived ease-of-use and social influence determinants on perceived usefulness of the system. Further, the perceived compatibility between individual learners' needs and e-learning technological innovation should be higher than the compatibility aspect of any other e-delivered services because education is a lengthy process and almost mandatory for each living individual, it is not a one-time transaction process, however. In furtherance, US education is a \$1.5 trillion industry and e-learning constitutes a considerable proportion of this (Bryant and Sarakatsannis, 2015). Therefore, in order for the education process, whether at school level or university level and beyond, to be second nature to learner's daily life environment, it must offer high aspect of perceived compatibility with individual learners' needs and expectations. Consequently, given the nature of education and its tight relationship with individual learners' daily life issues and concerns, any proposed e-learning environment must exhibit a considerable level of compatibility to improve adoption potentials among students. Consequently, this study expects that perceived compatibility will tend to moderate all hypothesized relationships in this study between input parameters (perceived value, perceived usefulness, perceived ease-of-use, social influence, facilitating conditions and quality of service) and learners' behavioral intention, and this study suggests that the input parameters are empirically anticipated to drive directly or indirectly to positively augment learners' behavioral intention. Indeed, this type of analysis is missing from literature. Therefore, this research study intends to bridge the knowledge gap existing in the empirical studies in contemporary literature. The remaining of this paper is structured as follows. Section two presents the literature review and hypothesis development. The research methodology used in this study is discussed in section three and the final section explores the discussion and implications associated with this study.

## **2. Literature review and hypothesis development**

### **2.1 E-learning in the Arab world**

E-learning in the developed world is growing and prospering. In effect, the web-based learning system is becoming a mainstream paradigm in delivering educational content to students and

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learners in the West. However, the state of affairs is extremely different in the Arab world, whereby many Arab countries have not provided important and valuable e-learning initiatives for implementation because these countries do not have an adequate digital infrastructure in place. Indeed, the delivery of web-based learning services relies heavily on the availability of digital infrastructure. Due to large variations in e-readiness among Arab countries, the Arab Gulf states, for example, are more favorable to launch e-learning initiatives and possibly have a higher level of success in e-learning implementation. It is true that some wealthy Arab countries have invested heavily in acquiring the digital infrastructure, but its actual usage in universities, schools, and workplaces continue to be very limited (Weber, 2010). In the same time, many technological obstacles are still obstructing the development and growth of e-learning system in many Arab countries such as Sudan and Yemen because these countries have a minimal presence in information and communication technology (ICT) landscape and have poor alignment of ICT-driven capabilities with businesses and academic institutions, especially in rural community context.

Jordan has invested in digital technologies to renovate and modernize the infrastructure of the country's educational system. Additionally, there has been recent demand for e-learning technologies in Jordan as reported by Hinnawi (2011). For example, Jordan scores high (third place after United Arab Emirates and Kuwait) in utilizing e-learning system in private schools (Fraij, 2013). Still however, e-learning technologies have not satisfactorily expanded and proliferated among higher education system in Jordan. One of the primary causes that obstructs the development and expansion of web-delivered educational system in Jordan is organizational infrastructure; this is often acknowledged as the greatest barrier to development (Al-Adwan and Smedley, 2013). It is true that Jordan has put too much efforts to achieve world class e-learning systems for both public schools and universities, unfortunately the results have been overwhelmingly daunting (Al-Adwan and Smedley, 2013). In fact, there have also many problematic issues hindering the deployment of successful methodologies to ensure proper implementation of e-learning initiatives. One of the greatest concerns challenging the future of this technology is the lack of proper perception and awareness of what factors influencing e-learning systems adoption and acceptance among students and learners. Admittedly, one of the most important reasons that impedes the development and growth of e-learning systems in the Arab world in general and Jordan in particular is lack of serious empirical analysis related directly to the dynamics of e-learning adoption and use (Al-Mushasha and Nassuora, 2012). In effect, there are studies implemented in many Arab countries attempting to understand learners' perceptions and behaviors in order to achieve the development of effective and flexible web-based learning environments. However, the outcomes of these studies have not been taken seriously and never put in practice by businesses delivering e-learning services. In the meantime, these studies have never been quite comprehensive to measure fully what ignites the willingness of individual learners to adopt and use e-learning educational environments and what factors motivate them to accept the new medium of education. Probably, however, this study could be the stepping stone for researchers to build on further research in the future.

## 2.2 Perceived value

The conceptualization of perceived value has not been an easy task to achieve because perceived value is an abstract concept and strongly tied with the context of its use (Jamal and Muhammad, 2011). However, studying the influence of perceived value on individuals' perspectives and behaviors toward adoption has gained considerable attention in marketing research (Ford and Staples, 2006). The meaning of perceived value in the context of e-learning environment can be observed pragmatically as the extent of importance to which an individual attaches to an e-learning system as a whole (Levy, 2006). Perceived value is defined as the individual's overall assessment of the utility of a product based on perceptions of what is received and what is given (Zeithaml, 1988). However, little attention has been paid to studying the direct influence of perceived value on the behavioral intention to adopt and use an e-learning system; it has only been studied as an indirect effect through the mediation of the aspect of satisfaction. For example, Chiu et al. (2005) confirmed the positive influence perceived value has on the individuals' level of satisfaction which indirectly influences positively behavioral intention towards the adoption of e-learning technology. Similar findings have been reported by many prior studies (e.g., Isik, 2008).

Indeed, there is a paucity of research analysis connecting directly perceived value with behavioral intention in e-learning environment. For example, one of the rare studies in that respect conducted by Tang et al. (2014), they revealed that perceived benefits, which largely overlapping with the aspect of perceived value, positively and directly affects the behavioral intention to use e-learning system. However, the aspect of perceived value has been largely included in many empirically-based research studies conducted in relation to services delivered through the Internet channel (Chang et al., 2009; Chang et al., 2014; Yi et al., 2014). Also, in a study investigating the adoption of mobile commerce in Jordan, Khasawneh (2015) underlined the importance of perceived benefits in predicting positively the consumers' behavioral intention to adopt and use the technology of mobile commerce. Thus, this study proposes that perceived value may have a positive influence on individual's intention to adopt e-learning technology in Jordan. In sum,

**H1:** Perceived value of e-learning system positively affects students' perceived intention.

### **2.3 Perceived usefulness**

The perceptions of usefulness is fundamentally significant construct of intentional behavior and primary motivator of IS/IT acceptance. This technology-related factor is derived from TAM theory and consistently demonstrated to be strongly connected with the adoption of new technologies, and also capable of encouraging the success of powering information systems within different businesses landscapes (Davies et. al, 1989). Indeed, this construct is a core driver of new technology adoption and use. Further, such construct, according to Davies et. al (1989), seems to inspire the attitude, intention, and behavior chain of human psychology toward using the technology. Therefore, perceived usefulness has been predominately used in empirical-based analysis of adoption decisions in various information technology domains. Undoubtedly, most empirical research studies that have been conducted on the adoption and acceptance of IT-related technologies and techniques have included this technology-related construct in the analysis and in most cases manifested as influential variable in impacting the decision-making processes in relation to technology adoption.

Perceived usefulness (PU) is defined as the extent to which an individual believes that utilizing a system would improve his or her job performance (Davis, 1989). According to a large spectrum of adoption studies conducted in a diversity of IT-based systems, if individuals believe that adoption of a new system is useful, enhancing their job performance and individuals' effectiveness, and boosting their knowledge and skills; these positive benefits expected to be gained from using the technology will automatically stimulate individuals' perceptions and behaviors to engage in the adoption and usage of the technology. Therefore it is expected that individuals will be willingly and freely adopting and using the system. In the context of e-learning technology, perceived usefulness indicates that using a technology will enhance individuals' performance in learning and acquisition. The aspect of perceived usefulness has been widely utilized in adoption and acceptance studies related to a multiplicity of information technologies domains, particularly e-learning. For example, a study implemented in four public universities in Iran by Mohammadi (2015) concluded that perceived usefulness positively and significantly determines students' behavioral intention to adopt e-learning technology. In similar context of undergraduate students, Chang and Tung (2008) reported similar findings. In addition, a plethora of empirical analysis conducted on e-learning environments have confirmed the positive influence of perceived usefulness on behavioral intention to adopt and use e-learning services (Al-alak and Alnawas, 2011; Purnomo and Lee, 2013; Lee et al., 2014). Therefore, according to this argument the following hypothesis is deemed important.

