



**D r. Shaymaa Farid  
Fawzy**

Assistant professor  
Marketing and International Business Dept

**Dr. Nermin El Essawi**

Assistant Professor  
Business Information System Department  
College of Managemet & Technology  
Arab Academy for Science  
and Technology and Maritime

**Students E-learning  
Acceptance: An Empirical  
Study through Extending  
Technology Acceptance Model  
in the Education Sector**

**Abstract**

**Purpose**

The aim of the study is to empirically test the factors that affect students' e-learning acceptance through an extension of the Technology Acceptance Model (TAM).

**Design/Methodology/Approach**

The study adopted a quantitative approach through distributing questionnaires on students in private universities who already have Learning Management System (LMS) in College of Business in Saudi Arabia.

**Findings**

The results of the study confirm the original TAM findings. Computer self-efficacy and internet self-efficacy have a direct impact on students' perception of the ease of the e-learning system. Students accept e-learning systems, when they perceive them and find them useful and easy to utilize. Students are more likely to be exposed to social in Flu

ence such as: friends, colleagues and teachers when early adopting the (LMS). Behavioral Intention has no significant effect on students' acceptance of e-learning system.

**Practical implications**

Identifying the factors that influence the acceptance of e-learning systems help to improve the quality of education and enhance educational systems to become more effective and more efficient.

**Originality/value**

This paper is identifying the factors that affect students' acceptance of the e-learning system and provide useful insights into TAM model and its extension in the e-learning context.

**Keywords:** Internet Marketing, E-learning, Internet self-efficacy, Computer self-efficacy, TAM, Attitude, Acceptance and Vision 2030

## Introduction

New strategies for internet marketing highlighted new ways of targeting, focusing on benefits; product/ service strategy underlining authentic-city based on well-managed websites and adoption of technology.

Nowadays, for enhancing the quality of education and for universities to have a competitive advantage over other universities, e-learning systems adoption are extremely crucial. E-learning has become an interactive tool in various formats (texts, pictures, videos, sounds, chats, wiki, and blogs) whether formal or informal formats. Moreover, e-learning enhances instructors to teach strategies and improve the quality of service based on students' different knowledge level, performance and acceptance.

Eom & Reiser (2000) conducted a study and they found that e-learning systems support younger students to have more structured course materials and contents characterized by continuous follow-up and ongoing help. Many educational bodies marketing their services through highlighting their ad-option of e-learning systems which is considered a key competitive advantage over other educational bodies.

The wide spread of the internet technologies and mobile applications provide remarkable opportunities for e-learning. Fortunately, it is becoming portable and flexible methods of learning. In today's advanced economy, the accomplishment in organizations is credited to the successful utilization of data also, interchanges innovation (ICT)

Advanced education institutions are not exempted from these quickly changing mechanical headways and henceforth. For example, graduate students of

today have progressed toward becoming mechanically smart and star dynamic clients of ICTs.

They are 'dynamic makers of information' as they end up noticeably in charge of their learning (McLoughlin and Lee, 2008) providing them with more marketing opportunities.

The focal concentration of this paper is to build up a comprehension of the components and the causal connections that impact the acknowledgement and acceptance of utilizing E-learning, since all Saudi universities are applying e-learning systems in their universities, and to meet with the vision of 2030, this review proposed the Technology Acceptance Model (TAM) as a hypothetical structure.

There is a lack in the literature about the factors that affect e-learning.

This study aim to identify the factors that affect students' acceptance of the e-learning system and provide useful insights into TAM model and its extension in the e-learning context.

## Variables of the study

The independent variables of the study are as follows: Internet self-efficacy, computer self-efficacy, perceived usefulness, perceived ease-of use, attitude, subjective norm Behavioral Intention, Acceptance of e-learning. The dependent variable under the study is students' acceptance of e-learning.

## Literature Review

E-learning systems studies have been studied from different perspectives.

Mostly emphasized the adoption of those systems. Some of the studies focused on technological characteristics (McGill et.al, 2014) or student experience on the implementation of e-learning

systems or E-learning strategies (Gay & Dringus, 2012 and Aparicio et al., 2016).

Also, theories were developed to investigate the acceptance of new technology usages and determining the factors that affect users to accept to use new technology.

The theories that were developed are influential such as Fishbein and Ajzen when they proposed in 1975 the Theory of Reasoned Action (TRA) and Technology Acceptance Model.

This model was proposed by Davis (1989) and was extended to TAM2 by Venkatesh and Davis (2000).

Whereas Theory of Planned Behavior (TPB) developed by Ajzen as an extension to TRA and TAM in which in this theory it was highlighted that behavioral intentions are function of attitude (ElNaggar, 2010; Shih & Fang, 2004).

Technology Acceptance Model (TAM) has been proposed in an effort to explain, and predict the adoption and use of information technology.

