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UNDERSTANDING THE TECHNOLOGY RECEPTIVITY IN HIGHER EDUCATION STUDENTS IN THE UAE CONTEXT

Abstract:

In contemporary society, the learning process is becoming a vital factor in business and socioeconomic growth. Education can play its role effectively if it is managed properly and is supported by technology. This study adopts the Technology Acceptance Model to investigate the acceptance and perception of technology usage amongst the local and expatriate students in the UAE context. The methodology used in this research is quantitative in nature. A survey study was conducted, which involved students from various faculties at one of the private university in United Arab Emirates. Purposive sampling technique was used to determine the sample size used for the study. Data were collected from a sample of students (n=236) who use blackboard system. A hypothesized model was developed through technology acceptance theory of Davis, from where hypotheses were postulated for the study. Regression and Structural equation modeling was used to ascertain the goodness of fit of the model of the study and to analyze all the hypotheses postulated therein. The findings follow the intuition that most of the factors studied affect students' satisfaction and retention positively and significantly. Perceived Ease of Use (PEOU) comes out to be the strongest contributor of students' satisfaction. The analysis also shows that the level of satisfaction among students significantly impacts their retention to Blackboard and PeopleSoft. It was noticed that nationality does not impact students' satisfaction with this software. This paper emphasizes technology implementation and receptivity in higher education students. It makes tentative suggestions and recommendations on how policy makers might respond to current and future technology needs. Using the TAM model to predict satisfaction and retention rates within UAE education system, rather than using the regular quality factors, will contribute toward further understanding of how to build quality education. In the United Arab Emirates (UAE), there has been a great emphasis on utilizing e-learning to complement traditional methods of teaching in universities, but with very little empirical research that examines students' attitudes toward the use of blackboard. This study provides an understanding of the technology receptivity in higher education students and can serve as a basis to encourage University management and its stakeholders for further improvement in this region.

Keywords:

Technology Acceptance, Higher Education, United Arab Emirates

JEL Classification: I29

Introduction

Education plays an important role in human resource development (Din, Khan and Murtaza, 2011). It raises the productivity, efficiency of individuals and produce skilled manpower that is capable of leading the economic development. In contemporary society, the learning process is becoming a vital factor in business and socioeconomic growth. Education can play its role effectively if it is managed properly and is supported by technology. The dominant role of such technology is to help improve the process of instruction, learning, and research. In recent years, the world has experienced fast and eye-catching development in the use of technology in the field of Education and this has paved the ground for establishing new potential ways for linking students and classes across nations and institutions. In the form of e-learning systems, information and communication technology improves both access to and effectiveness of learning (Ma and Yuen, 2011). However, recent studies have found that instructors and students are not always fully engaged in online activities. Other studies have found inconsistent results, with learner participation varying significantly across contexts. This study adopts the Technology Acceptance Model to investigate the acceptance and perception of technology usage amongst the local and expatriate students in the UAE context.

Technology acceptance can be defined as a user's willingness to employ technology for the tasks it is designed to support. Over the years, the researchers have become more interested in understanding the factors influencing the adoption of technologies in various settings. From the literature, much research has been done to understand technology acceptance in the business contexts. This is understandable, given the close relationship between the appropriate uses of technology and profit margin. In most of the acceptance studies, researchers have sought to identify and understand the forces that shape users' acceptance so as to influence the design and implementation process in ways to avoid or minimize resistance or rejection when users interact with technology. and have far-reaching implications for higher education leaders, policy makers, and other stakeholders. In recent years, technology acceptance research has been reported with increasing frequency in education-related journals which explicitly shows its growing importance in the educational research field.

The structure of the paper is as follows: we first instigated a brief literature review that deals with the main constructs. After that, we probed into the methodology followed by the research results and findings. The findings are discussed with regard to their theoretical and contextual implications.

About Blackboard Learn System

The Blackboard Learn™ Platform is a virtual learning environment and course management system developed by Blackboard Inc. The Blackboard has many features and functions and outlined below are said features:

- Professors and teachers may post announcements for students to read.
- Chatting function that allows the students who are online to chat with other students in their class section.
- A feature that allows students and professors to create a discussion thread and reply to ones already created.
- Inbox that allows students and teachers to send e-mail to one another.