**H2:** Perceived usefulness positively affects students' perceived intention.

## **2.4 Facilitating conditions**

In the context of technology-mediated education (e-learning), facilitating conditions determinant is defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the e-learning system (Venkatesh et al, 2003). However, facilitating conditions determinant intends to assess the statistical significance of objective variables in the organizational environment that capable of removing impeding barriers to facilitate the adoption and use of a new technological innovation (Venkatesh et al., 2003). In e-learning environment, facilitating conditions are the organizational technical infrastructure that include resources (hardware, and software), financial resources, time, training, knowledge, technical supporting personnel, Internet access and speed, cost and other organizational assistances (Alenezi et al., 2011). Indeed, a lack of organizational supporting infrastructure has been recognized as a crucial impediment for successful e-learning adoption, acceptance and implementation (Selim, 2007). In an e-learning adoption study implemented in the context of Saudi Arabia by Alenezi et al. (2011) that has extended the TAM model with the facilitating conditions determinant, attempting to understand the importance of the technical and non-technical supports provided by educational institutions in enhancing the adoption and usage of e-learning technology among higher education students. Alenezi et al. concluded that facilitating conditions determinant has positively and significantly influenced students' perceptions and behaviors towards e-learning technology acceptance. Furthermore, a meta-analysis conducted by Dwivedi et al. (2011) in relation to various empirical analysis on e-learning adoption and acceptance has underlined that facilitating conditions have strong effects on intention, usage and behaviors of e-learning system. Finally, the current study

intends to investigate whether facilitating conditions dimension influences perceived value construct. Therefore, the following hypothesis is proposed.

**H3:** Facilitating conditions positively affect students' perceived value of the system.

## 2.5 Quality service

The quality service being offered to individual users have been recognized to positively and significantly influence their perceptions and behaviors towards adoption and acceptance of new technological innovations (Zeithaml, 1988; Lee, 2010), Internet-enabled learning environments are apparently no exception. Without a doubt, the excellence of services being offered to individual learners can influence positively the level of adoption and acceptance of e-learning educational systems (Xin, 2004). Quality service is defined as individuals' assessment of the overall superiority of the service (Zeithaml (1988). In furtherance, studies have shown that one of the primary reasons of loss and high rates of dropout in e-learning domains has been attributed to lower perceived service quality of e-learning systems (Levy, 2007; Lykourantzou et al., 2009). In addition, quality service has been highlighted to positively impact the individuals' behavioral intention to adopt and use e-learning technology in a plethora of empirical analysis (Lee, 2010; Ramayah et al., 2010; Abu-Al-Aish and Love, 2013; Alshibly, 2014). In the process, e-learning systems can fundamentally become fully integrated within learners' daily lives in greater proportions than most e-delivered services. Consequently, online-delivered learning systems must be deployed to the digitized world of education and learning emphasizing and endorsing effectiveness, robustness and soundness. In addition, e-learning educational environments must have many appealing characteristics and make available imperative requirements involved in its development and implementation processes so that the delivered system provides its functionalities dynamically to students and learners with excellence within a caring environment in order to assist individual learners to realize, develop and build up their full potential effectively and contentedly. As a result, there is an immediate need in the development stage of e-learning system to provide the presence of reference points such as provision of cues, clues, affordances, signals and indicators of quality of services for learners to pay attention to in order to facilitate their interaction and communication with the e-based learning systems.

The quality service of online-delivered products and services has been statistically reported to be of a fundamental determinant of perceived value, thereby as the service quality of a product increases the greater the levels of customer perceived value (Leisen Pollack, 2008). For example, Ebrahimi (2014) documented that service quality of offline-delivered household products have significantly a positive effect on perceived value of the service. Also, numerous research studies strongly advocate the positive correlation between service quality of online products and perceived value (Malik, 2012; Chinomona et al., 2014). This study is intended to examine the influence of quality of service on learners' perceived value of e-learning system. Thus, the following hypothesis is formulated.

**H4:** Quality service positively affects students' perceived value of the system.

## 2.6 Perceived ease of use

Perceived ease of use (PEoU) is defined as the extent to which an individual believes that utilizing a system would be effortless (Davis, 1989). In the meantime, the aspect of ease-of-use has been widely associated with predicting perceived usefulness. In other words, according to TAM theory, perceived ease-of-use has been regarded as an important determinant of perceived usefulness (Davis, 1989). The relationship between these parameters has been statistically established in almost all empirical adoption analysis implemented in different fields of information technologies and in different social and cultural settings. Many prior adoption and acceptance studies conducted in areas related to e-learning applications and services have also observed that the perceptions of ease-of-use positively and significantly influence the perceptions of usefulness (Chang and Tung, 2008; Purnomo and Lee, 2013; Lee et al., 2014; Mohammadi, 2015). This indicates that if individual learners perceive the system as easy to use, it is expected that they will recognize the system as useful; therefore, the more likely the individual learners will pursue the adoption and use of the technology of e-learning. Consequently, the following hypothesis is proposed.

**H5:** Perceived ease-of-use positively affects students' perceived usefulness of the system.

## 2.7 Social influence

The aspect of social influence (SI) is a key determinant in learning and decision-making processes. Social influence is defined as the extent to which a person perceives that important others believe he or she should use a new innovation (Fishbein and Ajzen, 1975; Venkatesh et al., 2003). The underlying principle behind this type of effect is that an individual has the tendency to perform a specific behavior just because other referents reward the desired behavior. In the meantime, social influence seems to be more positive in influencing the technology adoption in developing cultures than developed cultures (Venkatesh et al., 2003; Jaradat and Faqih, 2014; Faqih and Jaradat, 2015). Therefore, the effect of social influence on adoption behavior needs to be addressed in developing cultures such as Jordan, whereby Jordan is characterized by low-trust culture and collectivist-based society. This implies that opinions of others are valuable and influential when making an adoption decision in Jordanian environment. Indeed, a successful information systems model in e-learning context should integrate the social dimension in its modeling because this will reduce primary obstacles to adoption and improve its cultural acceptance and effectiveness. Many empirical studies conducted in e-learning context have implicated that the dimension of social influence has a positive effect on the perceptions of usefulness of e-learning. For example, in a study implemented in South Korea by Park (2009) using students as a sample, Park concluded that social influence has a positive influence on perceived usefulness. Many others have arrived at similar conclusions regarding the effect of SI on perceived usefulness (e.g., 2008; Okazaki and dos Santos, 2012). Given the arguments presented above, the forthcoming hypothesis is deemed important.

**H6:** Social influence positively affects students' perceived usefulness of the system.

## 2.8 Perceived compatibility

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Perceived compatibility is defined as the degree to which an e-learning system is perceived as being consistent with the existing values, needs and experiences of learners (Moore and Benbasat, 1991). The influence of perceived compatibility factor has been extensively explored in a variety of information technology domains (Venkatesh et al., 2003; Sun et al., 2009; Crespo and del Bosque, 2010; Crespo et al., 2013; Faqih, 2016). For example, He et al. (2006) explored empirically the adoption of e-payment system in online environment, they documented that perceived compatibility was the only parameter among many others to be significantly relevant and important to the individuals' intentional behavior in the adoption process of the technology of e-payment.

Many empirical-based analyses have confirmed the significance of perceived compatibility parameter on the adoption process of e-learning system. For example, an empirical analysis implemented by Duan et al., (2010) established that perceived compatibility was relevant to e-learning adoption among Chinese students; it was found that students' behavioral intention was positively and significantly influenced by the aspect of perceived compatibility. Further, an empirical analysis was implemented in China to examine specific factors influencing employees' intentional behaviors toward e-learning system acceptance and adoption. The results reported that perceived compatibility impacted both perceived usefulness and intention to adopt the system (Lee et al., 2011). One of the rare empirical analysis that has investigated the aspect of perceived compatibility as a moderator concluded that the compatibility dimension positively moderates the relationship connecting e-learning system use with academic performance (Islam, 2016). In furtherance, the relevance of the compatibility issue to e-learning has been attributed to the fact that e-learning technology can be considered as an innovative educational system rather than a particular IS/IT application, therefore the innovation diffusion theory (IDT) is very much applicable and well-suited to address this type of Internet-based technology (Duan et al., 2010). However, the majority of studies exploring the perceived compatibility dimension have investigated how this dimension influences perceived usefulness and the intention to use e-learning innovational technology. However, little empirical analysis has been devoted to examine the moderating effect of perceived compatibility on the adoption process of e-learning environment. Further, Larsen et al. (2009) have pointed to an important influence that perceived compatibility could play an important role such as enhancing job performance. Certainly, there is an urgent need to bypass the black box approach used today by further probing more profoundly into aspects of how certain factors related to the dynamics of e-learning systems interact with each other, and what moderating effects can perceived compatibility play on these interactions. As a result, the current study will extend the use of perceived compatibility from being conventionally acknowledged as a key driver influencing primary TAM-related constructs (Islam, 2016) as already used in the majority of adoption studies implemented on a large spectrum of information technologies of varied domains, particularly those delivered online. The intention of this study is an important extension of the moderating role of perceived compatibility that may have on the adoption process of e-learning technology.

