International Journal of Engineering & Technology, 7 (3.20) (2018) 956-963

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research paper

Using Technology Acceptance Model (TAM)Model to Assess the Lecturers' Behavioral Intention to Use E- Learning System in University of Babylon

Chasib Hasan abboodi[1], Rahman Nahi Abid[2], Nawrs Haider Mahmood[3]

College of Basic Education, University of Diyala, Iraq
College of Nursing, University of Babylon, Iraq
Corresponding Author Email: rahmannahi@yahoo.com

Abstract

E-learning becomes the advanced technology used to improve the learning process with professional tools. University of Babylon (UoB) has begun to adopt e- learning tools to improve its education quality. Lecturers acceptance of e-learning system is critical issue should be measured along time of development of e-learning system in order to get high effectiveness in learning process. The technology acceptance model (TAM) used in this study to explain lecturers' acceptance of e-learning system in UoB. the present paper consolidated the perceived Usefulness (PU), perceived ease of use (PEOU), perceived playfulness, facilitating conditions and IT knowledge as independent variables. Data gathered by distributed questionnaire. The number of respondents was fifty-nine. The findings demonstrated that PEOU, PU, perceived playfulness and IT knowledge are fundamentally affected the attitude of UoB lecturers. These were trailed by disposition to utilize E-learning and its encouraging condition impact user behavior.

Index Terms: *E-learning systems, Technology Acceptance Model TAM; University of Babylon; Iraq*

I. INTRODUCTION

With the widespread use of information technology systems and social media communication which increased university community interactions [1], E learning system ELS become interesting to many educational institutions and business organizations, OECD report [2], considered ELS to be fastest growing sector in the global education market E- Learning as it used very effective techniques for the development of learning, critical thinking, and decision making skills are more effectively than a live instruction [3,4].

ELS has become the way into developing the education around the world and is expected to have big ability for governments struggling to meet an increasing applicants for education while insufficient number of teachers by depending online learning [5]. Moreover, lecturers' acceptance of ELS system can help to predict and enhance a superior perception of their inspiration to utilize the ELS.Paulsen, Cavus, N. and Momani,[6,7,8] emphases that technology acceptance model (TAM) is one of the successful models used to insure the acceptance information technology (IT) of the users which has been proved by many previous researches as [9,10,11] to its ability to predict the users' intention and system actual usage .

In Iraq where there is no solidity in life conditions it is hard to entirely adopt ELS as it. Numerous Iraqi Universities as yet working with old education standards, (Ahmed Al-Azawei, et al.2016)[12] illstrated that Iraq is still late in using e learning also they explained that many Iraqi universities have begun simple attempts to apply either special or open source e-learning applications, but the majority of lecturers are still do not have enough experience in using ELS.

University of Babylon "UoB" implemented many management systems to control and manage university works (Rahman et al. 2013)[13] it is one of Iraqi public universities which has 19 colleges in different science specialties, UoB have about 1983 lecturers of 1060 PhD and 923 master degrees, and more than 20000 students in graduate and post graduate researches (UoB website,2018)[14], all these colleges have connected through central wire and wireless network (intranet) in order to communicate with university's systems (Rahman et al. 2015)[15]. The roles of Lectures in UoB has changed rapidly when UoB begun in implementing e learning in 2014 by advising colleges to use the central E learning system depending on open source system (Moodle) , as default Lecturers played the main roles in ELS as they have to manage group, activities, and learning.

The present paper is designed for technology acceptance knowledge. This is measure Behavioral Intention of UoB's Lectures to Use E-Learning (ELS) using an extension to the Technology Acceptance Model (TAM). Practically, the paper enables the users of ELS systems pointing out necessary variables to improve the acceptance of such ELSs especially the variables that highly influence lecturers and their behavioral intentions. Thus, the attribute of this research

come from many considerations. First, it is the first study that focus on behavioral intention to use e-learning system "ELS" of UoB's academics in addition to use public acceptance technology model "TAM" , the result of this research will help the UoB with strong and weakness points of ELS. Also, the research will open the way for new studies on technology acceptance to develop ELS of Iraqi universities.