- A feature that allows for assignments to be posted and for students to be able to submit assignments online.
- A feature that allows teachers to post article, assignments, videos etc.
- Grade Book that allows professors to post grades on Blackboard for students to be able to view at their own personal convenience.

Objectives of the Study

The study aimed to understand the nature of the relationships between the independent variables of TAM factors: perceived ease of use (PEOU), perceived e-literacy and perceived usefulness (PU) as well as e-satisfaction as mediating variable and the dependent variables of e-retention.

The significance of and the need for the Study

Concurrently, there remains the complex question of whether the changes actually made for a better learning experience for the students, in whose name they had been so vigorously promoted (Alsaady, 2007). As for the significance of this study it offered a different way of thinking and talking about using technology in higher education than has been customary. Limited research has been conducted in UAE region that seeks to explain the perception on the change brought by the advent of the Blackboard Learn Platform. This study will be a valuable addition to the UAE researches as well as to the University in particular as an emerging educational institution. Moreover, this study aims to provide a clear picture of the attitudinal behavior of students. Because of the growing importance of Technology usage in higher education in UAE, this study intends to identify the attitudes of stakeholders' by the advent of Blackboard learn system and will help to build a bridge towards effective change management.

Literature Review

Lee and Stoel (2003) state that one important use of learning platforms is the ease at which instructors put course material online to supplement the information provided to students in a traditional in-class setting. With regards to whether students' accept said platform, their study concluded that the more experience students' have with the online learning system, the more that they perceive that it takes less effort for them to use it. As a result, they will be much more likely to use the web –based more regularly. While introducing a new learning system, instructors or professors should bring to students' attention how easy the system is to use. (Lee & Stoel, 2003, p. 8)

Xiao (2010) examined whether the use of Blackboard dynamically promotes information literacy to ascertain that students' succeed in the long-run as life-long learners. The key findings of his study illustrate that the majority of students are unanimous on how helpful and informative the Blackboard learning platform is. Some have even agreed that the information resources available on Blackboard have helped them better carry out their research in the past. Thus the seamless flow of information in Blackboard has lead to students' sharing a heightened level of information literacy. (Xiao, 2010, p. 7)

Legrisset al. (2003) concluded after an intensive literature review that TAM can be considered as a very powerful tool, but it has to be integrated into a broader one which has to involve variables related both to human and social changes. Yi and Hwang (2003), for example, added ENJ, learning goal orientation, and application of self-efficacy as external variables to the model. In this paper, we add ENJ as well as blackboard DF (BDF) as external factors as they are widely used in the literature.

Since the introduction of the TAM model by Davis (1989), it has been generally used for predicting acceptance, adoption, and use of information systems (Halawi and McCarthy, 2007). However, in this research, we are going to use TAM model for a different purpose; rather than predicting the acceptance and use of information systems, we will investigate how TAM factors mainly might contribute toward increasing the rate of students' satisfaction and retention. There is no comprehensive investigation in the literature examining how the students' perception of TAM factors, as well as the external factors of DF and ENJ, will influence students' e-satisfaction, which in turn will lead to higher rate of e-retention. Students' e-retention in this paper measures the extent that students are not only continuously using blackboard but also psychologically attached to it (Al-hawari, 2006).

In this study, we proposed the two factors of TAM (PEOU); PU and perceived e-literacy as an independent variable, E-satisfaction as moderating variable and e-retention as dependent variable. Despite the use of TAM factor in different studies as quality factors, the literature lacks a focused discussion of the importance of TAM factors as powerful predictors of students' e-satisfaction and e-retention within e-learning context.