TAM was employed in many studies concerned with indicating the factors affecting consumer behavior in e-commerce, online shopping and M-commerce (Fawzy, 2012; Fawzy & Salam, 2015; Butt et al., 2016; Dek-a, 2017), Internet banking adoption (Fawzy & Esawi, 2017; Kammyab & Delafrooz, 2016 and Shi et al., 2008) SMS advertising (Abdel Kader, 2013) and e-learning (Hasan & Ali, 2004; Al-Juda, 2017; Ramos and Castro, 2017)

Based on the previous related studies, the Technology Acceptance Model is mostly widely used to predict individual adoption of a new system or technology (Venkatsh & Davis, 2000; Yusaff et al., 2009; Kesharwani & Bisht, 2012).

## **Internet self-efficacy and Computer self-efficacy**

People exhibit more self-confidence to be involved in the online transaction when they have a high degree of computer efficacy. Computer efficacy was studied and used to extend TAM. Self-efficacy refers to people's judgment of their own ability to perform specific tasks over the internet (Bandura, 1997).

Compeau & Higgins (1995) and Compeau & Huff (1999) defined computer self-efficacy as individuals' beliefs with regard to their ability to use a computer in the context of IT usage. Previous studies indicated that the higher the level of self-efficacy the better the performance of educators and learners in teaching and learning settings (Hasan & Ali, 2004; Hayashi et al., 2004 and Lee & Taiwan, 2006).

Madorin & Iwasiw (1999) and Lee & Taiwan (2006) in their studies indicated the important role of computer-self efficacy and its effect on perceived ease-of-use. It was also noted that if the individual is not capable of connecting to the internet, then the internet will not be considered easy and beneficial to use.

Individual's knowledge of computer usage can influence their usefulness and their judgments of the ease or difficulty of using computer technologies.

**H1: Internet self-efficiency affects perceived ease of use**

**H2: computer self-efficiency affects perceived ease of use**

## **Perceived usefulness and Perceived ease of use**

Based on the literature, technology acceptance model is widely used to predict individual adoption of a new system or technology (Venkatsh & Davis, 20-

00;Yusaff et al., 2009; Kesharwani&Bisht, 2012).

According to Davis (1989) Perceived Usefulness and Perceived Ease of Use are major indicators of the utilization of innovation and in many TAM studies perceived ease of use has a direct effect on perceived usefulness.

This is concluded based on previous studies that applied TAM, innovations and advances systems such as m-learning(Althunibat,2015), Internet-based learningframeworks and e-learning (Sadé and Bahli,2005;Pai and Huang, 2011and Claar et al., 2014). According to Ramos& Castro (2017),perceived usefulness have an effect on the system acceptance and is a more grounded driver of use.

According to Adam et al.,(1992) and Ramos& Castro (2017),perceived usefulness and perceived ease of use influence one's attitude toward system usage. Accordingly, the following hypotheses are proposed:

**H3: Perceived ease of use has a direct impact on perceived usefulness**

**H4: Perceived usefulness has a direct impact on attitudes towards e-learning system**

**H5: Perceived ease of use has direct impact on attitudes towards e-learning system**

### **Attitude**

In several studies, TAM was adopted as a theoretical base where the attitude for example constructwas having a direct impact on intention (Shoh &Fang, 2004; El Naggar, 2010).

This is in line with e-learning studies for example, Claar et al. (2014) adopted TAM in their study and results revealed that students attitude towards e-learning systems have a direct effect on their behavioral intention to use the system.

**This study proposes that:**

**H6: Students' attitude towards e-learning system affects their intention towards using the system**

### **Subjective Norm**

Subjective Norm (SN) is viewed as a central point of behavioral goal (Venkatesh and Davis, 2000). Sledgianowski and Kulviwat (2009) call attention that SN clarifies the impact of society (e.g. peers, family and friends) in transit an individual carries on. Consideration of SN, as indicated by Arpaci (2016), may catch one of a kind difference in states of mind and goals. The positive connection amongst subjective norms and intention is obvious in the acknowledgment of business-to-client (B2C), e-commerce sites and adoption of e-learning systems (Kim, Kim, and Shin, 2009).