II. Research Model

As finding of many previous researches about information systems (IS), technology acceptance would affected by the relations between determinates. The most important factors identified are attitude toward use, beliefs, perceptions, and actual system use ASU.
DeLone and McLean[16] models are frequently used models to assess the technology acceptance based on measure and analysis of IS user satisfaction (Bailey et al.1983) (Doll and Torkzadeh, 1988)[17,18], However, theory of technology acceptance denoted by UTAUT (Venkatesh et al. 2003)
(Venkatesh et al. 2012)[19,20] concentrates on technical factors only . The ideal framework used in the context of information system for assessing the technology acceptance is the technology acceptance model (TAM) (Rahman et al. 2013)[13]. [21,22,23,24] has been proved in literature the ability and reliability of TAM model to measure the adoption of IS in Arab culture is proved by Al-Gahtani,(2001), Similarly, ELS TAM and ELS models are tested and adopted by Ong and Lai , (2006) and Roca and Martínez, (2006)[25,26],

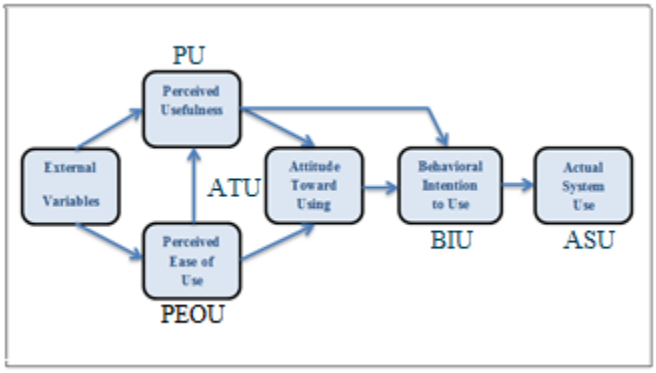

Fig. 1: TAM Model.

Davis , (1986) [27]has proposed TAM in the field of concept of technology acceptance. Figure 1 showing TAM's factors which can help to measure the acceptance of a new IS which support ATU, and (BIU), affected by tow internal factors : PEOU , and (PU). [28] The defined PU as "Users believe that using the IS are useful in doing his work. PEOU as is easiest degree of use of IS that users have experience to deal with. , the actual system use ASU of an IS can identify by behavioral intention (BIU), and therefore can measure the technology acceptance by users. ATU and PU jointly affect BIU while BIU is influenced by PEOU, ATU is influenced by PU and PEOU.. External variables are directly affected PEOU and PU as shown by TAM model. Thus, ATU and PEOU intermediately influence BIU , therefore the actual system use ASU.

III. The Hypothesis and Method

The proposed method has applied on two groups of academic lecturers according to specialists: Scientifics and humanities. The user groups have different computer backgrounds relative to their academic study which affect the experience of usage. Taylor and Todd, [29](1995) has showed that TAM is equal BI to accept a new IS. As shown by Park,[30] (2009) TAM model is commonly used to measure the adoption of new ISs among different users. Figure 2 shows the proposed research model. It consists of the TAM core three key arbitrators and constructs. The discussion and advancement of pertinent hypotheses clarify in the following section:

A. Hypotheses with respect to TAM variables

The relationship between constructs is illustrated by TAM model as follow.
a) Attitude toward use ATU and PU influence positively BIU.
b) PU and PEOU influence positively Attitude toward use.
c) PEOU directly influences PU.

PU determines to which degree the lecturers think that the use of an ELS could improve his performance. PEOU determines to which degree the lecturers think that the perspective ELS needs less effort to be understood. The correlation between TAM variables is confirmed in literature.[31,32,33,34,35]
Relationships between constructs are hypothesized can be presented as.
" PEOU" influences positively PU of ELS system.
"PEOU" influences positively "ATU" of ELS system.

" PU" influences positively " ATU" of ELS system.
" PU" influences positively " BIU" of ELS system.

