

Factors Affecting E-Learning System (Sadeem) Adoption among Iraqi Students

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DOI : <http://dx.doi.org/10.31642/JoKMC/2018/080102>

Received Feb.29, 2020. Accepted for publication Nov. 15, 2020

Abstract—E-learning technology has opened a new era, accompanied by significant benefits in education systems. However, not all technology programs have the same turnout of human, and not all information technology applications are succeeding; it is related to the extent of user acceptance and continuity of use. Therefore, identifying the reasons why people accept or reject technology is a major concern. This research aims to find the factors influencing Iraqi students' acceptance of the Sadeem application, (E-learning system). 200 questioners were distributed over the students, but only 188 responses have used. TAM model and the SPSS statistical software, have used in the analysis of the questionnaire. The finding represented in; the ease of use is not the impact issue of the students' adoption while, the effect issue for the students is the belief that, the system is useful for enhancing their grades and education level. Finally, the outcomes can be employed to boost guidance on future work.

Keywords—E-learning; Sadeem; TAM; Iraq; Technology acceptance

I. INTRODUCTION

A. Background

Information Technology (IT) applications have opened great new wide possibilities and facilities for human's life [1, 2]. And, IT services have been visibly demonstrated in the private and public sectors, such as media, education, tourism, travel, and e-commerce. Accordingly, to exploit the advantages of this electronic revolution, all governments over the world have worked on this issue with great efforts to set up the e-government services [3].

Krishnan, Teo, and Lim (2013) [4], define e-government as the use of IT applications by citizens, business organizations, education, and other stakeholders to access various government services online, without any third-party intervention. The benefits of e-government are assessed by its capacity to enhance transparency and accessibility of government programs [5, 6]. Therefore, governments of many countries have been consistently pursuing software of e-government based on the motivation that will result in improving the quality of life of their citizens [7].

On this trend, many governments and educational institutions have invested money and efforts to introduce e-learning technology into the education system to gain a high level of education. It has become a firm belief that the use of technology is the key to raising people's education level [8, 9].

E-learning system is to enhance the educational process [10], it is a successful technique to improve the knowledge by exploiting the Internet and networking [11], it is a teaching method that uses web and IT tools to facilitate learning and teaching [12]. It is an improved way to reduce the costs of education [13]. The e-learning has been a crucial issue of the national effort to modify and enhance the public education [14]. Furthermore, e-learning can be a solution to raise the level of education systems in developing countries [15-17].

B. Sadeem E-Learning System: Overview

Many educational institutions have adopted digital or electronic systems by creating classrooms or schools in that system [18]. These releases came to us the term electronic learning or (E-learning system). E-learning system depends mainly on a website that provides communication and interaction between the student and teacher [15]. E-learning system uses computers and communication networks to deliver digital information to learners, both inside and outside the school walls.

In fact, Al Sadeem system is an e-learning system has been built by Al-Sadeem Company to accomplish the highest benefit of new communication technologies in learning fields and to meet the needs of parents to follow and go after their children during the studying year, so they can know all the studying level details of their children at schools. As show in Fig 1, the system contains a small bag for all contents of school management system. For each school a private administrative system, there is a small bag due to the below contents:

- Archiving schools records and the related information of both students and teachers.
- Following and organizing accounts of schools in a fast fine way.
- Providing a feature to upload different data types of pictures and videos from school environment whether there is a carnival, occasions, or parties which leads to increase the social ring between school family and student family.
- Insert helping books of high commissioning of education ordered according to subject name so that students can get its benefit included in a library module.
- Another feature in Sadeem system, is voice lesson which designed in a very fantasy manner to provide student a list of passed lessons that he miss before in his school.
- Broadcasting the news of school and the public news of high Education commissioning.
- The system provides rating property of each student regarding their scientific level and ethical behaviors which can increase the competition between them towards a positive progressing.
- Searching inside the system in order to find the related details quickly.
- Reporting system about employees' salaries and monthly premiums.
- Beyond of all the mentioned above ,there are other technical ,administrative and teaching services that combine between fantasy of design ,ease of execution ,and professions of processing.

However, Sadeem system as a software technology may fail; if the students do not accept the technology or if they do not continue to use it [19]. Therefore, It is extremely important to verify the motives of the students to accept or reject the technology [8, 9]. From this point of view, this research aims to identify the factors that affect success or failure the Sadeem system and student's opinion on using the new system.

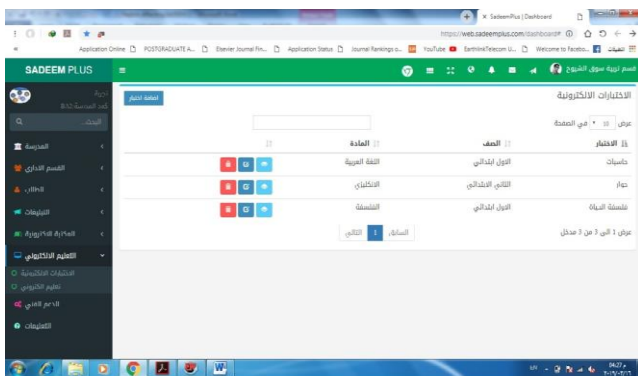


Fig. 1. Sadeem Online Interface.