Systems are created with a concentration on referents (e.g., family, companions and reviews) because an individual behavior is impacted by the sentiments of those referents. In many studies of TAM, subjective norms had an impact on behavioral intention (Taylor and Todd, 1995; Venkatesh and Davis, 2000; Fawzy & Esawi, 2017). **Accordingly, it is hypothesized that:**

**H7: Subjective norms affect intention towards using e-learning systems.**

### **Intention**

Behavioral intention to use (BI) is a key determinant of usage behavior as discussed in Theory of Reasoned Action (TRA) and Technology Acceptance Model (TAM)(Davis et al., 1989). In general behavioral intention is positively correlated with actual use of technology (Lu et al., 2003; Pinho & Soares, 2011 and Ducey & Coovert, 2016). Turner, et al., (2010) analyzed 79 empirical studies and found out that behavioral intention is a significant determinant of actu-

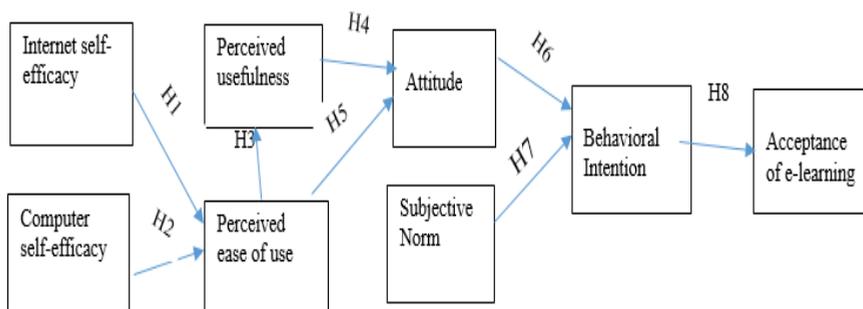
al usage compared to other TAM variables.

Collectively, these studies give credit to these applications of TAM and E-

learning acceptance. **Accordingly it is hypothesized that:**

**H8: Intention has a direct impact on the acceptance of e-learning systems.**

## Research Model



## Methodology

A self-administered questionnaire was designed in order to study the factors that affect students' acceptance of e-learning system. A pilot testing included 45 respondents has been carried out to ensure the reliability of the scale and to modify it according to comments and feedback. The questionnaire consisted of 31 items. Each item was measured using a 5- point Likert scale ranging from (1)strongly disagree to(5) stronly agree. Table (1.1) shows the conceptual and operational definitions of variables.

Demographic details such as age, gender, and education level were added.

The population of the study was all students (bachelor and Masters) using

Learning Management System (LMS).

The sample size was 200.The study was conducted through convenient sampling.Non probability convenience sampling procedures were adopted through approaching undergraduate and postgraduate university students. Furthermore, content validity was also ascertained by pretesting to the questionnaire with a group of professionals and staff members. Few comments aroused and researchers managed to simplify few words and modify some of the stat-ements. The completed surveys were 158 responses out of total distributed of 200. The response rate was 79%.

**Table (1.1) Conceptual and Operational Definitions of the variables under study**

<b>Variables</b>	<b>Conceptual Definition</b>	<b>Operational Definition</b>
<b>Internet self- efficacy</b>	Defined as learners’ ability to evaluate their ability to use the Internet to perform activities related to e-learning. (Sun et al., 2008).	Adopted from Ajzan and Fishbein (1980)
<b>Computer self-efficacy</b>	Refers to a judgment of one’s capability to use a computer (Agarwal &Prasad, 1999; Huang, 2005)	Adopted from Davis et al. (1989)
<b>Perceived usefulness</b>	Degree to which the technology is considered as superior to its predecessor (Al-Gahtani & king, 1999; Davis et al., 1989)	Adopted from Davis (1993)
<b>Perceived ease of use</b>	Degree to which a technology is considered by the potential adopter as relatively easy to use and understand (Davis, Bagozzi, & Warshaw, 1989)	Adopted from Davis (1993)
<b>Attitude</b>	Degree to which users like using the technology (Lee et al., 2005; Ngai et al., 2007 Liaw ,2008;; Van Raaij & Schepers, 2008)	Adopted from Seyal & Pijpers, 2004
<b>Subjective Norm</b>	Subjective norm is the person’s perception that most people who are important to him think he should or should not perform the behavior in question ( Fishbein & Ajzen, 1975 )	Adopted from Ghani and Deshpande (1994).
<b>Intention</b>	Degree to which users intend to adopt the technology or increase their use of it in the future (Lee et al., 2005; Liaw ,2008; Ngai et al., 2007; Van Raaij & Schepers, 2008)	Adopted from Agarwal & Prasad, 1999; Al-Gahtani & king, 1999; Davis et al., 1989; Huang, 2005; Seyal et al., 2002
<b>Acceptance of e-learning</b>	“It is an individual’s psychological state with regard to his or her voluntary or intended use of a particular technology” (Masrom, 2007).	Adopted from lee et al. ( 2005)

Reliability Analysis (Cronbach Alpha) was used to measure the reliability of factors that affect students' adoption of LMS. Table 2.1 shows different al-

pha values for the variables under the study. The overall reliability of the scale was 0.874.