" ATU" influences positively " BIU" of ELS system.
Ong, et al. proved that BIU of ELS is influenced by PEOU. Thus, the relationship between PEOU and BI can be hypothesized as follows.
PEOU influences positively BIU of ELS.
Hypotheses with respect to external factors and TAM variables
King et al. (2002) [36]highlights that TAM variables other than the usefulness constructs and the ease of use have potential role on the acceptance of ELS. This research proposed three external variables: Job relevance JR, ELS system usage experience, and lack of ELS system availability. Figure 2 suggests the original TAM factors to be directed by external variables. The experience of use is defined as individual participation in a given system or exposure to the cumulative skills which user gains by using the system (Thompso et al. 2006)[37]. Davis and Venkatesh [38],(2000) showed that the experience of using technology is the main factor to determine the acceptance of any technology. In this research, the usage of ELS effects TAM variables. The usage of ELS is defined as lecturers' expediency which built from current or previous use of ELS as a method of learning within an ELS environment. Therefore, the research can be hypothesized as follows.
Non user Group's intention to use BIU of ELS is influenced negatively by ELS system usage experience.
Non user Group's PEOU of ELS is influenced negatively by ELS system usage experience.
Non user Group's PU of ELS is influenced negatively by ELS system usage experience.
TAM was extended to incorporate the significance of Job relevance (JR). It can be considered as a factor that straightforwardly influences PU , as indicated by Venkatesh and Davis[39] ,(2000), JR is "an user's thinking that the target system is compatible to his/her job". Additionally, this paper suggests that Job significance JR followed up on both Perceived Usefulness PU and Perceived usability PEOU. JR is characterized as a lecturer's perception to the

degree that the ELS system is compatible with the utilization of overseeing learning exercises at UoB. As found by Venkatesh and Davis,(2000)[38] JR is accepted to decidedly impact a specifically PU. Accordingly, this paper proposes that JR also act on PEOU. From above review and research adoption ,the following hypotheses of this research for the relation between TAM variables and JR :

iv. " JR" positively influences " PU" of ELS.

v. " JR" positively influences " PEOU" of ELS system.

Hypotheses of TAM variables and lack of ELS system availability

ELS system connection tools are not all available to faculties. Therefore, lecturers at UoB are divided into:

a) Senior lecturers who using an ELS system in their classes,

b) New lecturers who did not used ELS system. The lack of ELS experience among lecturers has a negative side on PEOU.

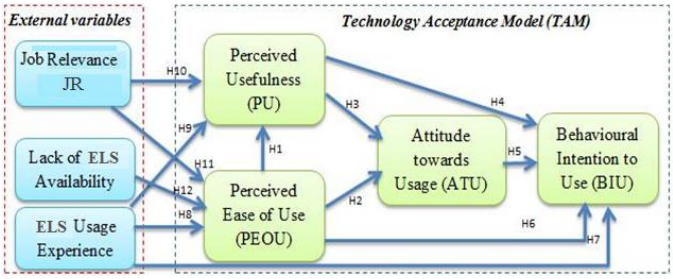

Fig. 2: Research Model

The participants were 59 lecturers. They are all can access online survey. Participants are belonging to UoB. Due to big UoB community, it was difficult get response from all; therefore our conclusion depended on a community sample in the given community (Jemain et al. 2007)[40]. sampling technique in the research is considered a group of lecturers at UoB, from different faculties as non-probability convenience sampling. Technology acceptance has been implemented and Convenience sampling has used in this paper. The research consists of two main sections. The first part of the questionnaire identifies respondents' basic personal information. The included items are gender, age, college, internet usage, and self-experience with ELS (Table 3).

F. Measurement of TAM constructs

"TAM" methodology has been used in this research. there are twenty questions (items) to measure research model as shown in table 1. The measured items distributed as 7 items for PEOU including 1 item reversible as lack of ELS availability, 6 items for Perceived usefulness PU, 3 items for attitude toward usage ATU, 2 items for BIU, and 2 items for an external factor as JR.

Table 1: Questionnaire – Section I

		Frequency	*Percent*
Gender	Male	28	47.46
	Female	31	52.54
	Total	59	100.0
Age	Less than 25		1.69
	25-30 years	17	28.81
	31-40 years	22	37.29
	41-50 years	13	22.03
	Above 50 years	6	10.17
	Total	59	100.0
College	Humanities	30	50.84
	Scientifics	38	64.40
	Total	59	100.0
Internet Usage	Yes	59	100.0
Previous experience with ELS	Have not use	29	49.15
	1-3	10	16.95
	4-6	17	28.81
	6-10	2	3.39
	more than 10 years	1	1.69
	Total	59	100.0

G. Data collection

Data collected using questionnaire technique conducted on the users of ELS in second semester of academic year 2016/2017. The online questionnaire then downloaded and answered by UoB lecturers. Participants had used the Arabic or English survey. 59 responses were recorded .