PEOU is defined as "the degree to which a person believes that using a particular system would be a free effort" (Davis, 1989). Different studies have used the construct PEOU as antecedent of e-satisfaction (Barnes and Vidgen, 2000; Jeong and Lambert, 2001; Madu and Madu, 2002; Zeithamlet al., 2001). In an e-learning context, students that perceive the system to be easy to use, develop better attitudes toward e-learning (Saade'andKira, 2009). PU – is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, pp. 330-1). Usefulness has also been used by different researchers as predictors of e-satisfaction within online context such as Yang et al. (2003). The PEOU and usefulness of e-learning among learners are important factors that affect the effectiveness of e-learning (Lim et al., 2007).

Nusair and Kandampully (2008) defined ENJ (playfulness) as the devises that attract the attention of the online system users with enjoyable inputs, it might include features such as animation, music, video, and other multimedia effects. They further argued that ENJ is essential in attracting, satisfying, and retaining users. A study by Yi and Hwang (2003) investigated the actual use of blackboard by university students. Their findings indicated the important role of ENJ as a positive influence on the decision of students to use blackboard and subsequently on actual use. Goetz et al. (2006) showed that ENJ has a clear linkage to learning behaviour, such as self-regulated learning and creative problem solving. In the current study, BDF refers to the content layout and content updating, as well as user-friendliness (Cristobal et al., 2007). Within the offline context of face-to-face banking, Greenland and McGoldrick (2005) found a direct relationship between the style and design of bank branch environment and favourable customer reactions, including satisfaction. DF have also been studied widely in the e-commerce

as well as marketing literature (Aladwani and Palvia, 2002). There are several research projects measuring the impact of DF on satisfaction and other intentional aspects of behaviour (Siomkos et al., 2006; Tractinsky et al., 2006). Cyr et al. (2006) investigated how DF could influence customers' loyalty within mobile industry context. They found that DF have a significant indirect relationship with loyalty through usefulness, ease of use, as well as ENJ.

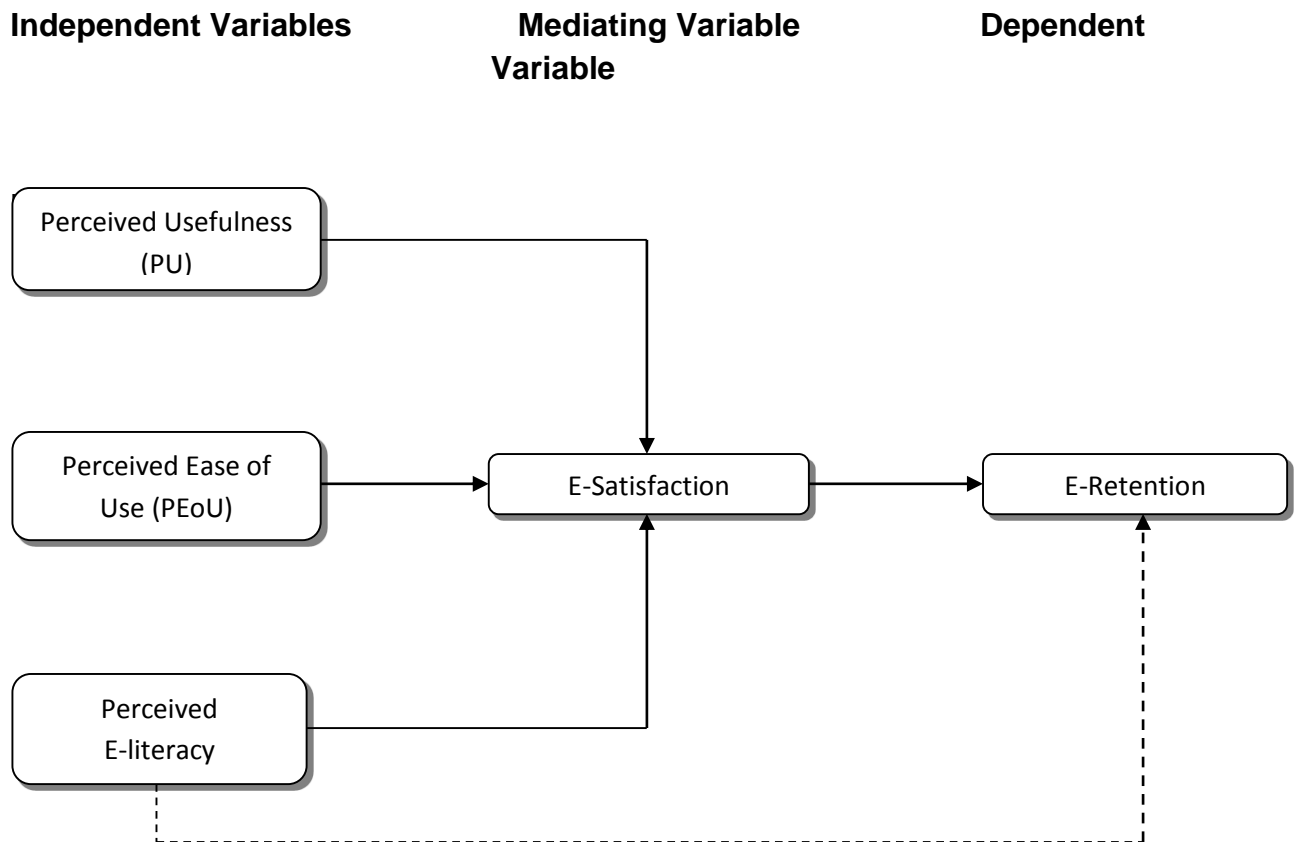
After reviewing the literature, the researchers concluded that none of the research has been carried out related to instructional technology change in UAE perspective.

