AN EMPIRICAL INVESTIGATION INTO THE ROLE OF ENJOYMENT, COMPUTER ANXIETY, COMPUTER SELF-EFFICACY AND INTERNET EXPERIENCE IN INFLUENCING THE STUDENTS' INTENTION TO USE E-LEARNING: A CASE STUDY FROM SAUDI ARABIAN GOVERNMENTAL UNIVERSITIES

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ABSTRACT

E-learning as an effective educational tool has been integrated into many offered courses provided by higher education institutions. Throughout eliminating the barriers of time and distance, students' lifelong learning can be achieved. Due to a broad global attention given to e-Learning, various studies had been conducted by academe, different organizations as well as the government of various nations (Rosenberg, 2001). Saudi Arabian universities are among those universal universities that implement E-learning system. However, recent research indicated that majority of students in Saudi's universities are still unwilling to use online system. Therefore, many factors need to be determined in order to enhance the students' intention to use E-learning tools and participate effectively in their courses using the accessible electronic channels. The current study has extended Technology Acceptance Model (TAM) to investigate the role of Enjoyment, computer anxiety, computer self-efficacy and Internet experience in influencing the students' intention to use E-learning in Saudi's universities. 402 governmental universities' students were participated to test the proposed hypotheses and to determine weather the proposed variables have an effect on the students' intention to use E-learning system. The results of stepwise regression indicated that computer anxiety, computer self-efficacy and Enjoyment were significantly influence the students' intention to use E-learning while the Internet experience was insignificantly influence them. Furthermore, the importance of Attitude in mediating the relationship between perceived usefulness, perceived ease of use and the students' behavioral intention was confirmed.

Keywords: E-learning intention; Intention; TAM; Saudi Arabia

INTRODUCTION

E-learning has been used in education as early as 1950's. At that time E-learning was referred to as distance learning (Clark, 2000). The term E-learning refers to the learning methods which use electronic channels to deliver the instructional content. Moreover, E-learning is also referred to as web-based learning; technology based learning; online learning; networked learning and so on (Trombley & Lee, 2002; Wilson, 2001; Gotschall, 2000). Due to a broad global attention given to e-Learning, various reports and studies had been conducted by academe, different organizations as well as the government of various nations (Rosenberg, 2001). The Saudi Ministry of Higher Education is among those educational organizations that proposed the use of e-learning in Saudi Arabia. The Saudi Ministry of Higher Education initiates the need of integrating Information and Communication Technology (ICT) in various universities in Saudi Arabia. The Saudi Gazette (2008) by Madar Research reported that "the Saudi Arabian E-learning industry is projected to reach USD 125 million in 2008 and is set to grow at a compound annual rate of 33 per cent over the next five years". The increased projection shows vital focus on the advantages of e-Learning in Saudi Arabia's modern education. However, many factors still influence negatively the students' participation in the online courses. Al-Jarf (2007) pointed out that online system for her English course is total failure, ineffective and unsuccessful due to various factors. The reasons behind this low percentage of participation and willingness with the E-learning courses have not confirmed yet. Therefore, the researcher is interested empirically in investigation into the role of Enjoyment, Computer anxiety, Computer self-efficacy and Internet experience in influencing the students' intention to use E-learning.

LITERATURE REVIEW

Technology Acceptance Model (TAM)

The Technology Intention Model (TAM) is one of the most widely applied models to studies individual intention and the usage of technologies. TAM was adapted from the more general human behaviour which is the theory of reasoned action (TRA). The model was initially developed and validate by Davis (1986, 1989). Davis, at al. (1989) developed TAM as a theoretical basis to provide an explanation of the determinants human computer usage behaviour that is general directly from generic TRA (Fishbein & Ajzen 1975). Moreover, According to Davis, Bagozzi, and Warshaw (1989, p. 985) TAM is the proficient of explaining users' behavior crossways of a broad range of end-user computing technologies, alongside both parsimonious and hypothetically justified. TAM model has been extensively validated across an array of settings and contexts (Davis et al., 1989; Venkatesh & Morris, 2000; Venkatesh & Davis, 2000;