Table 2: Question Preserved Sections.

Section II: Perceived ease of use PEOU	
I found that using an ELS would be easy for me	PEOU1
I found that my interaction with ELS would be clear and understandable	PEOU2
I found that it would be easy to become skillful at using ELS	PEOU3
I would find ELS to be flexible to interact with	PEOU4
Learning to operate ELS would be easy for me	PEOU5
it would be easy for me to get ELS to do what I want to do	PEOU6
I feel that my ability to determine ELS ease of use is limited by my lack of experience	PEOU7
Section III: Perceived usefulness PU	
Using ELS in my job would enable me to accomplish tasks more quickly	PU1
Using ELS would improve my job performance.	PU2
using ELS in my job would increase my productivity	PU3
Using ELS would enhance my effectiveness on the job.	PU4
Using ELS would make it easier to do my job	PU5
I would find ELS useful in my job	PU6
Section IV: Attitude Toward Usage ATU	
I believe it is a good idea to use a Learning Management System	ATU1
I like the idea of using a Learning Management System	ATU2
Using a Learning Management System is a positive idea	ATU3
Section V: Behavioral Intention to use ITU (BIU)	
I plan to use a learning Management System in the future	BIU1
Assuming that I have access to an ELS. I intend to use it	BIU2
Section IV: Job relevance JR	
In my job, the usage of a learning Management System is important	JR1
In my job, the usage of a learning Management System is relevant	JR2

IV. DATA ANLYSIS

Demographics

Participants are designed as 28 males with rate of 47.46% and 31 females with the rate of 52.54%. The selected age is in the range of 25-30 years with the rate of 28.81% to the range of 25-30, the rate of 37.29% in the range 31-40, the rate of 22.03% in the range 41-50, and the rate of 10.17% above 50 years, and the rate of 1.69% is dedicated to the age under 25 years.

Experience with ELS

The applicability of using TAM model is approved by the division of two groups they are users and none-users groups. Almost half of the respondents had not used an ELS (49.15%), while the others distributed as follows: 16.95% had used ELS for less than one year stood; 28.81%, had used ELS between 1 and 3 years. 3.39% had used an ELS for more than three years, and the rate of 1.69% for the age above five years. Generally, the results proved that 50.85% of users' participants and the rate of 49.15% for non-users' participants (Table 3).

Table 3: Participants Experience

Respondents		Frequency	Percentage
Have not used a ELS		29	49.15%
experienced users		30	50.15%
Experience in years	Less than a year	10	16.95%
	1–3 years	17	28.81%
	3–5 years	2	3.39%
	More than 5 years	1	1.69%

C. Validity and reliability

Reliability defined as the internal consistency between multiple measurements of variables using Cronbach Alpha method, (Hair et al. ,2006) and (Cronbach, 1951)[41,42], Therefore, the questionnaire reliability was calculated as in table 4.

Table 4: Instruments reliability Cornbach Alpha

Scale	Number of Items	Cronbach Alfa
PEOU	7	0.91
PU	6	0.93
ATU	3	0.92
BIU	2	0.80
JR	2	0.93
Total Reliability	20	0.95

As in literature of [43,44] if the Cronbach Alpha value > 0.07, then the constructs are internal consistency reliability. SPSS) version 24 is used to do the reliability assessment. Measures are registered high reliability (0.91-0.95) while only one accepted value of 0.801 for BIU. The research questionnaire is considered reliable as all scales were more than 0.70.

D. Statistical analysis and hypotheses testing

The relationship between the variables is studied using correlation analysis. It has been used as well to make empirical decision to reject or accept the null hypotheses. The structure of hypothesis test can be explained as :

- Hypotheses are examined based on the size of sample.
- The previous experience is investigated and hypotheses are examined on the non-user participants.
- Finally, hypothesis is tested using the user group sample.

The goal is to demonstrate the correlation analysis and verify the impact of the experience .

E. Hypotheses testing for all participants

The first hypotheses are the relationship between TAM of original variables.

Hypotheses for "TAM" variables.

PU of ELS is positive influenced by PEOU.

Table 5 presents the correlation analysis which proved that there is a significant positive relationship between the PU and PEOU of ELS. Thus, H1 is supported. *ATU an ELS is positively influenced by PEOU.*

Table 5: PEOU and PU correlations.