This study believes that perceived compatibility has a role to play as a moderator in influencing the relationships hypothesized among different factors commonly used in investigating the adoption of

e-learning technology processes. Further, based on the argument presented by Goodhue and Thompson (1995) on the degree of fit between task to be performed and the technology needed to accomplish the task, students and learners will be willing to achieve their lifestyle objectives by adopting e-learning technology because the dynamics of e-learning infrastructure is unique, where educators and learners decide the location, time and tempo of learning and education. Most importantly, e-learning is more compatible with individuals' needs and expectations than most online delivered services because acquiring online services can not be outstandingly urgent, however providing online-enabled learning technology with unmatched convenience and flexibility from individual's perspectives can be immensely imperative, particularly offering lifelong learning opportunities through e-based learning systems can be of great interest that enable economical development and growth and social inclusion (Head et al., 2015). The current study anticipates that the higher the perceived compatibility the greater the influence of perceived value and perceived usefulness constructs on behavioral intention to use e-learning technology. In addition, the greater the perceived compatibility the lower the influence of facilitating conditions and quality service determinants on perceived value of the system, and the lower the influence of perceived ease-of-use and social influence determinants on perceived usefulness of the system because the aspect of compatibility may become of more concern to students than these four determinants in e-learning technology acceptance. Therefore, the current analysis suggests that the aspect of perceived compatibility moderates the relationships proposed by the current study in the following manner.

**H7:** The higher the perceived compatibility the greater the effect of perceived value on individuals' behavioral intention to adopt and use e-learning system.

**H8:** The higher the perceived compatibility the greater the effect of perceived usefulness on behavioral intention to adopt and use e-learning technology.

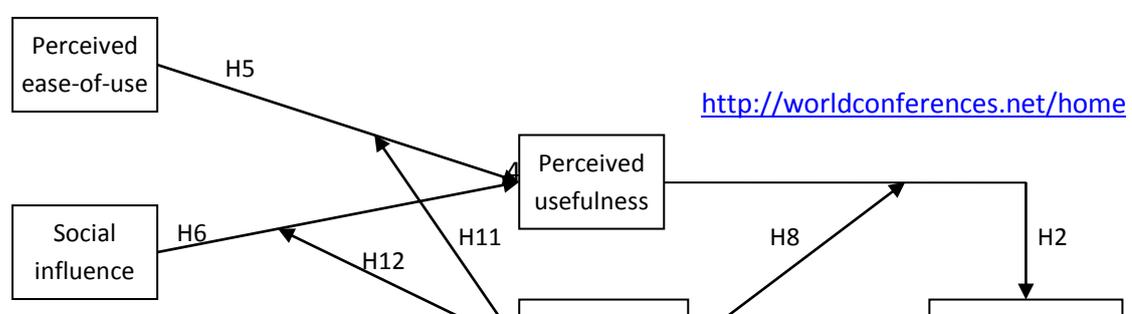
**H9:** The higher the perceived compatibility the lower the influence of facilitating conditions determinant on perceived value of e-learning technology.

**H10:** The higher the perceived compatibility the lower the influence of quality service determinant on perceived value of e-learning technology.

**H11:** The higher the perceived compatibility the lower the influence of perceived ease-of-use on perceived usefulness of e-learning technology.

**H12:** The higher the perceived compatibility the lower the influence of social influence on perceived usefulness of e-learning technology.

The proposed research model is shown in Figure 1.



#### **4. Research methodology**

This study intends to find out which is more important in the adoption process of e-learning systems in Jordan, perceived value or perceived usefulness since these two parameters have been highlighted in prior literature to be prominently influential in enhancing the behavioral intention to adopt different information technologies. Four determinants (facilitating conditions, service quality, perceived ease-of-use and social influence) have been proposed for investigation in the current analysis to determine their influence, if any, on perceived value and perceived usefulness constructs. In addition, the perceived compatibility has been suggested in this model to determine whether this factor moderates the relationships proposed in the current study. To attain such objectives, a quantitative-based methodology was implemented, thereby pertinent empirical data needed to be identified and collected. The stratified probability sampling scheme has been the primary choice for collecting the sample data because this technique is one of the most successful approaches to use for data sample collection as it reduces significantly sampling error. The questionnaire was developed from previous literature, whereby the measurements items selected for realizing the objectives of the current investigation are well documented in literature, and has been comprehensively tested and validated in a variety of adoption studies and in different fields of information technology. The wording of the measurement items was modified to comply with the primary specificities of the e-learning context. The survey questionnaire was translated into Arabic language since the current study was launched in an Arabic environment. The translation process was conducted by professional experts in the field as well as the author and their primary intention was to guarantee that the Arabic version carries the full meaning of the English language version. Finally, each measurement item in the questionnaire was quantitatively measured on a 7-

point Likert scale approach, whereby 1 signifying “strongly disagree” and 7 signifying “strongly agree”.

The data collection was accomplished via a paper-based self-administered questionnaire; the survey questionnaire was administered to undergraduate students (Internet users) at Al al-Bayt University (a public type of university) in Jordan. 265 (125 males and 140 females) survey questionnaires were found valid for further analysis. The current study has employed the WarpPLS 5.0 software (PLS-based SEM) to provide the statistical analysis necessary to make sure that the data justifiably support the model under investigation and also to statistically test the hypotheses proposed in the current model. In effect, over the last decade, the PLS software approach has been extensively utilized in marketing and business studies (Hair et al., 2011) because it can be used for models of complex processes, particularly those with moderating effects.

#### **4.1 Evaluation of the measurement model**

The forthcoming factor analysis is normally conducted to provide the necessary statistical analysis in order to gauge the extent of the adequacy of the model’s fit to the sample data. So that the empirical data can be carried forward for further analysis, specifically hypotheses testing (structural model testing) which helps determine statistical correlation effects between hypothetical relationships proposed in the current model. Indeed, the identification of these effects would drive e-education businesses formulate business strategies to inspire users to participate in the adoption process of an innovative digital technology of e-learning. To judge the adequacy of the empirical data with the proposed model, an assessment of the measurement model is conducted and this type of analysis primarily concentrates on two statistical issues: construct reliability (internal consistency) and construct validity (including: convergent validity and discriminant validity (item-level and construct level analysis). To statistically verify these issues, related criteria (fit statistics) will be computed using the WarpPLS version 5.0 and the results obtained for these fit statistics must fall above the minimum threshold values recommended by related literature. First, the Cronbach alpha ( $\alpha$ ) is commonly used to verify the reliability of a construct (internal consistency), Table 1 displays the Cronbach alpha ( $\alpha$ ) values for each construct and all computed values are above the 0.7 benchmark recommended by Hair et al. (2011), suggesting adequate reliability. Second, construct validity which is used to identify whether a study is measuring what it is intended to measure (Drost, 2011). To achieve construct validity, there is a need to estimate both convergent validity and discriminant validity. Convergent validity is used to evaluate the extent to which a measure is correlated with its theoretical construct (Fornell and Larcker, 1981). To establish statistically the convergent validity fit statistic, Fornell and Larcker (1981) proposed a validity criteria, whereby items’ factor loadings must be above 0.5, composite reliability (CR) has to be larger than 0.7 and average variance explained (AVE) has to be greater than 0.50. From Table 1, it is apparent that the three fit statistics are above the recommended threshold limit values, implying that the empirical data exhibits an adequate convergent validity.

Further, discriminant validity which is statistically used to reveal that a construct is actually different from other constructs included in the research model. Assessment of discriminant validity is commonly implemented at both item level and construct level.

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can be established if each construct shares more variance with its underlying measures than it shares with other constructs (Fornell and Larcker (1981). Table 2 shows that measures are loading more heavily on their own construct than other constructs. This is a strong indication that the proposed model has satisfactory discriminant validity at item level. Further, the model will exhibit adequate discriminant validity at construct level if the square root of the average variance extracted (AVE) of each construct is larger than correlation with other constructs (Fornell and Larcker, 1981). Table 3 reveals that the diagonal square root of AVE (boldface) of each construct is higher than the correlations between the constructs and all other constructs. Therefore, the current model has sufficient discriminant validity at construct level. Therefore, the findings reported by this study offer convincing statistical evidence that current proposed model has adequate level of construct reliability and construct validity.