Venkatesh, Morris, Davis, & Davis, 2003). Furthermore, many studies have examined TAM's applicability and validity to investigate students' intention in using the e-learning technology in higher education institutions. (Selim 2003; Saadé & Bahli 2005;Saadé & Galloway 2005; Roca et al. 2006 ; Landry ,Rodger , & Hartman 2006; Ngai et al. 2007; Masrom 2007). TAM suggests that perceived ease of use and perceived usefulness of information Technology (IT) are the main determinants factors of IT usage. Davis (1989, p. 447) defines perceived ease of use (PEU) as, "the degree to which an individual believes that using a particular system would be free of physical and mental effort". Moreover, Davis (1989) defined perceived usefulness (PU) as "the degree of which a person believes that using a particular system would enhance his or her job performance". The two major keys constructs of TAM, PU and PEOU, have capability to predict an individual's attitude towards using a particular system. Both constructs PU and PEOU will influence an individual's attitude (A). (Davis et al. 1989) defined attitude as individual's positive or negative assessment of the behavior and is a function of Perceived Usefulness and Perceived Ease of Use .Attitude (A) will influence the Behavioral Intention (BI) of using particular system, and in sequence, Actual use of use the system (AU). Actual use (AU) will be predicted by the individual's Behavioral Intention (BI). Behavioral Intention (BI).Refers to individual's intention to perform a behavior and is a function of Attitude and Perceived Usefulness (Davis et al., 1989). The relationships between the mentioned constructs are presented in Figure 2.4, as shown below. Therefore, TAM model will be basic and theoretical grounding for the current study.
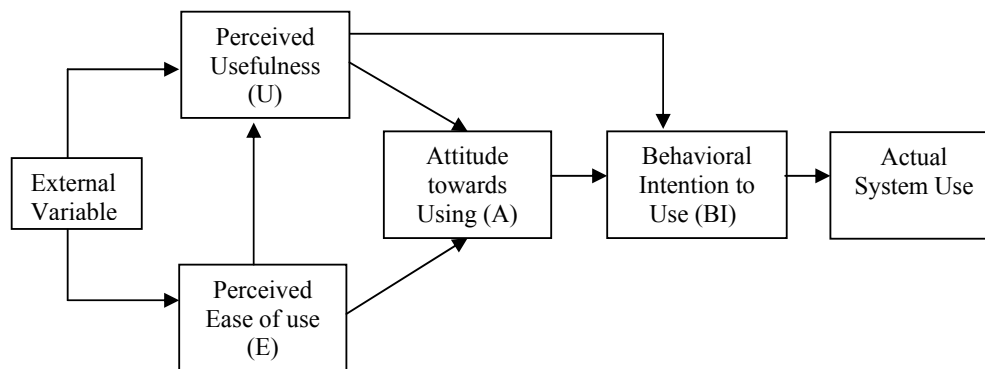

Figure 1: Technology Intention Model (TAM)
Source: Davis, et al., 1989

Enjoyment (EN)
Saadé, Tan, & Nebebe (2008) have conducted empirical research on examining students' intention of a web-based learning system. The authors incorporated the technology intention model (TAM) to include enjoyment as intrinsic motivator. The study was extended TAM to include perceived enjoyment in order to clarify students' behavioral intention in using web-based learning system from a motivational perspective. This study was conducted on two different subjects (China vs. Canada). The results demonstrate that both perceived usefulness and enjoyment have significant impact on students' intention to use the system in two groups. Nevertheless, in contrast to Chinese group, Canadian participants do not consider ease of use has an impact on their intention to use the system. The study also indicated that perceived ease of use does not posses a significant direct effect on behavioral intention in the Canadian group. However, in the Chinese subjects, the relationship between ease of use and intention to use WLS was significant. Lee, Cheung & Chen (2005) have conducted a study in the role of extrinsic and intrinsic motivation on students' Intention of internet-based learning medium. The authors have used technology intention model as theoretical basis for their research. They postulated that perceived usefulness and perceived ease of use as extrinsic motivator and perceived enjoyment as intrinsic motivator. The two proposed motivators were modeled in order to capture and explain students' intention to use the internet-based learning medium. The study findings showed that perceived enjoyment has significant relationship on the students' intention of online learning and directly influencing their intention. While, the perceived usefulness was significantly correlated with the students' intention, however, the perceived ease of use did not record any impact on student attitude or intention towards e-learning usage.

Sun & Zhang (2005) have conducted empirical study on causal relationships between perceived enjoyment and perceived ease of use. The aim of this study was to distinguish their impact on each other is side and their impact on the students' intention from other side. The findings indicated that the causal direction of perceived enjoyment was stronger on perceived ease of use, while, the direct relationship between perceived ease of use was not that strong in the path analysis.

Atkinson and Kydd (1997) have carried out a study to discover the critical factors influencing the students' intention to use World Wide Web. The study involves 162 business (graduate & under graduate) students. The study indicated that

perceived enjoyment was extremely sign fact, whereas, the perceived usefulness was not. Teo, Tan, and Wong (1998) have investigated the role of perceived usefulness, perceived ease of use and perceived enjoyment on the intention to use the Internet. The authors distributed 1370 surveys. The findings indicated that the usefulness used to be not significant, while, the perceived enjoyment used to have a strong relationship with internet usage. To sum up, the enjoyment seems to be very important factors that could affect the E-learning intention in higher education environment. Thus, the researcher will consider enjoyment as important variables need to be investigated.

Computer anxiety (ANX)
Computer anxiety (ANX) is defined as an individual's apprehension or even fear, when she/he is faced with the possibility of using computers (Simonson et al., 1987, cited in Venkatesh, 2000). Moreover, Howard (1986) defines that computer anxiety as the tendency of a person to experience a level of uneasiness over his or her impending use of a computer. In fact, students' who are using E-learning as new educational tools could have some anxiety towards using it. Several researches have investigated computer anxiety as a key factor in influencing the different types of technology intention such as E-mail (Elasmar & Cartar 1996) and computer usage (Compeau & Higgins 1995). Recently, several researches have been conducted in the area of E-learning intention to investigate the role of computer anxiety on students' intention (Ndubisi, 2004; Saadé & Kira 2006).