Correlations		
Factors		*PU*
PEOU	r- value	.576**
	p-value	.000
	N	59

H2 is supported Since the relationship between PEOU and ATU is significant positive as shown in Table 6.

Table 6: PEOU and ATU correlations.

Correlations		
Factors		*ATU*
PEOU	r- value	.513**
	p-value	.000
	N	59

ATU of ELS is positively influenced by PU.

As shown in Table 7 H3 is supported since the relationship between PU and is significant positive and it is stronger than the relationship between PEOU and ATU.

Table 7: PU and ATU correlations.

Correlations		
Factors		*ATU*
PU	r- value	.691**
	p-value	.000
	N	59

iii) BIU the ELS is positively influenced by PU.

As in Table 8, H4 is supported since the relationship between PU and BIU to use of ELS is positive and it is not strong correlation.

Table 8: PU and BIU correlations.

Correlations		
Factors		*BIU*
PU	r- value	.481**
	p-value	.000
	N	59

BIU to use of ELS is positively influenced by attitude towards using.

As shown in Table 9 the positive relationship between the ATU and BIU to use ELS, therefor H5 is supported. It is not significant and the correlation is weak.

Table 9: ATU and BIU correlations.

Correlations		
Factors		*BIU*
ATU	r- value	.265*
	p-value	.043
	N	59

v) **PEOU** positively influences BIU to use an ELS.

From the correlation analysis results in Table 10, show there is a significant positive relationship between PEOU and BIU therefor H6 is supported .

Table 10: PEOU and BIU correlations.

Correlations		
Factors		*BIU*
PEOU	r- value	.376**
	p-value	.003
	N	59

2- The role of prior experience hypotheses

This paper introduces experience of using ELS as a new moderator to influence the constructs of original TAM .The user groups have divided based on their experience of using ELS: i) user group for those who are using an ELS; ii) nonuser group for those who had not used an ELS before. Thus, the related hypotheses are:

a) The nonuser group's intention to use ELS is negatively influenced by ELS usage experience;

b) The nonuser group's Perceived ease of use PEOU of ELS is negatively influenced the ELS usage experience. c) The nonuser group's Perceived usefulness PU of ELS is negatively influenced by ELS usage experience.

Table 11: The role of prior experience correlations

Correlations					
The role of priod experience			PU	BIU	JR
Non- user group	PU	r- value		.670**	.863**
		p-value		.001	001
		N		29	29
	PEOE	r- value	.606**	.476**	.665**
		p-value	.001	.009	.001
		N	29	29	29
	BIU	r- value			.720**
		p-value			.001
		N			29
user group	PU	r- value		.226	.627**
		p-value		.229	.001
		N		30	30
	PEOE	r- value	.492**	.247	.495**
		p-value	.006	.188	.005
		N	30	30	30
	BIU	r- value			.172
		p-value			.363
		N			30

The correlation group users in Table 11,proved that there is a positive correlation between the two groups and TAM , which is statistically significant in most relationships. Results showed a high correlation among variables of TAM of the nonuser group. We observed that the non-user group a significantly stronger and positive correlation. Results of the user group showed that the correlation is not statically significant. Consequently, H7 is not supported.

a) The perceived usefulness of ELS is positively influenced by Job relevance (JR).
Table 12 show that H10 is supported since JR correlates strongly to PU which indicates a significant positive relationship between the two variables.

Table 12: JR and PU correlation

Correlations		
Factors		PU
JR	r- value	.769
	p-value	.001
	N	59

b) The PEOU of ELS is positively influenced by JR. JR correlates moderately with PEOU which indicates the relationship between the 2 variables is a significant positive, Therefore, H11 is supported as in Table 13.

Table 13: correlations between JR and PEOU

Correlations		
Factors		*PEOU*
JR	r- value	.592
	p-value	.001
	N	59

3) T*he role of hypotheses of the lack of ELS availability*
The lack of ELS availability is has positive effect on PEOU:
a) Results showed a -ve relationship between lack of ELS availability and PEOU. H12 is not supported because all participants of both user groups perceived that lack of ELS availability does not influence PEOU .