Research focus and methodology

The methodology used in this research is quantitative in nature and is designed to gain insight into students' overall attitudes, beliefs, motivations and behavior towards the recent advent of the Blackboard Learn™ Platform implemented in a local university in UAE. A survey study was conducted, which involved students from various faculties at one of the private university in United Arab Emirates. Purposive sampling technique was used to determine the sample size used for the study. The sample included 236 undergraduate and postgraduate students. A total of 89 male students (37.7 percent) and 147 female students representing (62.3 percent) participated in the study. A total of 82 nationals (34.7 percent) and 154 expatriate students (65.3 percent) from various disciplines of the university were used as sample for the study.

The questionnaire comprised of 32 items and all parts of the questionnaire, except the part which contained demographic data about the student (gender, academic year, college, and frequency of blackboard usage), were measured using a five-point Likert scale, ranging from 1 – strongly agree to 5 – strongly disagree, with the mid-point (3) representing the state of unsure or neutral.

TAM Framework



Technology acceptance model (TAM) is an information systems theory that models how users come to accept and use a computer-based technology. The model was developed by Davis (1989) to explain computer usage behavior. The model suggested that when users are presented with a new software package, a number of factors influence their decision about how and when they will use it (Masrom and Hussein, 2008). Though there are other model that can equally be used to predict and explain why users accept or reject an information system, this model include Diffusion of Innovations Theory (Rogers, 2003) and Concerns Based Adoption Model (Hall, 1979) as well as Social Influence Theory (Kelman, 1958). However, some of this theories and model appear to be complex, while TAM was simple and robust enough as a model (Venkatesh and Davis, 2000; Ahmad et al., 2010) Therefore, in this study, technology acceptance theory was used to explain students' attitude to social software use.

TAM predicts that user acceptance of technology is determined by three factors: (a) perceived usefulness, (b) perceived ease of use, and (c) behavioral intentions. Davis et al. (1995) found that both perceived usefulness and perceived ease of use directly mediated behavioral intentions (with perceived ease of use also having a direct effect on perceived usefulness). In turn, behavioral intentions were found to be a strong predictor of actual use (See Figure 1)

The technology acceptance model (TAM) is one of the most influential theories in IT adoption and acceptance research. Derived from the theory of reasoned action (TRA), TAM suggests that the most salient beliefs that determine one's attitude towards using a system, and consequently one's intention and actual level of use, are perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness is defined as the subjective probability that using the system will increase his or her job performance, while perceived ease of use is defined as the degree to which the prospective user expects the target system to be free of effort.

Proposed Hypotheses

H1 : PU has a positive impact on all student's e-satisfaction irrespective of their nationalities.