**Table 1**  
Reliability and validity

Constructs	Item Code	Factor Loading	Average Variance Extracted (AVE)	Cronbach's Alpha ( $\alpha$ )	Composite Reliability (CR)
Behavioral intention (BI)	BI1	0.821	0.661	0.829	0.886
	BI2	0.844			
	BI3	0.799			
	BI4	0.787			
Perceived value (PV)	PV1	0.863	0.681	0.882	0.914
	PV2	0.850			
	PV3	0.848			
Perceived usefulness (PU)	PU1	0.809	0.729	0.814	0.890
	PU2	0.871			
	PU3	0.834			
	PU4	0.843			
	PU5	0.765			
Facilitating conditions (FC)	FC1	0.859	0.667	0.832	0.889
	FC2	0.817			
	FC3	0.855			
	FC4	0.730			
Quality service (QS)	QS1	0.828	0.657	0.824	0.884
	QS2	0.833			
	QS3	0.868			
	QS4	0.704			
Perceived ease-of-use (PEoU)	PEoU1	0.749	0.633	0.855	0.896
	PEoU2	0.819			
	PEoU3	0.794			
	PEoU4	0.820			
	PEoU5	0.795			
Social influence (SI)	SI1	0.694			

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	SI2	0.705	0.572	0.748	0.842
	IS3	0.829			
	IS4	0.788			
Perceived compatibility (PC)	PC1	0.847			
	PC2	0.860	0.612	0.782	0.861
	PC3	0.605			
	PC4	0.791			

**Table 2**

Loadings and cross-loadings for the measurement model.

	BI	PV	PU	FC	QS	PEoU	SI	PC
BI1	<b>0.821</b>	0.046	0.026	-0.013	-0.092	0.049	-0.057	0.048
BI2	<b>0.844</b>	0.039	-0.043	0.034	0.010	0.030	-0.014	0.041
BI3	<b>0.799</b>	-0.004	-0.027	-0.060	0.122	-0.055	-0.099	0.023
BI4	<b>0.787</b>	-0.086	0.046	0.038	-0.038	-0.028	0.175	-0.117
PV1	0.014	<b>0.863</b>	0.068	0.070	-0.070	-0.041	-0.042	-0.052
PV2	0.032	<b>0.850</b>	-0.094	-0.099	0.064	0.013	-0.011	0.024
PV3	-0.045	<b>0.848</b>	0.024	0.028	0.007	0.029	0.054	0.029
PU1	0.027	-0.101	<b>0.809</b>	0.022	-0.062	-0.023	0.014	-0.015
PU2	-0.068	0.035	<b>0.871</b>	-0.105	-0.093	-0.023	0.016	0.043
PU3	-0.116	0.096	<b>0.834</b>	0.075	-0.032	0.062	0.080	0.023
PU4	0.005	0.083	<b>0.843</b>	-0.017	0.066	0.032	-0.058	-0.045
PU5	0.170	-0.129	<b>0.765</b>	0.033	0.134	-0.052	-0.057	-0.009
FC1	-0.108	0.004	0.032	<b>0.859</b>	-0.011	-0.021	0.026	0.049
FC2	0.092	-0.136	-0.215	<b>0.817</b>	0.122	0.043	-0.072	-0.026
FC3	0.052	0.022	0.062	<b>0.855</b>	-0.098	-0.048	-0.011	0.050
FC4	-0.037	0.122	0.130	<b>0.730</b>	-0.009	0.033	0.062	-0.087
QS1	0.079	0.102	-0.064	0.105	<b>0.828</b>	-0.051	-0.070	-0.006
QS2	-0.045	-0.094	0.162	0.052	<b>0.833</b>	-0.047	0.052	-0.063
QS3	0.043	-0.102	-0.074	-0.071	<b>0.868</b>	0.055	0.019	0.032
QS4	-0.093	0.117	-0.025	-0.098	<b>0.704</b>	0.047	-0.003	0.042

PEoU1	-0.071	0.225	0.193	-0.046	-0.125	<b>0.749</b>	-0.001	0.030
PEoU2	-0.024	0.063	0.015	-0.141	0.003	<b>0.819</b>	-0.068	0.101
PEoU3	0.090	-0.161	-0.090	-0.150	0.117	<b>0.794</b>	0.013	-0.054
PEoU4	0.137	-0.050	-0.063	0.148	-0.006	<b>0.820</b>	-0.010	-0.051
PEoU5	-0.141	-0.064	-0.042	0.186	0.004	<b>0.795</b>	0.069	-0.026
SN1	0.200	-0.202	0.031	0.043	0.069	-0.161	<b>0.694</b>	0.011
SN2	0.175	-0.187	0.091	-0.275	0.105	0.094	<b>0.705</b>	0.209
SN3	-0.231	0.129	-0.007	0.157	-0.005	0.047	<b>0.829</b>	-0.146
SN4	-0.090	0.210	-0.102	0.042	-0.149	0.008	<b>0.788</b>	-0.043
PC1	-0.05	-0.064	-0.006	0.139	0.098	0.078	0.029	<b>0.847</b>
PC2	0.115	0.056	-0.019	-0.006	-0.052	0.015	-0.083	<b>0.860</b>
PC3	0.112	0.192	-0.098	-0.346	-0.128	0.026	-0.083	<b>0.605</b>
PC4	-0.158	-0.139	0.102	0.122	0.050	-0.119	0.123	<b>0.791</b>

**Table 3**

Discriminant validity of the constructs.

	1	2	3	4	5	6	7	8
1. BI	<b>0.813</b>							
2. PV	0.483	<b>0.854</b>						
3. PU	0.586	0.386	<b>0.825</b>					
4. FC	0.445	0.438	0.392	<b>0.817</b>				
5. QS	0.374	0.516	0.318	0.341	<b>0.811</b>			
6. PEOU	0.343	0.338	0.385	0.350	0.260	<b>0.796</b>		
7. SI	0.578	0.616	0.460	0.434	0.426	0.292	<b>0.756</b>	
8. PC	0.426	0.467	0.369	0.482	0.401	0.279	0.486	<b>0.782</b>

Note: The Diagonal elements (boldface) are the square root of average variance extracted

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(AVE). Off-diagonal elements are the correlations among constructs.

## 4.2 Evaluation of the structural model

In accordance with the findings reported in the previous section that the measurement model has the required reliability and validity, the model is therefore liable for further statistical analysis such as assessing the structural model. First, we need to check on the quality of the model by means of looking at certain model fit indices provided by the WarpPLS 5.0. These indices are normally utilized to evaluate model fit, namely the average path coefficient (APC=0.242,  $p < 0.001$ ), where  $p < 0.05$ , the average R-squared (ARS=0.398,  $p < 0.001$ ), where  $p < 0.05$ , and the average block variance inflation factor (AVIF=1.634, acceptable if  $\leq 5$ ). The findings clearly reveal that a good fit between the proposed model and the empirical data (Kock, 2012). Second, the global validity of the model can be established through the assessment of the goodness-of-fit (GoF) criteria (Tenenhaus et al., 2005), the WarpPLS 5.0 provides an estimate for GoF (=0.481), this exceeds the threshold of GoF  $\geq 0.36$  suggested for large  $R^2$ . This is an indication of the fact that the global validity of the model is acceptably adequate. In conclusion, according to these findings the structural model is liable for further analysis such as hypothesis testing.

The WarpPLS 5.0 was utilized to test the hypotheses proposed in the current model. The results have demonstrated that ten out of twelve hypotheses have been statistically found significant (Figure 2). The results confirmed that both perceived value and perceived usefulness positively and significantly influence behavioral intention to adopt e-learning system, where perceived usefulness (**H2**:  $\beta=0.484$ ,  $p < 0.001$ ) has much greater influence on behavioral intention than perceived value (**H1**:  $\beta=0.274$ ,  $p < 0.001$ ). Also, facilitating conditions (**H3**:  $\beta=0.287$ ,  $p < 0.001$ ) and quality of service (**H4**:  $\beta=0.372$ ,  $p < 0.001$ ) determinants have a positive influence on perceived value, and perceived ease-of-use (**H5**:  $\beta=0.211$ ,  $p < 0.001$ ) and social influence (**H6**:  $\beta=0.409$ ,  $p < 0.001$ ) determinants positively affect perceived usefulness of the system. Furthermore, the results reveal that perceived compatibility moderates all conceptualized relationships in the current model (**H7**:  $\beta=0.116$ ,  $p < 0.05$ ; **H9**:  $\beta=-0.148$ ,  $p < 0.01$ ; **H11**:  $\beta=-0.309$ ,  $p < 0.001$ ; **H12**:  $\beta=-0.165$ ,  $p < 0.01$ ) with the exception of two moderating relationships, the relationship between perceived usefulness and behavioral intention (**H8**) and the relationship between facilitating conditions determinant and perceived value (**H10**).