Table 14: The Lack of ELS availability with PEOU

Correlations		
Factors		*PEOU*
Lack of ELS availability	r- value	-.294
	p-value	.024
	N	59

the correlation between the PEOU and PU have a significant +ve relationship with other variables, therefore H9 and H8 are not supported. The nonuser group gives a strong correlation.
3) The role of the JR hypotheses: JR was hypothesized to have a +ve effect on both PEOU and PU as follows. Table 15 summarizes the hypothesis after done the testing .

Table 15: Hypothesis summary

	Statement	Result
H1	PEOU positively influences PU of an ELS	Supported
H2	PEOU positively influences attitudes towards using an ELS.	Supported
H3	PU positively influences attitudes towards using an ELS.	Supported
H4	PU positively influences intention to use an ELS.	Supported
H5	ATU positively influences intention to use an ELS.	Supported
H6	PEOU positively influences intention to use an ELS.	Supported
H7	ELS usage experience negatively influences the nonuser group's intention to use an ELS.	Not supported
H8	ELS usage experience negatively influences the nonuser group's PEOU of an ELS.	Not supported
H9	ELS usage experience negatively influences the nonuser group's PU of an ELS.	Not supported
H10	JR positively influences the PU of an ELS.	supported
H11	JR positively influences the PEOU of an ELS.	supported
H12	Lack of ELS availability negatively influences the PEOU of an ELS	Not supported

V. DISCUSSION

This presents an adaptation of TAM model to highlight the relationship between its constructs and study the influence of our proposed moderators. Results showed as compatibility with the findings of TAM. The research has proved that all hypotheses related to "TAM" was statistically found significant positive correlations comparing with other researches [45,46]. UoB academics are intended to use ELS in learning as the analyses showed a positive attitude towards using ELS. Results showed that when users' PEOU increases PU increases accordingly. Thoughts about the easiness of ELS among lecturers affect positively the attitude to use it. Similarly, toward usage increased proportional to the Perceived usefulness PU , which finally influenced the behavioral intention to use BIU. It is important to note the findings of user-group was different from that related to nonuser group, the non-user group shows more intention towards using ELS than user group, while the two groups perceived ELS as ease to use, from analysis the nonuser group perceived ELS appears as more useful than the other group.
Analysis has showed a strong relationship between JR with PU . Academics agree that using ELS for learning is compatible with their learning process and will have positive effect on their work. Also results proved that the lack of ELS availability did not influence academics'PEOU. Based on the explanation in the User guide which has distributed to all academic participants, they thought that ELS would be easy to use.

VI. CONCLUSION

The original "TAM" is modified to fit the objective of this paper. Lecturers' BIU to use of ELS is measured and the core constructs of TAM is used. The present paper validates the relations among PU, PEOU, ATU and the overall effect on BIU. Also, the research proved that the applicability of TAM in UoB. As adopted by TAM, external variables are integrated (JR, lack of ELS availability, and experience with ELS usage). The proposed theoretical framework is affected by the environment in which data is collected. Results proved that lack of ELS availability is not related to believe of using of ELS is difficult. Further, results showed that JR is related strongly with TAM constructs. JR is positively influenced lecturers' PU of ELS. The study also investigated the role of prior experience with ELS is: inexperienced and experienced users have proved the original TAM findings where inexperienced users have stronger degree of positivity towards adoption of ELS. Finally, the adoption of TAM in e-learning system of Iraq is valid and particularly for UoB's management to develop ELS to help their lecturer staff to use ELS technologies.

FUTURE WORK

This research as many researches has faced limitations, First limit was the limited number of participants and limited by time that may cause the findings of this research is not greatly generalized . Future works could focus on devolving ICT to make the use ELS is more easy to use and more accessible .

References:

[1] K. A. Al- Busaidi, and H. Al-Shihi, Instructors' Acceptance of Learning Management Systems: A Theoretical Framework, Communications of the IBIMA, vol. 2010 , 2010

[2] M. Afshari, K. A. Bakar, W. S. Luan, B. A. Samah, and F. S. Fooi." Factors affecting teachers' use of information and communication technology," International Journal of Instruction, vol. 2, pp. 77-104., 2009

[3] S. S. Al-Gahtani, , G. S. Hubona, and J. Wang, "Information technology (IT) in Saudi Arabia: Culture and the acceptance and use of IT," Information & Management, vol. 44, pp. 681-691. , (2007)

[4] S. Al-Gahtani, "The applicability of TAM outside North America: an empirical test in the United Kingdom, " Information Resources Management Journal (IRMJ), vol. 14, pp. 37-46. ,(2001)

[5] Shakeel PM, Baskar S, Dhulipala VS, Jaber MM., "Cloud based framework for diagnosis of diabetes mellitus using K-means clustering", Health information science and systems, 2018 Dec 1;6(1):16.https://doi.org/10.1007/s13755-018-0054-0

[6] Browne, T., Jenkins, M. and Walker, R. ,(2006), "A longitudinal perspective regarding the use of VLEs by higher education institutions in the United Kingdom " Interactive Learning Environments, vol. 14, pp. 177-192.