**Table (2.1): Reliability Analysis (Cronbach alpha) was used to measure the reliability of factors**

<b>Variable</b>	<b>Cronbach alpha</b>
Internet self-efficiency	0.790
computer self-efficiency	0.790
Perceived usefulness	0.806
perceived ease of use	0.86
Attitude	0.695
Subjective norms	0.786
Intention	0.762
learning process	0.520
Overall reliability	0.874

## Analysis of Results

The analysis was done using SPSS (Statistical Package for Social Science) software. MMaMales respondents were 51.3% and the females were 48.7%.

The majority of respondents' age groups were between 18-34 years old representing 85.5% of the sample. 14.5 % their age was more than 35 years old.

The majority were single (70.9%). The majority were bachelor students representing 78.8% and 21.2% were masters' students.

The number of hours students spent on LMS was different. Based on the sample of the study only 32% spend from one to two hours weekly on LMS. 53% of the sample spend 3-5 hours weekly and only 10% spend more than 5 hours weekly on LMS. Moreover, from the sample of the study, 5% indicated that they do not use LMS and they count on their colleagues and emails in downloading the courses' materials and uploading assignments.

## Hypotheses Testing

In this research, the chi-square test was used to examine the association between two categorical variables.

Chisquare test is more appropriate in this study. It also gives an indication of the relative contribution of each independent variable. If the value (pValue) is equal to 0.05 or less, this indicates that the variable is significant, where if the p-value is greater than 0.05, this indi-

cates that the result is insignificant. Results are shown in table (3.1).

Regression analysis for **H1: Internet self-efficiency leads to perceived ease of use** The equation is shown below:  $Y = a + b x$ , where Y is the dependent variable (perceived\_ease of use), a, is the Y intercept, that is the value of Y (perceived\_ease of use) when  $x = 0$ , b is the regression coefficient which indicates the amount of change in Y given a unit change in x, and finally x is the value for the independent variable (Internet self-efficiency).

### The results were as follows:

Regression test: P-value = 0.000 and Chi square: P-value = 0.000. Perceived ease of use =  $7.598 + 0.736x$ . This illustrates the impact of Internet self-efficiency on perceived\_ease of use, where an increase in Internet self-efficiency by 0.736 will cause an increase in perceived\_ease of use by this amount.

In order to further measure the significance of the Internet self-efficiency, Chi square test was used and the value for Use of technology was equal to 0.000, by comparing the value to 0.05, we find 0.000 is  $< 0.05$ .

Therefore H1 is accepted. In other words, significance was recorded, which proves that Internet self-efficiency actually affect Perceived\_ease of use. Applying the same test for the study hypotheses was conducted; T-able 3.1 below illustrates regression analysis outcomes for the rest of study hypotheses.

**Table (3.1): Regression analysis outcomes**

Hypotheses	Dependent	Independent	Regression Results	Chi square Results
<b>H1:</b> Internet self-efficiency leads to perceived ease of use	Perceived ease of use.	Internet self-efficiency	Perceived ease of use = $7.598 + 0.736 x_1 + 0.194 x_2$	Accepted, Internet self-efficiency leads to perceived ease of use. since P-value less than 0.05
<b>H2:</b> computer self-efficiency leads to perceived ease of use	Perceived ease of use	Computer self-efficiency		Accepted, computer self-efficiency leads to perceived ease of use. since P-value less than 0.05
<b>H3:</b> Perceived ease of use affects perceived usefulness.	Perceived usefulness	Perceived ease of use	Perceived usefulness = $6.343 + 0.590 x$	Accepted, perceived ease of use affect perceived usefulness since P-value less than 0.05
<b>H4:</b> perceived Usefulness affects attitude	Attitude	Perceived Usefulness	Attitude = $4.011 + 0.235 x_1 + 0.257 x_2$	Accepted, perceived usefulness affects attitude. since P-value less than 0.05
<b>H5:</b> Perceived Ease of use affects Attitude	Attitude	Perceived Ease of use		Accepted, attitude affects intention. since P-value less than 0.05
<b>H6:</b> Attitude affects Intention	Intention	Attitude	Intention = $4.064 + 0.555 x_1 + 0.082 x_2$	Accepted, attitude affects intention. since P-value less than 0.05
<b>H7:</b> Subjective norms affects intention	Intentions	Subjective norms		Accepted, Subjective norms affects intention since P-value less than 0.05
<b>H8:</b> Intention affects Acceptance of e-learning system	Acceptance of e-learning system	Intention	Acceptance of e-learning system = $22.171 + 0.054x$	Not accepted, Intention affects learning process. since P-value more than 0.05

According to table (3.1) all hypotheses are significant except “Intentions” construct, it did not affect students’ acceptance of e-learning system.