Saadé and Kira (2006) have conducted research to assess the emotional state of students' perception towards online learning system based on the technology intention model (TAM). The authors have extended technology intention model to include Anxiety and Affect as antecedents and for both perceived usefulness and perceived ease of use. The findings from the study indicated that the perceived usefulness of using online system is not determined by the students' computer anxiety. However, it has indirect influence through the perceived ease of use on the students' intention of online learning system. Furthermore, the anxiety has a positive influence on students' intention of using online system. In conclusion, the emotional state has no direct impact on perceived usefulness of an online learning system, whereas, it has power in predicting the easy of use on online learning system. Thus, the computer anxiety will be tested as antecedents in the current research.

Ndubisi (2004) has conducted research to investigate the critical factors that influence the student' intention to adopt E-learning in Malaysia. The authors examined many factors on students' intention to use the Blackboard system such as users' attitude, subjective norm, perceived behavioral control, perceived usefulness and ease of use of the system. Some of those factor use to mediate and other to test directly the proposed variables. The findings show that the computer anxiety has contributed significantly and has predicted that bout 22% of variation in perceived behavioral control. The findings also indicate that the students with high level of computer anxiety have less perceived behavioral control which will ultimately influences the behavioral intention to use E-learning tools.

In brief, computer anxiety seems to be a crucial factor that could influence the E-learning adoption in higher education institutions. Thus, the computer anxiety in this research will consider critical factors and will be investigated in higher educational context.

Computer self–efficacy (CSE)
Computer Self-efficacy is individuals' beliefs about the users' ability and motivation to perform specific tasks (Agarwal, Sambamurthy, & Stair 2000).While, Self-efficacy as a concept is defined as "judgment of one's ability to use a technology to accomplish a particular job or task" (Venkatesh, Morris, Davis, & Davis, 2000 p. 432). Computer self-efficacy has been studied in different domains. For instance, computer self-efficacy had a positive influence on the computer learning performance (Hasan & Ali, 2004; Yi & Im 2004). Several studies have been conducted to study the influence of computer self- efficacy on the technology intention model (Venkatesh & Davis 1996; Madorin & Iwasiw 1999; Hayashi, Chen, Ryan, & Wu 2004; Lee 2006). Compeau and Higgins (1995) as cited in (Lee 2006) have proposed three dimensions of computer self-efficacy; 1) The "magnitude of computer self-efficacy" is defined as the extent to which people believe they can accomplish difficult tasks using a computer, 2) The "strength of computer self-efficacy" is interpreted as reflecting the power of self-judgment by individuals, 3) the "generalisability of computer self-efficacy" refers to the perception by people of their ability to use various computer software and hardware devices. The computer self-efficacy will be used as antecedents of perceived usefulness and ease of use. The magnitude, strength and generalisability of computer self-efficacy will have a positive effect on the students' ability and confident towards their intention of E-learning tools.

Madorin and Iwasiw (1999) have investigated the effects of computer self-efficacy on using instructional technology in education particularly computer-assisted instruction in the faculty of nursing students. The findings stated that the students' computer self-efficacy has strong influence on the perceived ease of computer use for learning purposes. However, the computer self-efficacy did not have a positive relationship with the perceived usefulness. This result is not inconsistent with the (Venkatesh & Davis 1996) findings regarding to the effect of computer self-efficacy and perceived usefulness.

Lee (2006) has conducted empirical study so as to investigate the factors influencing the adoption of an e-learning system in both mandatory and voluntary settings. The research has confirmed the capability of perceived usefulness and perceived ease of use in predicating the success of E-learning adoption in both contexts. The findings related to computer self-efficacy were important. Computer self-efficacy demonstrated significant impact on perceived ease of use. However, the significant relationship between computer self-efficacy and perceived usefulness was not strong. Furthermore, Lim (2000) found that computer self-efficacy had a direct influence on the students' participation in distance education activities.

Briefly, the computer self-efficacy seems to have the ability to provide the students with high level of using E-learning system. It also seems to be an enthusiasm factor towards E-learning intention.

Internet Experience (IE)
Internet experience can be defined as the extent of a person's experience to perform specific tasks using the internet. Several studies have used the experience as antecedents in technology intention model and they have tested the relationship between perceived ease of use and perceived usefulness (Chang 2004; Wolk 2007). At the same time, some studies have tested internet experiences as external variable with the intention to use distance and E-learning (Fusilier & Durlabhji 2005; Kerka 1999, Rezaei et al. 2008).