[7] Cavus, N. and Momani, A. a. M. , (2009), "Computer aided evaluation of learning management systems," Procedia - Social and Behavioral Sciences, vol. 1, pp. 426-430.

[8] Cronbach, L. J., (1951), "Coefficient alpha and the internal structure of tests," Psychometrika, vol. 16, pp. 297-334.

[9] Davis Jr, F. D. , (1986), "A technology acceptance model for empirically testing new end-user information systems: Theory and results," Massachusetts Institute of Technology.

[10] Davis, F. D. ,(1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology," MIS quarterly, pp. 319-340.

[11] Doll, W. J. and Torkzadeh, G. , (1988), "The measurement of end-user computing satisfaction," MIS quarterly, pp. 259-274.

[12] Dutton, W. and Loader, B. D. , (2004), Digital academe: new media in higher education and learning: Routledge.

[13] Hair, J., Black, W. , Babin, B., Anderson, R. ,and Tatham, R. (2006), "Multivariate Data Analysis: Pearson Education," New Jersey: Hoboken.

[14] Jemain, A. A., Al-Omari, A. and Ibrahim, K. ,(2007),"Multistage median ranked set sampling for estimating the population median," Journal of Mathematics and Statistics, vol. 3, p. 58.

[15] Kim, D. and Chang, H. , (2007), "Key functional characteristics in designing and operating health information websites for user satisfaction: An application of the extended technology acceptance model," International Journal of Medical Informatics, vol. 76, pp. 790-800.

[16] King, R. C. and Gribbins, M. L., (2002), "Internet technology adoption as an organizational event: an exploratory study across industries," in System Sciences, 2002. HICSS. Proceedings of the 35th Annual Hawaii International Conference on, pp. 2683-2692.

[17] Kripanont, N. , (2006), "Using Technology Acceptance Model to Investigate Academic Acceptance of the Internet," Journal of Business Systems, Governance, and Ethics, vol. 1, pp. 13-28.

[18] Ma, Q. and Liu, L. , (2004), "The technology acceptance model: a meta-analysis of empirical findings," Journal of Organizational and End User Computing (JOEUC), vol. 16, pp. 59-72.

[19] Moon, J.-W. and Kim, Y.-G. , (2001), "Extending the TAM for a World-WideWeb context," Information & Management, vol. 38, pp. 217-230.

[20] Nunnally, J. C.,(1967) Psychometric Theory: New York: McGraw-Hill.

[21] OECD, (2012), Education at a Glance 2012, https://www.oecd.org/edu/EAG%202012_e-book_EN_200912.pdf).

[22] Ong, C.-S. and Lai, J.-Y. , (2006), "Gender differences in perceptions and relationships among dominants of e-learning acceptance," Computers in Human Behavior, vol. 22, pp. 816-829.

[23] Selvakumar S, Inbarani H, Shakeel PM. A Hybrid Personalized Tag Recommendations for Social E-Learning System. International Journal of Control Theory and Applications. 2016;9(2):1187-99.

[24] Paulsen, M. F. , (2003), "Experiences with Learning Management Systems in 113 European Institutions," Educational Technology & Society, vol. 6, pp. 134-148.

[25] Paulsen, M. F. , (2002),"Online Education Systems: Discussion and definition of terms," NKI Distance Education.

[26] Radcliffe, D. ,(2002), "Technological and pedagogical convergence between work-based and campus-based learning," Educational Technology & Society, vol. 5, pp. p54-59.

[27] Robinson, M. and Ally, M. , (2009), "Transition to e-Learning in a Gulf Arab Country," in The 2nd Annual Forum on e-Learning Excellence in the Middle East, Dubai, UAE.