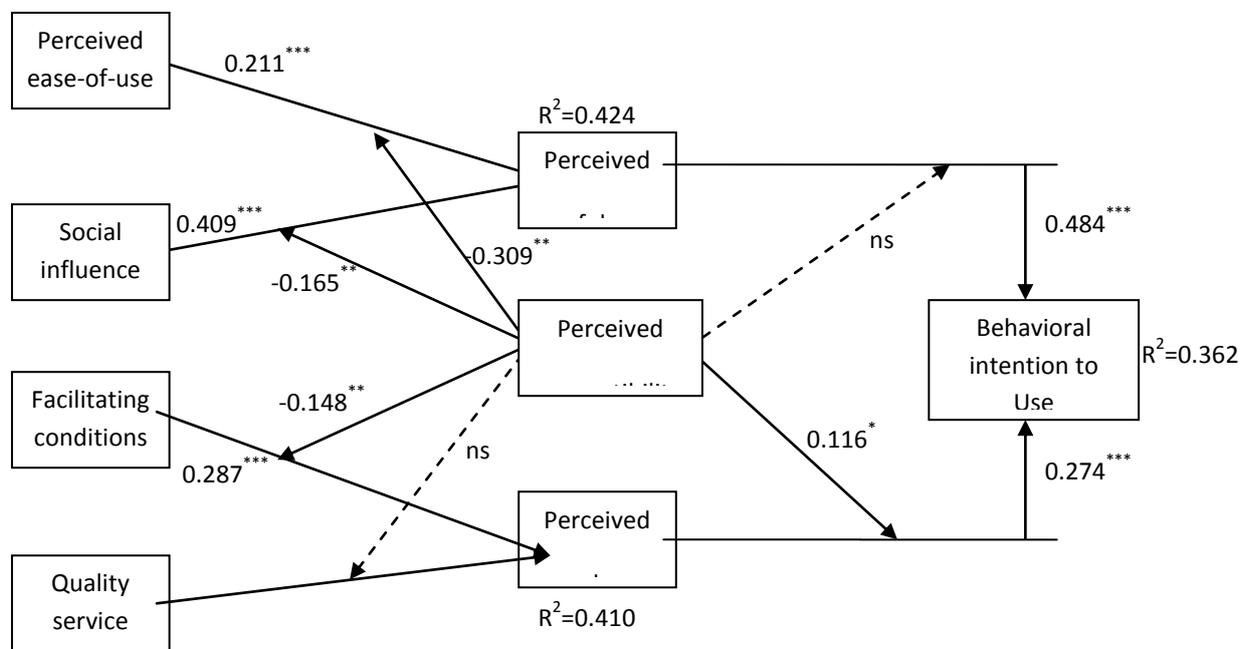


Figure 1: Results of WarpPLS analysis. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ , ns=not supported.

## 5. Discussion and implications

This study intends to compare the influence of perceived value and perceived usefulness on behavioral intention to adopt and use the emerging technology of e-learning systems. Indeed, it has been demonstrated in a large number of studies investigating various information technology fields and domains that the aspect of intention has always been a strong predictor of actual system use, thereby confirming the concept put forward by TAM theory (Davis, 1989). Without a doubt, theoretically and practically, the stronger the influence of a construct on intentional behavior, the more important role the construct plays in businesses' perspectives in improving and enhancing the adoption and use of the technology among potential users. Indeed, both constructs have been extensively studied and highlighted to be of paramount importance in IS/IT adoption literature, particularly their effect on behavioral intention. The current results demonstrate that both perceived value and perceived usefulness positively influence behavioral intention to adopt e-learning system in Jordan among undergraduate students, where perceived usefulness (H2:  $\beta=0.484$ ,  $p<0.01$ ) has much greater influence than perceived value (H1:  $\beta=0.274$ ,  $p<0.01$ ) on students' behavioral intention to adopt and use the technology. Besides, facilitating conditions (H3:  $\beta=0.287$ ,  $p<0.01$ ) and quality of service (H4:  $\beta=0.372$ ,  $p<0.01$ ) determinants have a positive influence on perceived value, and perceived ease-of-use (H5:  $\beta=0.211$ ,  $p<0.01$ ) and social influence (H6:  $\beta=0.409$ ,  $p<0.01$ ) determinants

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positively affect the aspect of perceived usefulness. Furthermore, the results reveal that perceived compatibility moderates four conceptualized relationships (H7:  $\beta=0.116$ ,  $p=0.03$ ; H9:  $\beta=-0.148$ ,  $p<0.01$ ; H11:  $\beta=-0.309$ ,  $p<0.01$ ; H12:  $\beta=-0.165$ ,  $p<0.01$ ). Two proposed relationships (H8, H10) are found statistically insignificant whereby perceived compatibility has no moderating role to play on these relationships: the relationship between perceived usefulness and behavioral intention to adopt and use the technology and the relationship between facilitating conditions determinant and students' perceived value of the system.

### 5.1 Theoretical contributions

The theoretical contributions of this study to the adoption literature of web-enabled information systems are as follows. First, the most important theoretical contribution of this study is to compare the influence of perceived value and perceived usefulness on behavioral intention to adopt and use e-learning system as these constructs have been attributed to have major influence on the adoption behavior of many different information technologies. Previous technology adoption and acceptance research has not addressed the effect of these two constructs in the same model on behavioral intention to adopt an information technology application such as e-learning. The findings of the current result have underlined that perceived usefulness exhibits significantly stronger impact on behavioral intention of e-learning adoption than the aspect of perceived value. This particular result points to one important and interesting fact that perceived usefulness of TAM theory remains the most dominant determinant of behavioral intention over time (Al-Adwan and Smedley, 2013; Al-Gahtani, 2014; Abu-Shanab and Ababneh, 2015). As a result, this variable needs more attention and awareness in technology adoption-related research analysis in order to improve the likelihood of increasing the rate of adoption of e-learning technology. This is a significant scholarly contribution in its own right since it alerts the research community of the importance of the components of TAM theory, specifically perceived usefulness. In furtherance, perceived usefulness construct, as always expected, manifests itself clearly in research studies in different technology adoption contexts as a potentially influential key driver of technology acceptance and use. In the meantime, the current study has provided significant empirical evidence that both perceived value and perceived usefulness are important parameters in determining behavioral intention to adopt and use e-learning context among university students ( $R^2=0.362$ ).

Second, the current framework adds to literature that quality service and facilitating conditions determinants have direct effect in predicting perceived value ( $R^2=0.40$ ) and indirect effect in determining behavioral intention to adopt and use e-learning technology. Equally, perceived ease-of-use and social influence determinants contribute largely to direct prediction of perceptions of usefulness ( $R^2=0.42$ ) and indirect prediction of behavioral intention, they constitute as an important determinants of perceived usefulness in the context of e-learning environment. The outcomes of this study provide an important contribution to literature, whereby the four determinants (perceived ease-of-use, social influence, quality of service and facilitating conditions) can be seen as a target for providing practical interventions for the implementation of effective methodologies and strategies in the design process of e-learning systems which help learners achieve easy knowledge acquisition,

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adaptability, effective collaborative activities and satisfaction (Brindley et al., 2009; Cristea and Ghali, 2011).

Third, the current study acknowledges the importance of having an Internet-enabled learning system that should fit closely with learners' lifestyle and in harmony with their needs and lifestyles. Indeed, the moderating effect of perceived compatibility in e-learning environment has received little attention in the literature (Islam, 2016). This study, the first of its kind in the developing world cultures, has primarily intended to gauge the perceived compatibility moderating impact on the proposed theoretical framework of the current study. The findings of this study point to an important conclusion that perceived compatibility is a strong moderator that heavily influences the dynamics of e-learning adoption behavior and mechanisms. Without a doubt, this study adds an important contribution to current literature by emphasizing the importance of perceived compatibility in significantly impacting the emerging technology of e-learning adoption and usage in a developing country perspective. Additionally, the findings that perceived compatibility have no moderating influence on two of the hypothesized relationships bring about interesting contributions to the literature. These results are significant because any increase in students' perceived compatibility will not have any impact on perceived usefulness regarding students' behavioral intention towards technology adoption. Similarly, the effect of service quality on perceived value will not change favorably or unfavorably in case students' perceived compatibility changes. This implies that the aspects of perceived usefulness and service quality exert greater impact on shaping students' perceptions and perspectives in the process of making a decision to adopt and use the e-learning technology than perceived compatibility.