Rezaei et al. (2008) has applied and extended technology intention model to predict the students' intention of E-learning application in agriculture at the higher educational level. They have extended TAM to include more external variables such as internet experience, computer self-efficacy, computer anxiety and affect and age. The results had demonstrated that there was a positive relationship between students' intention to use e-learning and its perceived usefulness, perceived ease of use, internet experience, computer self-efficacy and affect. Conversely, the computer anxiety and age had a negative relationship with students' behavioral intention to use e-learning application.

Fusilier and Durlabhji (2005) conducted a study to explore behavioral intention of users' intention in internet technology. They have incorporated the experience with the direct relationship with the intention to use the internet technology. The findings have shown that the relationship between intention of using the internet and experience was stronger and it depended on the level of experiences. Moreover, the experience has complex influence on the students' intention to use internet technology. Thus, the level and the rate of experience play a significant role on the intention to use a particular system.

In brief, the four mentioned variables have tremendous influenced on the students' intention of E-learning implementation and other related technology as cited in the literature. Thus, the researcher will employ these variables in his proposed research model in order to determine whether these variables could influence the students' intention of E-learning in higher educational institutions in Saudi Arabia.

RESEARCH MODEL AND HYPOTHESES
Illustration upon the main TAM model frame work and the findings from previous research regarding to enjoyment, computer anxiety, computer self-efficacy and Internet experience, the research model is proposed as depicted in Figure 2.2. Based on the previous controversial findings in the literature review regarding to these four variables, null hypotheses were summarised as following:

H_01: Enjoyment will have no influence on the students' intention to use E-learning.
H_02: Computer anxiety will have no influence on the students' intention to use E-learning.
H_03: Computer Self-efficacy will have no influence on the students' intention to use E-learning.
H_04: Internet experience will have no influence on the students' intention to use E-learning.
H_05: Attitude towards using E-learning does not mediate the relationship between perceived usefulness and behavioral intention to use E-learning.
H_06: Attitude towards using E-learning does not mediate the relationship between perceived ease of use and behavioral intention to use E-learning.
H_07: There is no relationship between perceived usefulness and perceived Ease of use.
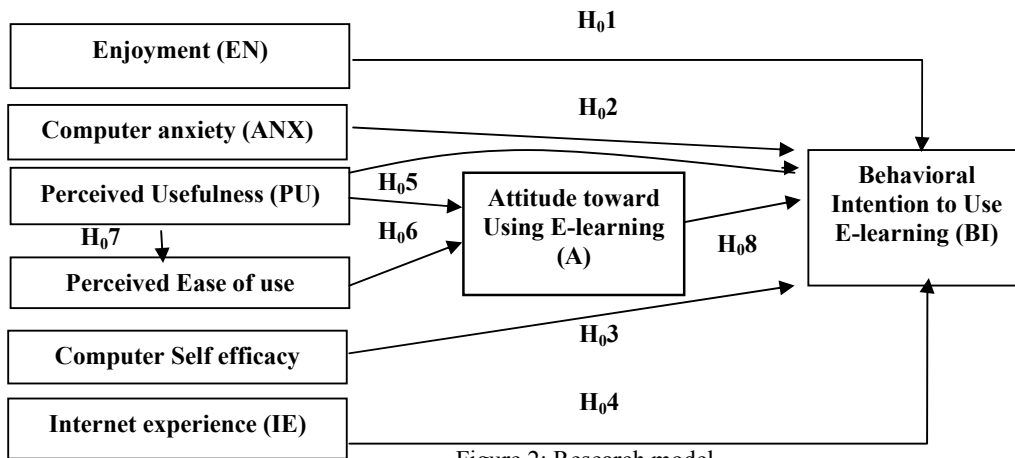H_08: There is no relationship between perceived usefulness and behavioral intention to use E-learning.

Figure 2: Research model

RESEARCH METHODOLOGY
Instrumentation Development
The questionnaire was consisted of 37 Items (Table2.1) in order to measure the proposed research model variables. The measurement was adapted from prior research (Suh, C & Lee, T, 2007; Saade, Tan, &Nebebe, 2008; Saade, & Kira, 2006; Pituch,& Lee ,2006). Pilot study was conducted in order to develop the measurements adapted scales. Moreover, the pilot study was performed in order to detect the internal consistency and reliability of utlised questionnaire. The questionnaire was distributed to 50 students from Al-Jouf University in session one 2009/2010. The returned and usable questionnaires were 48 and two questionnaires were excluded from the analysis due to massive unanswered questions. The analysis of internal consistency was obtained from the interval scale items only. Overall, the pilot study data revealed acceptable high alpha reliability coefficient of all items. Therefore, all items were retained for the main study. Thus, the questionnaire can be distributed to the targeted sample.