**Table3.2 investigate the impact of student categories (gender on research findings)**

<b>Gender</b>	<b>Variable</b>	<b>significant</b>
	Computer efficiency	0.001
	Perceived ease of use	0.000
	Internet self-efficacy	0.345
	Attitude	0.000
	Intention	0.001
	Learning process	0.000
	Perceived usefulness	0.011
	Subjective norm	0.001

The above table illustrates that gender has significant relationship with all tested variables except internet self-efficacy and perceived usefulness. From demographic perspective in terms of having two categories of students based on their gender; although there is no hypothesis between internet self-efficacy and perceived usefulness the conducted analysis shows that the perceived usefulness play the role of moderator for indirect relation between these two variable due to the insignificant impact between these variables and student gender.

**Discussion**

As technology continues to evolve, electronic learning systems are considered a new revolution in the world of education. Taking online courses, going to school remotely, attending online presentation of academic curricula or even chatting with instructors while he/she explaining a lesson through video conferencing is now becoming widely used in many universities and education programs around the world. This research ai-

med at investigating the factors that affect e-learning systems acceptance since many educational bodies marketing their services through highlighting their adoption of e-learning systems providing them with a key competitive advantage over other educational bodies. The study adopted TAM as a theoretical background. The results of the study confirm the original TAM findings. All TAM constructs are met when accessing the acceptance of e-learning system among undergraduate and postgraduates.

The main contribution was identifying two external factors that affect elearning acceptance which was internet self-efficacy and computer self-efficacy. Both variables turned to have a direct impact on perceived ease of use.

According to the study both perceived usefulness and perceived ease of use influence the attitude of individuals towards the use of a particular technology and crucial in its implementation as noted by (Davis 1989, and Ramos & Castro ;2017).

Students are more likely to be exposed to social influence such as friends, colleagues and teachers when early using the e-learning system.

Students always perceive pressure from their instructors to use the e-learning system. Subjective norms were found significant and have a direct effect on behavioral intention. Karahanna et al. (1999) and Kim et al., (2009), suggested the importance of subjective norms in influencing ones' behavior.

It was found that the impact of subjective norms on behavioral intention is more profound for potential adopters than users. This is in line with the work of Faqih & Jaradab (2015) and Fawzy & Salam (2015) who suggested that subjective norms have a more distinct effect in determining behavior when the behavior is new, as in adoption this is also in line with Raman et al.,(2014) and Marchewka et al., (2007).

Furthermore, it is important to study intentions toward a behavior because the stronger the intention, the more likely the performance of the behavior (Ajzen, 1991). Intentions "can be predicted with high accuracy from attitudes toward the behavior (Ajzen, 1991, p. 179).

Based on the sample of the study, this study revealed that attitudes towards E-learning systems, subjective norms have a direct effect on students' behavioral intentions while students' behavioral intentions did not affect E-learning systems acceptance. No difference was detected in Behavioral Intention with regards to technology acceptance.

This finding is in line with Teo et al., (2008). According to the findings of the study, internet self-efficacy and computer self-efficacy have an impact on perceived ease of use which affects the acceptance of e-learning systems. When

students are having internet and computer knowledge, E-learning systems will act as effective tools to solve the problem of information shortage and lack of communication between both educators and students. It is important to enhance students' computer self-efficacy and the overall internet self-efficacy in order to have effective acceptance and adoption of E-learning systems.

### **Limitations**

One of the research limitations is conducting a cross-sectional survey, because it makes it difficult to identify the direction of causality. Further longitudinal studies are needed to provide better modifications and applications to the study model.

Another limitation is that the survey was directed to students only and instructors were not included in the sample of the study. Instructors are the ones implementing the study and are the ones who have direct contact with their students in which they can encourage students' involvement and acceptance of e-learning systems.

### **Academic and practitioner importance of the study:**

From academic point of view: E-learning systems are now adopted by many education bodies. The research contributed to the literature of e-learning.

The model supported by this research is considered to be a step towards extending technology acceptance. Such development can be applied on other developing countries.

The research is important due to the lack of empirical researches of different Arab management practices. This study is a step forward for enhancing research work and practices in such countries.

The importance of the study from practitioners point of view: E-learning systems adoption provide useful functions in order for educators to be able to manage and control the learning process, it can provides and enhances collaborative learning, and provide an ongoing learning assistance. E-learning offers added value for learners through enhanced access to learning contents. Educators need to increase students' e-learning motivation in order to assist them in benefiting from e-learning systems.

### **For future research**

E-learning is a continuous process (2-4/7). When adapted effectively and efficiently e-learning systems will be considered convenient.

It is recommended to compare between students and instructors responses towards the acceptance of e-learning systems.

This could be done through conducting a comparative study.

More understanding of e-learning usage and different e-learning systems effectiveness would be determined.

This will enlighten and universities can benefit from e-learning systems and guarantee effectiveness and continuous success of such systems.