[28] Sridhar KP, Baskar S, Shakeel PM, Dhulipala VS., "Developing brain abnormality recognize system using multi-objective pattern producing neural network", Journal of Ambient Intelligence and Humanized Computing, 2018:1-9. https://doi.org/10.1007/s12652-018-1058-y

[29] Rahman, N. A.,Suraya, B. M., and Syed, N. H (2015), A Decision Support System Procurement Solution for the University of Babylon. JOURNAL OF INFORMATION SYSTEMS RESEARCH AND INNOVATION, http://seminar.utmspace.edu.my/jisri

[30] Rahman N.A., and Kadim R.,(2018), Development of New Social Network Site for University Interactions. Medwell:Journal of Engineering and Applied Science, Vol. 13, (Special Issue 5).

[31] Roca, J. C. ,Chiu, C.-M. and Martínez, F. J. , (2006), "Understanding e-learning continuance intention: An extension of the Technology Acceptance Model," International Journal of Human-Computer Studies, vol. 64, pp. 683-696

[32] Shakeel PM, Baskar S, Dhulipala VS, Mishra S, Jaber MM., "Maintaining security and privacy in health care system using learning based Deep-Q-Networks", Journal of medical systems, 2018 Oct 1;42(10):186.https://doi.org/10.1007/s10916-018-1045-z

[33] Sánchez, R. A. and Hueros, A. D. , (2010), "Motivational factors that influence the acceptance of Moodle using TAM," Computers in Human Behavior, vol.26, pp. 1632-1640.

[34] Shroff, R. H., Deneen, C. and Ng, E. M. , (2011), "Analysis of the technology acceptance model in examining students' behavioural intention to use an e-portfolio system," Australasian Journal of Educational Technology, vol. 27, pp. 600-618.

[35] Taylor, S. and Todd, P., (1995) , "Assessing IT usage: The role of prior experience," MIS quarterly, vol. 19, pp. 561-570.

[36] Thompson, R. Compeau, D. and Higgins, C. ,(2006),"Intentions to use information technologies: An integrative model," Journal of Organizational and End User Computing (JOEUC), vol. 18, pp. 25-46.

[37] UoB website, (2018), about University of Babylon: Statistics ,http:// www.uobabylon.edu.iq

[38] UNESCO report,(2014), UNESCO COUNTRY PROGRAMMING DOCUMENT FOR THE REPOBLIC OF IRAQ, unesdoc.unesco.org.

[39] Venkatesh, V. M. G. Morris, G. B. Davis, and F. D. Davis, (2003), "User acceptance of information technology: Toward a unified view," MIS quarterly, pp. 425-478.

[40] Venkatesh, V. and Davis , F. D., (2000)"A theoretical extension of the technology acceptance model: four longitudinal field studies,"Management science, vol. 46, pp. 186-204.

[41] Venkatesh, V. , Thong, J. and Xu, X. , (2012), "Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology," MIS quarterly, vol. 36, pp. 157-178.

[42] Wong, K.-T., Goh, P. S. C. and Rahmat, M. K. ,(2013), "Understanding Student Teachers' Behavioural Intention to Use Technology: Technology Acceptance Model (TAM) Validation and Testing," Online Submission,vol. 6, pp. 89-104.

[43] MuhammedShafi. P,Selvakumar.S*, Mohamed Shakeel.P, "An Efficient Optimal Fuzzy C Means (OFCM) Algorithm with Particle Swarm Optimization (PSO) To Analyze and Predict Crime Data", Journal of Advanced Research in Dynamic and Control Systems, Issue: 06,2018, Pages: 699-707

[44] Arroway, P. E., Davenport, G. Xu, and D. Updegrove, (2010), "EDUCAUSE core data service fiscal year 2009 summary report," Boulder, CO: EDUCAUSE.

[45] Rahman, N. A., Suraya, B. M., and Syed, N. (2013), Decision Support System Framework for Procurement Decisions in University

of Babylon, JOURNAL OF INFORMATION SYSTEMS RESEARCH AND INNOVATION, http://seminar.utmspace.edu.my/jisri.

[46] Park, S. Y.,(2009), "An Analysis of the Technology Acceptance Model in Understanding University Students' Behavioral Intention to Use e-Learning," Educational Technology & Society, vol. 12, pp. 150-162