Table 1: The research adapted instrumentation references, No. of items and reliability

Factor	Variable	No. Items	Cronbach alpha (α)		Reference
			Original scale	Pilot Study	
TAM	Perceived Usefulness (PU)	5	0.79	0.82	Suh, C & Lee, T (2007)
	Perceived Easy of Use (PEU)	6	0.89	0.79	
	Attitude toward Using E-learning (A)	3	0.88	0.72	
	Behavioral Intention to Use E-learning (BI)	4	0.90	0.80	
	Enjoyment(EN)	3	0.86	0.85	Saade, R ;Tan, W &Nebebe, F (2008)
	Computer anxiety(ANX)	5	0.87	0.83	Saade, R& Kira,D (2006)
	Computer Self-efficacy(CSE)	4	0.91	0.74	Pituch, K.& Lee, Y. (2006)
	Internet experience(IE)	7	0.82	0.74	

Sample and Data Collection
The current research aimed in investigating empirically the role of Enjoyment, Computer anxiety, Computer self-efficacy and Internet experience in influencing the students' intention to use E-learning 480 questionnaires were distributed to the students at five universities in Saudi Arabia. The usable response rate was 85 % with 408 undergraduate students from five different governmental universities. The profile of respondents is portrayed in Table 4.2.

Table 2: profile of respondents

University	Frequency	Percentage
King Saud University	125	30.6
King AbdulAziz University	161	39.5
King Faisl University	38	9.3
King Khalid University	45	11.0
Aljouf University	39	9.6
Total	**408**	**100.0**
Major	**Frequency**	**Percentage**
SCIENCE	263	64.5
ART	145	35.5
Total	**408**	**100.0**
Major	**Frequency**	**Percentage**
MALE	254	62.3
FEMALE	154	37.7
Total	**408**	**100.0**
Age	**Frequency**	**Percentage**
18-21	127	31.1
22-25	259	63.5
26-29	22	5.4
Total	**408**	**100.0**
PC ownership	**Frequency**	**Percentage**
Yes	383	93.9
No	25	6.1
Total	**408**	**100.0**
Years using computer	**Frequency**	**Percentage**
<1 Year	104	25.5
1-3 Years	150	36.8
4-8 Years	126	30.9
>8 Years	28	6.9
Total	**408**	**100.0**
Years using Internet	**Frequency**	**Percentage**
<1 Year	236	57.8
2-4 Years	144	35.3
>4 Years	28	6.9
Total	**408**	**100.0**
E-learning usage	**Frequency**	**Percentage**
One per month	199	48.8
Littlie per month	110	27.0
Littlie per week	75	18.4
One per day	24	5.9
Total	**408**	**100.0**

DATA ANALYSIS AND FINDINGS
Factor and Reliability Analysis
Construct validity and reliability analysis were examined to ensure that the obtained responses are valid and reliable for further analysis. Exploratory factor analysis (EFA) represented by principal components analysis (PCA) with Varimax rotation were performed. All required criterion were achieved. Kaiser-Guttman criterion was applied regarding to the number of factors to be extracted which is only factors with an eigenvalues equal or greater than one can be extracted (Guttman 1954; Kaiser & Dickman 1959). The items with only loading 0.300 or greater were consider as acceptable (Hair et al., 1998). The factor analysis has individually performed of each following scales because the ratio of five subjects per item (5:10) suggested by Coakes and steed (2003) and the ratio of ten subjects per item (1:10) to run a single factor analysis were not achieved (Hair et al., 1998). Therefore, the factor analysis has performed separately. Table 4.3 represents the obtained results from factor analysis of TAM model. Table 4.4 represents the obtained results from factor analysis of Enjoyment, Computer anxiety, Computer self-efficacy and Internet experience

Table3: Factor analysis of TAM model (Behavioral Intention) (Attitude) (Perceived Ease of Use1 & Perceived Usefulness1)

Items	1	2	3	4	α
Behavioral Intention1(BI1)	0.802				
Behavioral Intention2(BI2)	0.795				
Behavioral Intention3(BI3)	0.789				0.79
Behavioral Intention4(BI4)	0.736				
Attitude 1 (A1)		0.830			
Attitude 2 (A2)		0.824			
Attitude 3 (A3)		0.701			0.70
Perceived Ease of Use1 (PEU1)			0.730		
Perceived Ease of Use2 (PEU2)			0.712		
Perceived Ease of Use3 (PEU3)			0.693		
Perceived Ease of Use4 (PEU4)			0.684		
Perceived Ease of Use5 (PEU5)			0.656		0.76
Perceived Ease of Use6 (PEU6)			0.453		
Perceived Usefulness1(PU1)				0.771	
Perceived Usefulness2(PU2)				0.726	
Perceived Usefulness3(PU3)				0.724	0.75
Perceived Usefulness4(PU4)				0.678	
Perceived Usefulness5(PU5)				0.634	
Eigenvalues	2.441	1.860	3.338	1.949	
Percentage of Variance Explained	61.020	61.987	24.366	23.699	
Total Variance explained	61.020	61.987	48.065	48.065	
KMO	0.761	0.639	0.815	0.815	
Bartlett's test of sphericity approx. chi square	457.676	222.718	998.357	998.357	
Df	6	3	55	55	
Sig.	.000	.000	.000	.000	