## 5.2 Conclusions and practical implications

The findings of this study offer some interesting and insightful practical implications for the benefits of promoting and improving the perspectives of e-learning systems at higher academic institutions in Jordan. In fact, the major concern of this study is to understand what factors driving effectively the aspiration and motivation of students to adopt and use the technology of e-learning context among Jordanian undergraduates. Certainly the empirical findings reported by the current studies can pinpoint to valuable and relevant insights that drive the formation and formulation of favorable practical and managerial guides to system developers, owners, operators and custodians; and in effect this will optimistically and productively intensify the adoption rate of e-driven information systems and enhance their successful implementations in education and learning environments (Tarhini et al., 2014). First of all, this study offers strong empirical evidence that perceived value and perceived usefulness factors positively predict and determine the formation of students' behavioral intention toward performing the behavior of adopting and using e-learning systems in Jordan. Consequently, student's behavioral intention will be generally enhanced as a result of augmenting students' perceptions of value and usefulness. This study indicates if the system exhibit high perceived value and high perceived usefulness learners will be more driven and motivated to adopt and accept these technology-enabled learning systems. Therefore, practical implications can be drawn from these empirically-based research studies to logically inform individuals concerned to

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appropriately place these implications in the development and production life cycle of these systems. For example, to enhance the perceptions of value of e-learning systems, academics and practitioners must make certain that educators and learners recognize the full potential and value of e-learning environments to achieve technology embracement and adoption and also avoid disillusionment and frustration with these e-educational systems by individual educators and learners. Undoubtedly, prior literature has acknowledged that perceived value is an imperative measuring metric that helps system's designers having greater awareness of individual learners' values and preferences and working to incorporate these favorable issues and valuable considerations in the development processes of e-learning educational systems (e.g., Isik, 2008). Furthermore, to augment and enhance the perceptions of usefulness among individual educators and learners, academics and practitioners must provide software tools and utilities that guarantee seamless interactive experience with e-learning system so that the e-based system setup looks practically useful from users' perspectives. Indeed, potentially promising and fundamentally useful e-learning technologies must provide appropriate forums for users to realize their educational goals. To achieve these objectives and offer favorable properties, the e-based learning system should be suitably appropriate for use through installing dynamic and responsive tools such as e-mail technology to facilitate rapid communication between lecturers and students. In furtherance, to substantiate the usefulness of e-learning systems, their websites must satisfy users' needs and expectations by providing successfully enjoyable, engaging, collaborative and contextual environment (Iverson, 2004), as well as e-learning websites must have the subsequent favorable characteristics such accessing its contents swiftly, working properly, communicating well and enhancing user experience. It is true that these website favorable characteristics are extremely challenging issues to have appropriately realized in place from people's concerned viewpoint.

Second, the current findings reveal that service quality and facilitating conditions determinants contribute overwhelmingly to the positive formation of perceptions of value among undergraduate students in Jordan in relation to the adoption of e-learning environment. This implies that the higher the service quality and facilitating conditions perceived by users the greater the value of e-learning systems perceived by individual learners. In effect, service quality has been viewed in business-related literature as a strategic force (Grubor et al., 2010) for businesses thriving to achieve successful leadership excellence and momentum in development and sustainability in today's highly challenging and fierce business environments. However, in relation to the context of this study, having service quality in place would boost leadership status for higher education academic institutions. Indeed, a compromise in service quality would drive the e-based learning system to adrift into paradoxes. To offer the service quality that are prerequisites from users' perspectives for successful deployment of e-learning environment into higher educational contexts, developers must make sure that e-learning system's service quality attributes are easily visible and observable by educators and learners. Therefore, e-learning should have intuitive navigational systems, efficient browsing mechanisms and should have seamless help menus to solve problems, troubleshoot, assist users, find information, and provide tutorials, explanations and feedback. Further, to enhance users' perceptions of the value of the technology, there is practically and imperatively a need to make security assurance available by providing critical aspects, techniques and mechanisms that guarantee the realization of a high level of security requirements within e-learning environments. In the meantime, for e-learning technology to have certain qualities that heighten learners' intentional

behavior towards enhancement technology adoption rate is having the quality aspects of reliability, dependability and validity well-recognized and well-established for deployment at the design and development stages of e-based learning systems (Markham and Hurst, 2009). Furthermore, the current findings have empirically confirmed the positive effect of facilitating conditions determinant in enhancing the perceptions of value among students of Al al-Bayt University in Jordan. Therefore, managers of academic institutions, e-driven technology developers and service providers must be aware and well-informed of what issues, conditions and techniques such as organizational and technical infrastructure, instruments, tools and related knowledge must be available to support and facilitate the deployment and use of e-learning system in the higher educational setting. Indeed, it is essential to amplify organizational and technological assistance for undergraduate students and offering soft skills training programs and materials to intensify and strengthen their perceptions of value of web-based learning technology.

Third, the current findings have also empirically supported that perceived ease-of-use and social influence dimensions have significant and positive impact on perceived usefulness towards adoption of e-learning technology among university students in Jordan. In actual fact, these findings can be insightfully utilized to derive and identify some useful practical interventions and implications for technology developers and academic institutions management to consider in the design, development and deployment of e-learning educational systems prior to installation in academic institutions environments. Without a doubt, it is highly expected that these insightful implications will achieve breakthrough in e-learning technology adoption rates if effectively aligned and integrated with online-delivered learning and education systems. To enhance the perceptions of ease-of-use to intensify perceived usefulness of the system, systems' developers should attempt to develop and implement an e-based learning system equipped with usable websites featuring desirable characteristics capable of facilitating its use by instructors, educators and learners. Definitely, the favorable attributes that promote usability of the website systems is technically numerous. However, providing attractive, easy to use, user-friendly, navigable and interactive interface can facilitate the use of the working environment of the web-based learning system by individual users. This state of affair will effectively enrich e-learning system environment with intuitive merits and sound values that can be easily observed and perceived by individuals users, and will positively enhance the perceived usefulness of the system and strengthen users' intention towards performing the behavior. In addition, the current findings underscore that social influence significantly exerts positive impacts on perceived usefulness. Certainly, the social influence determinant is a crucial parameter in contributing to increased learners perceptions of usefulness, and this will be translated as enhancements in behavioral intention towards technology adoption of e-learning system. Therefore, it is advisable to exploit the perspective of social influence to the benefits of improving users' perspectives, perceptions and behaviors towards actual acceptance and usage of the system. To exploit social influence learners' adoption decision of e-learning technology, practitioners and marketers need to attach some significance on the important role of members of the immediate social circle such as family, friends, and other reference groups can play to motivate and drive users to adopt and use the technology of e-learning systems. In furtherance, individual learners would be more willing to adopt e-learning technology because they believe that such action would augment social image and prestige. Therefore, practitioners and marketers must be acutely aware of the importance of this phenomenon and, as a result, they need to promote the e-learning

technology in higher educational institutions in Jordan as a basis of creating personal image and social value.

Fourth, the current findings have reported that perceived compatibility moderates four of the six hypothesized relationships in the current model. Perceived compatibility moderates positively the impact of perceived value on behavioral intention to adopt e-learning technology, this implies that the greater the compatibility the greater the influence of perceived value on behavioral intention. Also, the perspective of perceived compatibility moderates negatively the relationship linking facilitating conditions determinant with perceived value, and the relationships linking perceived ease-of-use and social influence determinants with perceived usefulness. These negative moderating effects point out that the higher the perceived compatibility the lesser the impact of facilitating conditions determinant on perceived value, and the higher the perceived compatibility the lesser impact of both perceived ease-of-use and social influence determinants on perceived usefulness. The most important conclusion that can be drawn from the current findings is that the higher the users' perceptions of compatibility the lesser the influence of facilitating conditions, perceived ease-of-use and social influence determinants on their intended underlying constructs, as hypothesized by the current study. In other words, viewing an innovation such e-learning technology as having high compatibility to one's needs and expectations has empirically demonstrated more impact in the adoption process of the technology than these determinants. Therefore, it is apparent that perceived compatibility plays more important moderating roles to impact the decision process and dynamics of e-learning technology adoption than these determinants: facilitating conditions, perceived ease-of-use and social influence. As a result, there is an urgent need to design, develop and implement e-learning system environment matching learners' educational needs, requirements, expectations and preferences in order to positively enhance learners' perceptions in relation to the adoption decision-making process of innovational technology of e-learning system. By the same token, practitioners and marketers must make certain that the deployed e-learning systems possess the appropriate criterion that establish the perspective of perceived compatibility that perfectly fits the learners' educational styles, preferences and culture.

### **5.3 Limitations and future studies**

The myth of an empirical research without limitations is categorically unattainable. This study has some limitations that can provide opportunities for identifying future empirical research studies. The most evident limitation of this study is generalizability of the results because the sample was drawn from one public university. Future studies should expand the data sample by including participants from different universities and colleges (both public and private universities). Further, this study has investigated the influence of four determinants, whereby leaving out many important determinants that could prove influential in the adoption process of e-learning technology. Therefore, future studies should incorporate other determinants such as Internet self-efficacy, perceived cost, personal innovativeness, Internet anxiety and other related variables. Furthermore, future studies can conduct comparative studies between undergraduate and postgraduate students segments in order to identify and distinguish the differences in perceptions, perspectives and behaviors of these segments towards technology adoption of e-learning systems in a developing

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country environment. Future studies may include also culture values at individual-level to examine their mediating and/or moderating effects on the adoption and acceptance of e-learning technology. Finally, similar data from other Arab countries can be collected to implement the current model to gauge the adoption behaviors regarding the technology in question in other Arab countries, thereby understanding the behavioral differences among these countries.