H2 : PU has a positive impact on Emirati student's e-satisfaction

H3: PU has a positive impact on Expatriate student's e-satisfaction

H4: PEOU has a positive impact on Emirati student's e-satisfaction

H5: PEOU has a positive impact on Expatriate student's e-satisfaction

H6: Emirati students perceived e-literacy is higher than expatriates

H7: Student's e-satisfaction has a positive influence on student's e-retention.

H8: PU has a positive impact on student's e-retention

H9: PEOU has a positive impact on students e-retention

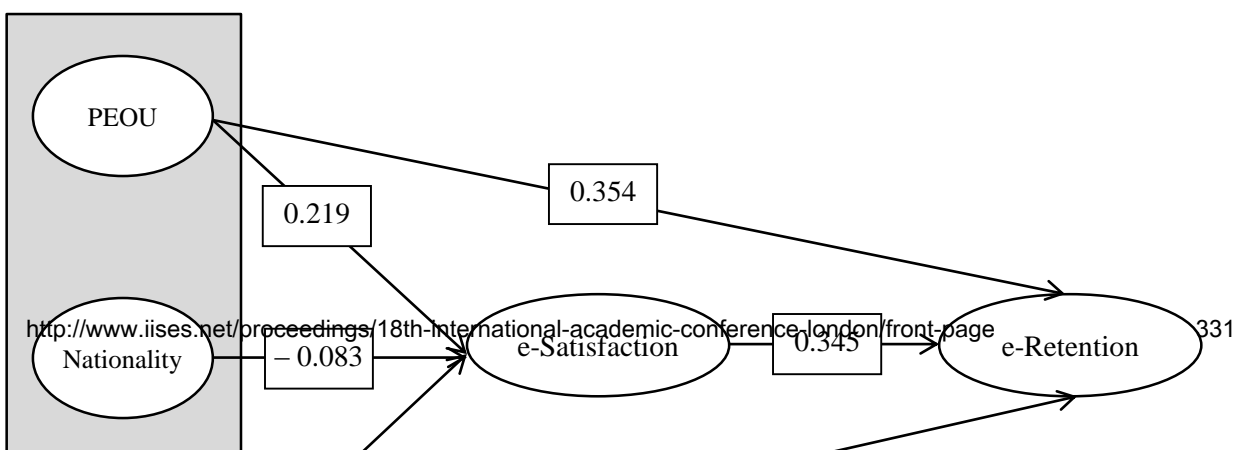
Research findings and discussion

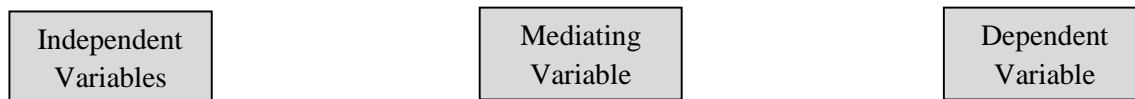
Demographics of the Respondents

Nationality	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Emarati	82	34.7	34.7	34.7
Non-Emarati	154	65.3	65.3	100.0
Total	236	100.0	100.0	
Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	89	37.7	37.7	37.7
Female	147	62.3	62.3	100.0
Total	236	100.0	100.0	
Year of Study	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1st	84	35.6	36.2	36.2
2nd	70	29.7	30.2	66.4
3rd	41	17.4	17.7	84.1
4th	37	15.7	15.9	100.0
Total	232	98.3	100.0	
Missing System	4	1.7		
Total	236	100.0		

The results of linear regression are shown in the following table:

Relationship	Regression Weights	p-value
PEOU→e-Sat	0.219	0.0000
Nationality→e-Sat	- 0.083	0.2818*
PU→e-Sat	0.090	0.0123
PEOU→e-Ret	0.354	0.0000
PU→e-Ret	0.224	0.0000
e-Sat→ e-Ret	0.345	0.0034
* Not Significant		





The findings in the above table follow the intuition that most of the factors studied affect students' satisfaction and retention positively and significantly. PEOU comes out to be the strongest contributor of students' satisfaction. The rationale for this fact is that most of the modern students are usually equipped with basic skills to operate smart gadgets and they do not need much of a training to use simple software such as Blackboard and Peoplesoft. As technology is influencing our lives in general, Blackboard is believed to be a vital part of the educational systems in future.