## References

1. **Abdel Kader, M (2013),** "Factors that influence participation in mobile phone based campaigns, an empirical study applied in Egypt". A thesis submitted for the degree of Doctor of Philosophy, University of Lincoln.
2. **Adams, D. A., Nelson, R. R., and Todd, P. A. (1992)** "Perceived Usefulness, Perceived Ease of Use, and Usage of Information Technology: A Replication," *MIS Quarterly* (16:2), pp. 227- 247.
3. **Agarwal, R., & Prasad, J. (1999).** Are individual differences germane to acceptance of new information technologies? *Decision Sciences*, 30(2), 361–391.
4. **Ajzen, I. (1991).** The theory of planned behavior. *Organizational behavior and human decision processes*,50(2), 179-211.
5. **Ajzen, I. and Fishben, M (1980),** understanding Attitudes and Predicting Social Behavior. Englewood Cliffs. NJ: Prentice-Hall
6. **Al-Gahtani, S., & King, M. (1999).** Attitudes, satisfaction and usage: Factors contributing to each in the acceptance of information technology. *Behaviour and Information Technology*, 18(4), 277–297.
7. **Al-Juda, M. Q. B. (2017).** Distance Learning Students' Evaluation of E-Learning System in University of Tabuk, Saudi Arabia. *Journal of Education and Learning*, 6(4), 324.
8. **Althunibat, A. (2015).** Determining the factors influencing students' intention to use m-learning in Jordan higher education. *Computers in Human Behavior*, 52, 65-71.
9. **Aparicio, M., Bacao, F., & Oliveira, T. (2016).** An e-Learning Theoretical Framework. *Journal of Educational Technology & Society*, 19(1).
10. **Arpaci, I.(2016).** Understanding and predicting students' intention to use mobile cloud storage services. *Computers in Human Behavior*,58, 150-157.
11. **Bandura, A. (1997).** *Self-Efficacy: The Exercise of Control* , Freeman, New York.
12. **Butt, I., Tabassam, S., Chaudhry, N. G., & Nusair, K. (2016).** USING TECHNOLOGY ACCEPTANCE MODEL TO STUDY ADOPTION OF ONLINE SHOPPING IN AN EMERGING ECONOMY. *Journal of Internet Banking and Commerce*, 21(2), 1.
13. **Claar, C., Dias, L.,& Shields, R. (2014).** Student acceptance of learning management systems:a study on demographics. *Issues in Information Systems*, 15 (1): 409- 417.
14. **Compeau, D.R. and Higgins, C.A. (1995),** "Computer self-efficacy: development of a measure and initial test", *MIS Quarterly*, Vol. 19 No. 2, pp. 189-211.
15. **Compeau, D.R. and Huff, S. (1999),** "Social cognitive theory and individual reactions to computing technology:a longitudinal study",*MIS Quarterly*, Vol. 23 No. 2, pp. 145-58.
16. **Davis, F. D. (1989).** Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly (MISQ)*, 13(3), 319–339.
17. **Davis, F.D., 1989.** Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, p.319–340.
18. **Davis, L.D., Bagozzi, R.P. &Warshaw, PR., 1989.** User acceptance of computer technology: a comparison

- of two theoretical models, *Management Science*, 35 pp. 982-1003.
- 19.Deka, P. K. (2017).** A Conceptual Model for Determining Factors Influencing Online Purchasing Behavior. *Journal of Management in Practice*, 2(1).
- 20.Ducey, A. J., & Coovert, M. D. (2016).** Predicting tablet computer use: An extended Technology Acceptance Model for physicians. *Health Policy and Technology*, 5(3), 268-284.
- 21.El Naggat, R. A. E. A. (2010).** The value of e-banking services in the Egyptian environment: an integrated model (Doctoral dissertation, University of Hull).
- 22.Eom, W. and Reiser, R.A. (2000),** "The effects of self-regulation and instructional control on performance and motivation in computer-based instruction", *International Journal of Instructional Media*, Vol.27 No.3, pp. 247-61.
- 23.Faqih, K., Jaradat, 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 , pp. 37–52
- 24.Fawzy, S. (2012).** Investigating the Factors That Affect Online Shopping Behavioral Intentions in Egypt (Doctoral dissertation, University of Lincoln).
- 25.Fawzy, S. F., & Esawai, N. (2017).** Internet banking adoption in Egypt: Extending technology acceptance model. *Journal of Business and Retail Management Research*, 12(1).
- 26.Fawzy, S. F., & Salam, E. M. A. (2015).** M-Commerce adoption in Egypt: An extension to theory of reasoned action. *The Business & Management Review*, 6(1), 123.
- 27.Gay, G., & Dringus, L. (2012).** Measuring technological e-learning readiness and effectiveness in the online learning environment. 18th Annual Sloan-C International Conference on Online Learning. Retrieved from [http://nsuworks.nova.edu/gscis\\_facpres/126](http://nsuworks.nova.edu/gscis_facpres/126).
- 28.Ghani, J. A., & Deshpande, S. P. (1994).** Task characteristics and the experience of optimal flow in human-computer interaction. *The Journal of Psychology*, 128 (4), 381–391.
- 29.Hasan, B. and Ali, J.M.H. (2004),** "An empirical examination of a model of computer learning performance", *Journal of Computer Information Systems*, Vol. 44 No. 4, pp. 27-34.
- 30.Hayashi, A., Chen, C., Ryan, T., & Wu, J. (2004).** The role of social presence and moderating role of computer self efficacy in predicting the continuance usage of e-learning systems. *Journal of Information Systems Education*, 15(2), 139.  
<http://doi.org/http://dx.doi.org/10.1016/j.iheduc.2014.04.001>
- 31.Huang, E. (2005).** The acceptance of women-centric websites. *Journal of Computer Information Systems*, 45 (4), 75–83.
- 32.Kamyab, M., & Delafrooz, N (20-16).** Investigating the Effect of Personality Traits, Subjective Norms and Perceptions of Customers on using Internet Banking. *Indian Journal of Science and Technology*, 9(1).
- 33.Karahanna, E., Straub, D.W. & Chervany, N.L., 1999.** Information technology adoption across time: a cross-sectional comparison of pre-adoption and post-adoption beliefs. *Mis Quarterly*, PP.183- 213.