## References

Abu-Al-Aish, A., & Love, S. (2013). Factors influencing students' acceptance of m-learning: An investigation in higher education. *The International Review of Research in Open and Distributed Learning*, 14(5).

Abu-Shanab, E., & Ababneh, L. (2015). Exploring Academicians Acceptance of E-Learning Using an Extended TAM: The Case of Yarmouk University. *Journal of Network Communications and Emerging Technologies (JNCET)* www.jncet.org, 1(1).

Mohammadi, H. (2015). Investigating users' perspectives on e-learning: An integration of TAM and IS success model. *Computers in Human Behavior*, 45, 359-374.

Al-Adwan, A., & Smedley, J. (2013). Exploring students acceptance of e-learning using Technology Acceptance Model in Jordanian universities Amer Al-Adwan Applied Science University, Jordan. *International Journal of Education and Development using Information and Communication Technology*, 9(2), 4-18.

Al-alak, B. A., & Alnawas, I. A. (2011). Measuring the acceptance and adoption of e-learning by academic staff. *Knowledge Management & E-Learning: An International Journal (KM&EL)*, 3(2), 201-221.

Aldrich, C. (2005). *Simulations and the future of learning: An innovative (and perhaps revolutionary) approach to e-learning*. San Francisco: Pfeiffer.

Alenezi, A. R., Karim, A. M. A., & Veloo, A. (2011). Institutional Support and E-Learning Acceptance: An Extension of the Technology Acceptance Model. *International Journal of Instructional Technology and Distance Learning*, 8(2), 3-16.

Al-Gahtani, S. S. (2014). Empirical investigation of e-learning acceptance and assimilation: A structural equation model. *Applied Computing and Informatics*.

Al-Mushasha, N. F., & Nassuora, A. B. (2012). Factors determining e-learning service quality in Jordanian higher education environment. *Journal of Applied Sciences(Faisalabad)*, 12(14), 1474-1480.

Alshammari, M., Anane, R., & Hendley, R. J. (2015). Design and Usability Evaluation of Adaptive e-learning Systems Based on Learner Knowledge and Learning Style. In *Human-Computer Interaction–INTERACT 2015* (pp. 584-591). Springer International Publishing.

Alshibly, H. (2014). An Empirical Investigation into Factors Influencing the Intention to Use E-learning System: An Extended Technology Acceptance Model. *British Journal of Applied Science & Technology*, 4(17), 2440-2457.

Alshwaier, A., Youssef, A., & Emam, A. (2012). A new Trend for E-learning in KSA using educational clouds. *Advanced Computing: An International Journal (ACIJ)*, 3(1), 81-97.

Bermejo, S. (2005). Cooperative electronic learning in virtual laboratories through forums. *Education, IEEE Transactions on*, 48(1), 140-149.

Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J. J., & Ciganek, A. P. (2012). Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. *Computers & Education*, 58(2), 843-855.

Brindley, J., Blaschke, L. M., & Walti, C. (2009). Creating effective collaborative learning groups in an online environment. *The International Review of Research in Open and Distributed Learning*, 10(3).

[Bryant, J. and Sarakatsannis, J. \(2015\). Why US education is ready for investment. Available at<http://www.mckinsey.com/insights/social\\_sector/why\\_us\\_education\\_is\\_ready\\_for\\_investment>](http://www.mckinsey.com/insights/social_sector/why_us_education_is_ready_for_investment).

Chang, S. C., & Tung, F. C. (2008). An empirical investigation of students' behavioural intentions to use the online learning course websites. *British Journal of Educational Technology*, 39(1), 71-83.

Chang, H. H., Wang, Y. H., & Yang, W. Y. (2009). The impact of e-service quality, customer satisfaction and loyalty on e-marketing: Moderating effect of perceived value. *Total Quality Management*, 20(4), 423-443.

Chang, K. C., Kuo, N. T., Hsu, C. L., & Cheng, Y. S. (2014). The Impact of Website Quality and Perceived Trust on Customer Purchase Intention in the Hotel Sector: Website Brand and Perceived Value as Moderators. *International Journal of Innovation, Management and Technology*, 5(4), 255.

Chen, J., Zhou, J., Sun, L., Wu, Q., Lu, H., & Tian, J. (2015). A new approach for laboratory exercise of pathophysiology in China based on student-centered learning. *Advances in physiology education*, 39(2), 116-119.

Cheng, Y. M. (2011). Antecedents and consequences of e\_learning acceptance. *Information Systems Journal*, 21(3), 269-299.

Chinomona, R., Masinge, G., & Sandada, M. (2014). The Influence of E-Service Quality on Customer Perceived Value, Customer Satisfaction and Loyalty in South Africa. *Mediterranean Journal of Social Sciences*, 5(9), 331.

Chiu, C. M., Hsu, M. H., Sun, S. Y., Lin, T. C., & Sun, P. C. (2005). Usability, quality, value and e-learning continuance decisions. *Computers & Education*, 45(4), 399-416.

Crespo, A. H., & del Bosque, I. R. (2010). The influence of the commercial features of the Internet on the adoption of e-commerce by consumers. *Electronic Commerce Research and Applications*, 9(6), 562-575.

Crespo, Á. H., de los Salmones, M. M. G., & del Bosque, I. R. (2013). Influence of Users' Perceived Compatibility and Their Prior Experience on B2C e-Commerce Acceptance. In *Electronic Business and Marketing* (pp. 103-123). Springer Berlin Heidelberg.

Cristea, A. I., & Ghali, F. (2011). Towards adaptation in e-learning 2.0. *New Review of Hypermedia and Multimedia*, 17(2), 199-238.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management science*, 35(8), 982-1003.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 13(3) 319–339.

Deloitte.ArabStatesMobileObservatory.(2013).GSMAAssociation(GSMA),Retrieved22/01/2014.Available at <[http://www.gsma.com/publicpolicy/wp-content/uploads/2012/03/GSM\\_A\\_MobileObservatory\\_ArabStates2013.pdf](http://www.gsma.com/publicpolicy/wp-content/uploads/2012/03/GSM_A_MobileObservatory_ArabStates2013.pdf)>.

Dong, B., Zheng, Q., Qiao, M., Shu, J., & Yang, J. (2009). BlueSky cloud framework: an e-learning framework embracing cloud computing. In *Cloud Computing* (pp. 577-582). Springer Berlin Heidelberg.

Drost, E. A. (2011). Validity and reliability in social science research. *Education Research and Perspectives*, 38(1), 105.

Duan, Y., He, Q., Feng, W., Li, D., & Fu, Z. (2010). A study on e-learning take-up intention from an innovation adoption perspective: A case in China. *Computers & Education*, 55(1), 237-246.

Dwivedi, Y. K., Rana, N. P., Chen, H., & Williams, M. D. (2011). A Meta-analysis of the Unified Theory of Acceptance and Use of Technology (UTAUT). In *Governance and sustainability in information systems. Managing the transfer and diffusion of it* (pp. 155-170). Springer Berlin Heidelberg.

Ebrahimi, M. R. (2014). Investigating the Effect of Perceived Service Quality, Perceived Value, Brand Image, Trust, Customer Satisfaction on Repurchase Intention and Recommendation to Other Case study: LG Company. *European Journal of Business and Management*, 6(34), 181-186.

E-learning Portal (2009). E-learning glossary. Available at <http://www.e-learningguru.com/glossary/e.htm>.

Faqih, K. M., & Jaradat, M. I. R. M. (2015). Assessing the moderating effect of gender differences and individualism-collectivism at individual-level on the adoption of mobile commerce technology: TAM3 perspective. *Journal of Retailing and Consumer Services*, 22, 37-52.

Faqih, K. M. (2016). An empirical analysis of factors predicting the behavioral intention to adopt Internet shopping technology among non-shoppers in a developing country context: Does gender matter? *Journal of Retailing and Consumer Services*, 30, 140-164.

Fishbein, M. and Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*, Addison-Wesley, Reading, MA.

Ford, D. P., & Staples, D. S. (2006). Perceived value of knowledge: the potential informer's perception. *Knowledge management research & practice*, 4(1), 3-16.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, 39-50.

Fraij, L. (2013). *Online Learning in the Arab World*. Talal Abu Ghazaleh University. Company (TAGI-UNI). Available at [http://www.tagiuni.com/upload/file/tagiuni\\_news/onlinelearninginthearabworld.pdf](http://www.tagiuni.com/upload/file/tagiuni_news/onlinelearninginthearabworld.pdf).