Students' perception about the usefulness of this software is the next important factor that plays a role in their satisfaction. This software turns out to be convenient for students in so many ways such as (a) their course material is readily accessible even on their handheld devices, (b) they can discuss on the problems, issues, assignments and projects openly/privately, (c) they can communicate with instructors more effectively, (d) their contribution towards a task is easily tracked and graded, and (e) there is no chance of getting their work lost.

As one could expect, both of these factors again remain very strong to make (retain) the students use this software over and over through their studies. The analysis also shows that the level of satisfaction among students significantly impacts their retention to Blackboard and PeopleSoft.

PEOU – Q19

PU – Q26

ESAT – Q32

PCL – Q8

Reliability Statistics

Cronbach's Alpha	N of Items
.423	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PCL	5.64	3.313	.048	.529
PEOU	5.96	2.604	.392	.205
PU	4.96	2.136	.250	.360
ESAT	6.43	3.027	.339	.291

First ANOVA table below:

Hypothesis 1

The perceived computer literacy of Emirati students is **not significantly different** from that of Non-Emirati students.

Fail to reject the null hypothesis. That is, the two groups do not have a different level of computer literacy.

Hypothesis 2

There is **no significant difference** between the PEOU for Bb between Emirati and Non-Emirati students

Fail to reject the null hypothesis. That is, the perceived usefulness about Bb is not affected by nationality.

Hypothesis 3

The response to PU is **not significantly affected** by nationality

Fail to reject the null hypothesis. That is, nationality does not affect their perceived usefulness about Bb.

Second ANOVA table below:

Hypothesis 4

The perceived usefulness of Bb does **not significantly impact** its e-satisfaction among students.

Reject the null hypothesis. That is, the students' satisfaction with this interactive tool depends on their perception about its usefulness. The p value = 0 is an indicator of heavy dependence.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
PU	Between Groups	.160	1	.160	.134	.715
	Within Groups	278.580	233	1.196		
	Total	278.740	234			
PEO U	Between Groups	.000	1	.000	.000	.996
	Within Groups	134.826	234	.576		
	Total	134.826	235			
PCL	Between Groups	.179	1	.179	.265	.607
	Within Groups	157.668	233	.677		
	Total	157.847	234			

ANOVA

ESAT

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	8.485	4	2.121	6.126	.000
Within Groups	79.643	230	.346		
Total	88.128	234			

It can be said that students in this University perceive the learning tools in almost the same manner. That is why they recognize the utility of Blackboard in the same way irrespective of their nationality. This could be because they all come from a similar educational and training background. One should also note here that the students were newly introduced to Blackboard and were more concerned about getting their course material on the website rather than enjoying the several benefits that it brings along. Therefore, students from different cultural backgrounds have perceived the ease of use

and usefulness of the tool in the same fashion (hypotheses 2 and 3). This is an expected outcome after we noticed that their computer literacy is not affected by the nationality (hypothesis 1).

On the other hand, their satisfaction with this learning tool is significantly impacted by how they perceive its usefulness (hypothesis 4). This is an interesting result as it indicates that students' collective response on the usefulness of Blackboard does not vary by their cultural background (hypothesis 3) but the same response has a noticeable impact on their satisfaction level.

It was noticed that nationality does not impact students' satisfaction with this software. We realize that though these students may have their roots in different countries, most of them are actually brought up and taught in UAE and thus have a similar attitude towards technology. It would be interesting to study the difference between the attitudes towards this software in students from schools in different countries.

Conclusion, Limitations & Scope for future researches

Firstly, it is very important to recommend a deeper and more elaborate surveying and analysis for the Blackboard initiative to stand on a firmer ground when making decisions and improvements. That being said, the sample surveyed provided some light on issues that could have affected the implementation, and would, if addressed, enhance the reception and implementation of the initiative.

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