The Behavioral Intention (BI) KMO was 0.761 which consider acceptable (> 0.500) and Bartlett's test of sphericity was significant ($p<0.000$). The mentioned values were indicated that the appropriateness of conducted factor analysis for E-learning intention variables. Results from Varimax rotated analysis indicated that Behavioral Intention (BI) accounted 61.020% of the total variance explained with an eigenvalues of 2.441 (>1).Factor loading for the BI items ranged from 0.736 to 0.802. Therefore, the results provide initial support for Behavioral Intention (BI) to measure the students' intention to use E-learning**.** All other TAM's variables were acceptable based on above criteria**.**

Table4: Factor analysis of Enjoyment, Computer anxiety, Computer self-efficacy and Internet experience

Items	Component 1	Component 2	Component 3	Component 4	α
Internet Experince1 (IE1)	0.748				
Internet Experince2 (IE2)	0.745				
Internet Experince3 (IE3)	0.677				
Internet Experince7 (IE4)	0.656				0.82
Internet Experince4 (IE5)	0.642				
Internet Experince5 (IE6)	0.594				
Internet Experince6 (IE7)	0.469				
Computer Anxiety1 (ANX1)		.783			
Computer Anxiety2 (ANX2)		.754			
Computer Anxiety3 (ANX3)		.746			0.78
Computer Anxiety4 (ANX4)		.743			
Computer Self –efficacy1 (CSE1)			.814		

Computer Self –efficacy2 (CSE2)			.771	
Computer Self –efficacy3 (CSE3)			.764	0.75
Computer Self –efficacy4 (CSE4)			.567	
Enjoyment1 (EN1)				.877
Enjoyment2 (EN2)				.836 0.78
Enjoyment3 (EN3)				.815

Eigenvalues	3.492	3.277	1.966	1.549
Percentage of Variance Explained	19.399	18.204	10.920	8.606
Total Variance explained	57.129			
KMO	.727			
Bartlett's test of sphericity approx. chi square	2483.843			
Df	153			
Sig.	.000			

Overall, the factor analyses of Enjoyment, Computer anxiety, Computer self-efficacy and Internet experience were acceptable. Therefore, the construct validity was achieved. The Cronbach's alpha coefficient (α) was performed in order to assess the internal consistency. It was ranged from 0.70 to 0.82 which considered acceptable because many researchers believed that the ideal Cronbach's alpha coefficient should be above 0.70 (Pallant 2001; Hair et al. 2006).

Hypotheses Testing
Three analysis techniques were used in order to testing the proposed hypotheses. Stepwise regression analysis was performed in order to investigate the variables' influence on the students' behavioral intention to use e-learning. Moreover, hierarchical regression analysis and Baron and Kenny criteria in order to test the mediation affect of the students' attitude towards using E-learning. The finial technique used was product-moment correlation analysis in order to test the relationship between perceived usefulness with perceived ease of use and behavioral intention to use E-learning. Before testing the proposed hypotheses, several assumptions were met mainly normality, linearity, homoscedasticity and independence of errors terms, multicollinearity and multivariate outliers (Hair et al 1998; 2006; Pallant 2001; Coakes & steed 2003). To examine the hypothesized statement (H_01- H_04), stepwise regression analysis was performed. Table 4.45 shows the results of stepwise multiple regression analysis.

Table 5: Stepwise multiple regression analysis: psychological factor's variables as predictors of E-learning intention.

Predictors	R Square	Adjusted R Square	Unstandardized Coefficients B	Standardized Coefficients Beta	t	p- value (Sig)
Computer anxiety	.360	.358	.637	.552	12.697	.000**
Computer Self-efficacy	.371	.368	.137	.120	2.756	.006**
Enjoyment	.378	.373	-.094	-.081	-2.045	.041*

** p > 0.01, * p > 0.05

As represented in Table 5, the examined variables namely enjoyment, computer anxiety, computer self-efficacy and internet experience were regressed in stepwise technique. The regression model utlised to predict students' intention to use E-learning resulted in Adjusted R Square = 37.3% at significant 0.05 levels. Out of four examined psychological predictors, three predictors were activated prediction equation and also were associated with a significant percentage of variance in E-learning intention, $F_{(3, 398)}$ = 80.564, p<0.001. The first significant variable that predict E-learning intention is Computer anxiety with β = .552, t = 12.697, at the significant level of p < .001, two tailed. The second significant variable predicted the e-learning intention is Computer Self-efficacy with β =.120, t = 2.756, at the significant level of p < .05. The third significant variable predicted the e-learning intention is Computer Self-efficacy with β =-.081, t = -2.045, at the significant level of p < .05. However, the internet experience has excluded from the model due to its insignificant association with students' E-learning intention at the significant level of p < .05. From the psychological prospective and based on the findings, students' who have lower computer anxiety, higher computer self-efficacy and perceived enjoyment in practicing E-learning would have a better intention of e-learning activities. Therefore, H_01 to H_03 were rejected while H_04 was accepted.