- 34.Kesharwani, A., Bisht, S. (2012).** The impact of trust and perceived risk on internet banking adoption in India: An extension of technology acceptance model, *International Journal of Bank Marketing*, ( 30), 4 pp. 303 – 322
- 35.Kim, K., Kim, G.M., Eun, S.K., 2009.** Measuring the compatibility factors in mobile entertainment service adoption. *Journal of Computer. Information System* 50 (1), 141–148.
- 36.Lee, M. K. O., Cheung, C. M. K., & Chen, Z. (2005).** Acceptance of Internet-based learning medium: The role of extrinsic and intrinsic motivation. *Information and Management*, 42 (8), 1095.
- 37.Lee, Y. C. (2006).** An empirical investigation into factors influencing the adoption of an e-learning system. *Online information review*, 30(5), 517-541.
- 38.Liaw, S. S. (2008).** Investigating students' perceived satisfaction, behavioral intention, and effectiveness of e-learning: A case study of the blackboard system. *Computers and Education*, 51 (2), 864–873.
- 39.Lu, J., Yu, C. S., & Liu, C. (2003).** Learning style, learning patterns, and learning performance in a WebCT-based MIS course. *Information and Management*, 40 , 497–507.
- 40.Madorin, S. and Iwasiw, C.(1999),** “The effects of computer-assisted instruction on the self-efficacy of baccalaureate nursing students”, *Journal of Nursing Education*, Vol. 38, pp. 282-5.
- 41.Marchewka, J., Liu, C.,&Kostiwa, K. (2007).** An application of the UTAUT model for understanding student perceptions using course management software, *Communications of the II-MA*, 7 (2): 93-104.
- 42.Masrom, M. (2007).**Technology acceptance model and e-learning. *Technology*, 21(24), 81.
- 43.McGill, T. J., Klobas, J. E., & Renzi, S. (2014).** Critical success factors for the continuation of elearning initiatives. *The Internet and Higher Education*, 22, 24 – 36.
- 44.McLoughlin, C.,&Lee, M.J. (2008).** Future learning landscapes: Transforming pedagogy through social software. *Innovate: Journal of Online Education*, 4(5), 1.
- 45.Ngai, E. W. T., Poon, J. K. L., & Chan, Y. H. C. (2007).** Empirical examination of the adoption of WebCT using TAM. *Computers and Education*, 48 (2), 250–267.
- 46.Pai, F. Y., & Huang, K. I. (2011).** Applying the technology acceptance model to the introduction of health-care information systems. *Technological Forecasting and Social Change*, 7-8(4), 650-660.
- 47.Pinho, J., & Soares, A. M. (2011).** Examining the technology acceptance model in the adoption of social networks. *Journal of Research in Interactive Marketing*, 5(2/3), 116-129.
- 48.Raman A., Don, Y., Khalid, R. & Rizuan, M. (2014).** Usage of learning management system (Moodle) among postgraduate students: UTAUT model. *Asian Social Science*, 10 (14): 186.
- 49.Ramos, Y., & Castro, A. O. (2017).** Point-Of-Sales Systems in Food and Beverage Industry: Efficient Technology and Its User Acceptance. *Journal of Information Sciences and Computing Technologies*, 6(1), 582-591.
- 50.Saadé, R., & Bahli, B. (2005).** The impact of cognitive absorption on perceived usefulness and perceived ease of use in online learning: an extensi-