Garrison, D. R. (2011). *E-learning in the 21st century: A framework for research and practice*. Taylor & Francis.

Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. *MIS quarterly*, 213-236.

[Grubor, A., Salai, S., & Leković, B. \(2010\). Service Quality as a Factor of Marketing Competitiveness. Available at<http://www.asecu.gr/files/RomaniaProceedings/29.pdf>.](http://www.asecu.gr/files/RomaniaProceedings/29.pdf)

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139-152.

He, Q., Duan, Y., Fu, Z., & Li, D. (2006). An innovation adoption study of online e-payment in Chinese companies. *Journal of Electronic Commerce in Organizations*, 4(1), 48-69.

Head, A. J., Van Hoeck, M., & Garson, D. S. (2015). Lifelong learning in the digital age: A content analysis of recent research on participation. *First Monday*, 20(2).

Hinnawi, I. (2011) Demand for e-learning projected to soar. Available at <[http://www.menafn.com/qn\\_news\\_story\\_s.asp?storyid=1093461074](http://www.menafn.com/qn_news_story_s.asp?storyid=1093461074)>.

[Internet World stats. \(2015\). Available at<http://www.internetworldstats.com/me/jo.htm>](http://www.internetworldstats.com/me/jo.htm).

Isik, O. (2008). E-learning satisfaction factors. In *Proceedings of the 39th Annual Meeting of the Decision Sciences Institute, Baltimore* (pp. 941-946).

Islam, A. N. (2016). E-learning system use and its outcomes: Moderating role of perceived compatibility. *Telematics and Informatics*, 33(1), 48-55.

Iverson, K. M. (2004). *E-Learning Games: Interactive Strategies for Digital Delivery (Neteffect Series)*. Prentice-Hall, Inc.

Jamal, S. A., & Muhammad, N. M. N. (2011). Tourist perceived value in a community-based home stay visit: An investigation into the functional and experiential aspect of value. *Journal of Vacation Marketing*, 17(1), 5-15.

Jaradat, M. I. R. M., & Faqih, K. M. (2014). Investigating the moderating effects of gender and self-efficacy in the context of mobile payment adoption: a developing country perspective. *International Journal of Business and Management*, 9(11), p147.

Jethro, O. O., Grace, A. M., & Thomas, A. K. (2012). E-Learning and its effects on teaching and learning in a global age. *International Journal of Academic Research in Business and Social Sciences*, 2(1), 203-210.

Keengwe, J., Onchwari, G., & Agamba, J. (2014). Promoting effective e-learning practices through the constructivist pedagogy. *Education and Information Technologies*, 19(4), 887-898.

Khasawneh, M. H. A. (2015). A Mobile Banking Adoption Model in the Jordanian Market: An Integration of TAM with Perceived Risks and Perceived Benefits. *J Internet Bank Commerce*, 20(128), 2.

Kumar, M. P., Packer, B., & Koller, D. (2010). Self-paced learning for latent variable models. In *Advances in Neural Information Processing Systems* (pp. 1189-1197).

Larsen, T. J., Sjørebø, A. M., & Sjørebø, Ø. (2009). The role of task-technology fit as users' motivation to continue information system use. *Computers in Human Behavior*, 25(3), 778-784.

Lee, Y. H., Hsieh, Y. C., & Hsu, C. N. (2011). Adding innovation diffusion theory to the technology acceptance model: Supporting employees' intentions to use e-learning systems. *Journal of Educational Technology & Society, 14*(4), 124-137.

Lee, Y. H., Hsiao, C., & Purnomo, S. H. (2014). An empirical examination of individual and system characteristics on enhancing e-learning acceptance. *Australasian Journal of Educational Technology, 30*(5).

Lee, J. W. (2010). Online support service quality, online learning acceptance, and student satisfaction. *The Internet and Higher Education, 13*(4), 277-283.

Leisen Pollack, B. (2008). The nature of the service quality and satisfaction relationship: empirical evidence for the existence of satisfiers and dissatisfiers. *Managing Service Quality: An International Journal, 18*(6), 537-558.

Levy, Y. (2006). Assessing the value of e-learning systems. Hershey, PA: Information Science Publishing.

Levy, Y. (2007). Comparing dropouts and persistence in e-learning courses. *Computers & education, 48*(2), 185-204.

Li, F. W., Lau, R. W., & Dharmendran, P. (2009). A three-tier profiling framework for adaptive e-learning. Proceedings of the 8th International Conference on Advances in Web Based Learning, Aachen.

Liao, H. L., & Lu, H. P. (2008). Richness versus parsimony antecedents of technology adoption model for E-learning websites. In *Advances in Web Based Learning-ICWL 2008* (pp. 8-17). Springer Berlin Heidelberg.

Lin, C. F., Yeh, Y. C., Hung, Y. H., & Chang, R. I. (2013). Data mining for providing a personalized learning path in creativity: An application of decision trees. *Computers & Education, 68*, 199-210.

Lykourentzou, L., Giannoukos, L., Nikolopoulos, V., Mpardis, G., & Loumos, V. (2009). Dropout prediction in e-learning courses through the combination of machine learning techniques. *Computers and Education, 53*(3), 950-969.

Malik, S. U. (2012). Customer satisfaction, perceived service quality and mediating role of perceived value. *International Journal of Marketing Studies, 4*(1).

Markham, S., & Hurst, J. (2009). Re-assessing validity and reliability in the e-learning environment. *E-learning technologies and evidence-based assessment approaches, 1-19*.

Mohammadi, H. (2015). Investigating users' perspectives on e-learning: An integration of TAM and IS success model. *Computers in Human Behavior, 45*, 359-374.

<http://worldconferences.net/home>

Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information systems research*, 2(3), 192-222.

Okazaki, S., dos Santos, L. M. R., 2012. Understanding e-learning adoption in Brazil: major determinant and gender effects. *Int. Rev. Res. Open Distance Learn.* 13(4), 91-106.

Park, S. Y. (2009). An analysis of the technology acceptance model in understanding university students' behavioral intention to use e-learning. *Journal of Educational Technology & Society*, 12(3), 150-162.

Purnomo, S. H., & Lee, Y. H. (2013). E-learning adoption in the banking workplace in Indonesia an empirical study. *Information Development*, 29(2), 138-153.

Ramayah, T., Ahmad, N. H., & Lo, M. C. (2010). The role of quality factors in intention to continue using an e-learning system in Malaysia. *Procedia-Social and Behavioral Science*, 2, 5422-5426.

Sangrà, A., Vlachopoulos, D., & Cabrera, N. (2012). Building an inclusive definition of e-learning: An approach to the conceptual framework. *The International Review of Research in Open and Distributed Learning*, 13(2), 145-159.

Selim, H. M. (2007). Critical success factors for e-learning acceptance: Confirmatory factor models. *Computers & Education*, 49(2), 396-413.

Sun, Y., Bhattacharjee, A., & Ma, Q. (2009). Extending technology usage to work settings: The role of perceived work compatibility in ERP implementation. *Information & Management*, 46(6), 351-356.

Tait, A. W. (2014). From place to virtual space: reconfiguring student support for distance and e-learning in the digital age. *Open Praxis*, 6(1), 5-16.

Tang, L. L., Hsu, C. H., & Kiet, O. C. (2014). Acceptance of Web-Based E-Learning Systems: Behavioral Intention and Impacts. *International Journal of Innovation in Management*, 2(1), pp. 37-52.

Tarhini, A., Hone, K., & Liu, X. (2014). The effects of individual differences on e-learning users' behaviour in developing countries: A structural equation model. *Computers in Human Behavior*, 41, 153-163.

Tenenhaus, M., Vinzi, V. E., Chatelin, Y.-M., & Lauro, C. (2005). PLS path modeling. *Computational Statistics and Data Analysis*, 48(1), 159-205.

Tullis, J. G., & Benjamin, A. S. (2011). On the effectiveness of self-paced learning. *Journal of Memory and Language*, 64(2), 109-118.

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.

Weber AS. The development and current status of web-based learning in Qatar and the GCC states. *Doha, Qatar: Center for International and Regional Studies, Georgetown University School of Foreign Service in Qatar*; 2010. p.2.

Xin, X. (2004). A model of 3g adoption. *AMCIS 2004 Proceedings Paper 320*.

Yi, S., Day, J., & Cai, L. A. (2014). Exploring Tourist Perceived Value: An Investigation of Asian Cruise Tourists' Travel Experience. *Journal of Quality Assurance in Hospitality & Tourism*, 15(1), 63-77.

Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *The Journal of marketing*, 2-22.