H_05: Attitude towards using E-learning does not mediate the relationship between perceived usefulness and behavioral intention to use E-learning. To examine the hypothesized, Hierarchical regression was performed. The results in Table

4.6 demonstrate the results of hierarchical regression analysis using Attitude as A mediator in the relationship between perceived usefulness and E-learning intention.

Table 6: The results of hierarchical regression analysis using Attitude toward e-learning as A mediator in the relationship between perceived usefulness and E-learning intention.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Step1 (Model 1)	(Constant)	2.541	.201		12.659	.000
	PERCEIVED USEFULNESS	.127	.061	.104	2.085	.038
Step2 (Model2)	(Constant)	2.284	.237		9.664	.000
	PERCEIVED USEFULNESS	.111	.061	.091	1.815	.070
	ATTITUDE	.098	.049	.101	2.026	.043
$R^2 = 0.104$ in step 1; $R^2 = 0.144$ in step 2						

As portrayed in Table 6, the results indicate that in the first model, perceived usefulness is significantly contributed to E-learning intention, $R^2 = 0.104$, $F_{(1, 400)} = 4.346$, p<0.05. Model one shows that perceived usefulness is positively related to E-learning intention, QUOTE β β = .104, $t = 2.085$, at the significant level of p < .05. In model two, the Attitude was added to the equation, the $R^2 = 0.144$ significantly change with $F_{(2, 399)} = 4.241$, p<0.05. Model two shows that perceived usefulness is insignificantly reduced, QUOTE β β = .091, $t = 1.815$, at the significant level of p < .05 In testing the mediation effect of Attitude, In model 1 the relationship between perceived usefulness (IV) and E-learning intention (DV) was significant. While in Model 2 the relationship between IV and DV become insignificantly reduced. Therefore, the attitude towards E-learning fully mediates the relationship between perceived usefulness and E-learning intention.

H$_0$6: **Attitude towards using E-learning does not mediate the relationship between perceived ease of use and behavioral intention to use E-learning**. To examine the hypothesized statement, Hierarchical regression was performed. The results in Table 4.7 demonstrate the results of hierarchical regression analysis using Attitude as A mediator in the relationship between perceived ease of use and E-learning intention.

Table 7: The results of hierarchical regression analysis using Attitude toward e-learning as A mediator in the relationship between perceived ease of use and E-learning intention.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Step1 (Model 1)	(Constant)	2.452	.193		12.690	.000
	PERCEIVED EASE OF USE	.164	.062	.130	2.632	.009
Step2 (Model2)	(Constant)	2.274	.220		10.319	.000
	PERCEIVED EASE OF USE	.137	.064	.109	2.134	.033
	ATTITUDE	.083	.050	.086	1.674	.095
$R^2 = 0.130$ in step 1; $R^2 = 0.155$ in step 2						

As presented in Table 7, the results indicate that in the first model, perceived ease is significantly contributed to E-learning intention, $R^2 = 0.130$, $F_{(1, 400)} = 6.926$, p<0.05. Model one shows that perceived ease of use is positively related to E-learning intention, QUOTE β β = .130, t = 2.632, at the significant level of p < .05. In model two, the Attitude was added to the equation, the $R^2 = 0.156$ significantly change with $F_{(2, 399)} = 4.880$, p<0.05. Model two shows that perceived ease of use still significantly but it reduced, QUOTE β β = .109, t = 2.134, at the significant level of p < .05 In testing the mediation effect of Attitude, In model 1 the relationship between perceived usefulness (IV) and E-learning intention (DV) was significant. While in Model 2 the relationship between IV and DV still significantly but the magnitude of the relationship between them is reduced (QUOTE β β = .130 to.109, t = 2.632 to 2.134. Hence and Based on Baron and Kenny approach, the attitude towards E-learning partially mediates the relationship between perceived usefulness and E-learning intention.

Secondly, the assumed null hypotheses of the relationship between perceived usefulness and perceived ease of use as well as the relationship between perceived usefulness and E-learning intention were examined using a Pearson product-moment correlation coefficient (r).

H_07: **There is no relationship between perceived usefulness and perceived Ease of use**. In order to investigate the relationship between perceived usefulness and perceived Ease of use, Pearson correlation coefficient was used. Table 4.39 shows the results of correlation test between psychological factors and E-learning intention.

Table 8: The results of correlation test between perceived usefulness and perceived Ease of use (N=402)

		PERCEIVED USEFULNESS	PERCEIVED EASE OF USE
PERCEIVED USEFULNESS	Pearson Correlation	1	.254(**)
	Sig. (2-tailed)	.	.000
	N	402	402
PERCEIVED EASE OF USE	Pearson Correlation	.254(**)	1
	Sig. (2-tailed)	.000	.
	N	402	402

** Correlation is significant at the 0.01 level (2-tailed).

The result in Table 8, indicated that positive and small strength relationship between the *between perceived usefulness and perceived Ease of use* with the coefficient's value $r = 0.254$, $n = 402$, $p = 0.01$. Therefore, the null hypothesis is rejected.