- on of the technology acceptance model. *Information & management*, 42(2), 317-327.
- 51.Seyal, A. H., & Pijpers, G. G. M. (2004).** Senior government executives' use of the Internet: A Bruneian scenario. *Behaviour and Information Technology*, 23 (3), 197–210.
- 52.Seyal, A. H., Rahman, M. N., & Rahim, M. M. (2002).** Determinants of academic use of the Internet: A structural equation model. *Behaviour and Information Technology*, 21 (1), 71–86.
- 53.Shi, W. Shambare, N. & Wang, J. (2008),** „The Adoption of Internet Banking: An Institutional Theory Perspective“, *Journal of Financial services Marketing*, 12(4): 272286.
- 54.Shih, Y. & Fang, K. (2004),** „The Use of A Decomposed Theory of Planned Behavior to Study Internet banking in Taiwan“, *Internet Research*, 14(3): 213-223.
- 55.Sun, P. C., Tsai, R. J., Finger, G., Chen, Y. Y., & Yeh, D. (2008).** What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & education*, 50(4), 1183-1202.
- 56.Taylor, S. and Todd, P. (1995),** “Decomposition and crossover effects in the theory of planned behavior: a study of consumer adoption intentions”, *International Journal of Research in Marketing*, Vol. 12, pp. 137-55.
- 57.Teo, T., Wong, S. L., & Chai, C. S. (2008).** A cross-cultural examination of the intention to use technology between Singaporean and Malaysian pre-service teachers: an application of the Technology Acceptance Model (TAM). *Journal of Educational Technology & Society*, 11(4), 265
- 58.Turner, M., Kitchenham, B., Breton, P., Charters, S., & Budgen, D. (2010).** Does the technology acceptance model predict actual use? A systematic literature review. *Information and Software Technology*, 52(5), 463-479.
- 59.Van Raaij, E. M., & Schepers, J. J. L. (2008).** The acceptance and use of a virtual learning environment in China. *Computers and Education*, 50 (3), 838–852.
- 60.Venkatesh, V. , Davis, F.D. (2000).** A theoretical extension of the technology acceptance model: four longitudinal field studies, *Management Science*, Vol. 46 No. 2, pp. 186-204.
- 61.Webster,J.,Trevino,L. K.,& Ryan, L. (1993).** The dimensionality and correlates of flow in human–computer interaction. *Computer and Human Behaviour*, 9 (4), 411–426.
- 62.Weiser,M.,& Wilson, R. L. (1999).** Using video streaming on the Internet for a graduate IT course:A case study. *Journal of Computer Information Systems*, 39 (3), 38–43
- 63.Yusoff,Y.M.,Muhammad,Z., Zahari, M.S.M., Pasah, E.S. and Robert,E. (2009),** “Individual differences, perceived ease of use and perceived usefulness in the e-library usage”, *Computer and Information Science*, Vol. 2 No. 1, pp. 76-83.

## Appendix

Please state whether you agree or disagree to the following statements. Choosing (1) reflect your strongly disagreement and (5) strongly agreement to the stated statement:

Statement	Strongly Disagree(1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
<b>Internet self-efficacy</b>					
I feel confident in navigating the e-learning by following hyperlinks					
I feel confident in the e-learning system searching information					
<b>Computer self-efficacy</b>					
I could complete reading/referring activities using e-learning if I had never used any e-learning system like it before					
I could complete my reading/referring activities using e-learning if I had only the e-learning system manuals for reference					
I could complete my reading/referring activities using e-learning if I had seen someone else using it before trying it myself					
I could complete my reading/referring activities using e-learning if I had just the built-in-help facility for assistance					
<b>Perceived usefulness</b>					
Using the e-learning system improves my schoolwork performance					
Using the e-learning					

system improves my productivity					
Using the e-learning system enhances my effectiveness about schoolwork					
I find that using the streaming e-learning system is useful in my schoolwork					
<b>Perceived ease of use</b>					
It is easy for me to remember how to carry out tasks using the e-learning system					
I believe that is easy to get the e-learning system to do what I want it to do					
My interaction with the e-learning system is clear and understand					
I believe that the e-learning system is easy to use					
<b>Attitude</b>					
I like using the e-learning system					
The e-learning system is fun to use					
The e-learning system provides an attractive working environment					
<b>Subjective Norms</b>					
My teacher think I should using the site					
My classmates, whose opinions I value, recommend the site					
Other people I look up to expect me to use the site					
<b>Intention</b>					
I intend to completely switch over to the e-learning system					

I intend to increase my use of the e-learning system in the future					
If I have access to the e-learning system, I think to use it					
<b>Learning Process acceptance</b>					
The e-learning provides relevant information for my study					
The information content in the e-learning is very good					
The reliability of output information from e-learning system is high					
The e-learning system provides the information I need in time					
The e-learning system is up-to-date enough for my purposes					
*The output e-learning from e-learning system is not clear					
*The e-learning does not provide easy-to-understand information					











































































































































































































