H_08: **There is no relationship between perceived usefulness and behavioral intention to use E-learning**. To examine the relationship between perceived usefulness and E-learning intention, Pearson correlation coefficient was utilized. Table 4.54 demonstrates the results of correlation test between perceived usefulness and E-learning intention.

Table 4.9: The results of correlation test between perceived usefulness and E-learning intention (N=402)

		PERCEIVED USEFULNESS	ELEARNING INTENTION
PERCEIVED USEFULNESS	Pearson Correlation	1	.104(*)
	Sig. (2-tailed)	.	.038
	N	402	402
ELEARNING INTENTION	Pearson Correlation	.104(*)	1
	Sig. (2-tailed)	.038	.
	N	402	402

* Correlation is significant at the 0.05 level (2-tailed).

According to Table 9, the results demonstrated that there is a positive and small strength of the relationship between perceived usefulness and E-learning intention with the coefficient's value $r = 0. .104$, $n = 402$, $p = 0.05$. Hence, the null hypothesis is rejected.

DISCUSSION AND IMPLICATIONS
The research findings were supported most previous researches on TAM model particularly the affect of both TAM predictors' namely perceived usefulness and perceived ease of use on the users' behavioral intention to use new

technology(Landry, Rodger, & Hartman 2006; Masrom 2007; Ngai et al. 2007; Roca, Chiu, & Martínez 2006; Selim 2003; Saadé & Bahli 2005; Saadé & Galloway 2005).The meditation effects of the Attitude on the relationship between perceived usefulness and perceived ease of use on the users' behavioral intention was confirmed on this research. These results were consistence with previous research in this area (Brown 2002; Lee, Cheung & Chen 2005; Brown 2002; Ngai et al. 2005; Saadé & Bahli 2005). While, the current findings regarding the mediation effects were contrary to some previous study (Yousafzai 2006; Venkatesh & Davis 1996). Despite of most of previous research study the current research proposed variables as antecedents, the current research was aimed to examine the direct affect of these variables on the intention to use E-learning. The results indicated that Enjoyment, Computer anxiety, Computer self-efficacy were significantly influence the students' intention to use E-learning. The findings were consistence mostly with the previous research ((Madorin & Iwasiw 1999; Compeau & Higgins 1995; Davis et al. 1992; Agarwal et al.2000; Anandarajan, Igbaria ,& Anakwe 2000; Venkatesh 2000; Tan & Teo 2000;Venkatesh et al. 2003; Ndubisi 2004; Yi & Hwang 2004; Lee, Cheung & Chen 2005; Sun & Zhang 2005; Saadé & Kira 2006; Saadé, Tan, & Nebebe 2008).The internet experience was insignificant in influencing the students' intention to use e-learning and it was contrary with other research findings (Fusilier & Durlabhji 2005; Kerka 1999; Rezaei et al. 2008). Therefore, the possible implications are that the students' intention to use E-learning might be increased through considering the key influence factors namely perceived usefulness, perceived ease of use , attitude, enjoyment, computer anxiety and computer self-efficacy in the e-learning process. The perceived ease of use, attitude, enjoyment seem to be related to the Learning management design. While, computer anxiety and computer self-efficacy are almost related to the institutions support in providing workshops and training for its students in order to renovate their negative behaviour and ability.

CONCLUSION

In conclusion, the tested null hypotheses are summarized in table 4.10.

Table 4.10: Summary of tested null hypotheses in question five using hierarchical regression and correlation analysis

Hypothesis	Statement	Analysis Technique used	Results
$H_0 1$	Enjoyment will have no influence on the students' intention to use E-learning.		**Rejected**
$H_0 2$	Computer anxiety will have no influence on the students' intention to use E-learning.	Stepwise regression analysis	**Rejected**
$H_0 3$	Computer Self-efficacy will have no influence on the students' intention to use E-learning.		**Rejected**
$H_0 4$	Internet experience will have no influence on the students' intention to use E-learning.		**Accepted**
$H_0 5$	Attitude towards using E-learning does not mediate the relationship between perceived usefulness and behavioral intention to use E-learning.	hierarchical regression analysis and Baron and Kenny criteria	**Fully mediated**
$H_0 6$	Attitude towards using E-learning does not mediate the relationship between perceived ease of use and behavioral intention to use E-learning.		**Partially mediated**
$H_0 7$	There is no relationship between perceived usefulness and perceived Ease of use.	Pearson product-moment correlation coefficient	**rejected**
$H_0 8$	There is no relationship between perceived usefulness and behavioral intention to use E-learning.		**rejected**

In conclusion, the practical contribution can be summarised in increasing the level of students' intention and participation to use E-learning system in higher education environment. The theoretical contribution can be observed in extended TAM model and testing its validity as well as applicability in Saudi higher education context. The proposed variables were tested as external independents variables not as antecedents. Future research need to investigate further variables in the area of E-learning acceptance particularly the physiological related variables.

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