II. LITERATURE REVIEW

A. Online Learning System

E-learning can be a solution to raise the level of education systems in developing countries [20]. Teaching and learning processes through the use of online learning is positive impacts in education systems [21]. Previous studies have addressed the idea of online learning system; for example, [22] defined the electronic learning system as a teaching system consists of a database, electronic test units and communication devices for students and teachers. Furthermore, the study also explained the exact details, equipment, plans for the system and the use of e-school in 1989. In a similar way, the study [23] explained the basics and components of online learning system, and also showed the benefits of this teaching system. Firstly, the teachers can focus on the student individually, especially on students that have trouble in understanding. Secondly, online system solves the problem of increasing the number of students in the class. Finally, online teaching system enables students to respond individually and electronically, as result it helps students to get rid of shyness or hesitation.

According to [24], there is a need to evaluate the selected software to be suitable for learning and references to it. A pilot version of the online system should be evaluated in order to test the educational aspects. Moreover, the study also showed that the most important measurement factors were: synchronicity, cost, ease of use, interaction styles, tailorability, ease of access, level of imbedded intelligence, learning effectiveness, availability, interactivity, quality of experience, continuity, interface quality, effectiveness of media utilization, cohesiveness, complexity of delivery element, nature and level of ancillary support and engagement. However, the researcher also explained that kind of measurement factors above are not easy to use and should find new easier factors to use.

In general, planners and government can benefit from a tendency, that the most of the current generation dependent on computers and similar software, electronic games, intelligence, racing, etc. We can twist or link part of our curriculum such as mathematics, science, geography and history to intelligence-based lessons and games. Understanding the application, installation, analysis and evaluation, the speed of innovation, and creativity; we can collect the above one bag under the name of online learning or e-learning system [25]; it is a new successful choice in education.

However, as mentioned earlier, the success of any project depends not only on the type of technology used but on the extent to which students accept this technology. Therefore, this study aims to detect what are the factors that impact on the acceptance of the e-learning system (Sadeem) among the Iraqi students.

B. Technology Acceptance Model (TAM)

In fact, not all technology programs have the same turnout of human, and not all information technology applications are succeeding; it is related to the extent of user acceptance and continuity of use. That is to say, unused applications do not have considerable value.

Proceeding from this vision, many approaches and theories have been launched to promote the acceptance of IT applications [26, 27]. And, researchers have developed several approaches and models to identify and evaluate the factors that indicate a person's decision to accept or reject technology [28]. In addition to that, the scientists proposed several theories, approaches and models to determine what the effecting factors are. Fig. 2, shows the most familiar approaches that used in this objective.

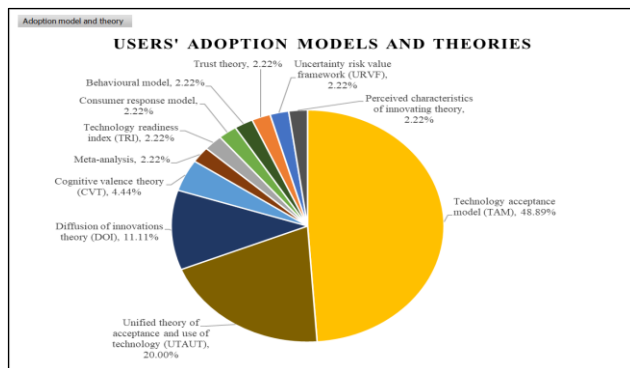


Fig. 2. Acceptance Theories.

As shown in Fig. 2, one model that has been proven and widely used in this field is, Technology Acceptance Model (TAM) [29]. The TAM by Davis (1989) was initially developed to explain the behaviors of individuals who used information technology (IT) [30]; Fig. 2, shows the TAM used ratio in e-learning area. [28]. TAM is very useful in comparing and evaluating techniques within institutions.

TAM posits; there are two particular beliefs that impact on a client's attitude towards system adoption: perceived ease of use (PEU) and perceived usefulness (PU) [30]. PU, refers to the degree to which an individual believes that the use of a new enhances their job level [30]. Perceived ease of use refers to the belief of the user that using this system does not require an increase in effort.

TAM has gained popularity due to it being so easy to use, only introducing a manageable number of variables. Fig. 3, shows TAM Model. In general, many studies have used the TAM model to measure students' acceptance of Web-based learning such as [31], [32] and [33]. However, the views of the researchers differ from the factors that influence on the intention to use the system. Some studies have indicated that both perceived ease of use and perceived usefulness have an effect on acceptability like [34] and [33]. While, [31], [35] and [36] have indicated that the perceived ease of use has a direct and positive influence and effects on the intention to use the system. In contrast, [37] concluded that perceived ease of use do not has a direct and significant influence on the intention to use the system.

Researchers, [38] and [34], claim that perceived ease of use has a significant influence on the intention to use the system. On the other hand, according to [39], perceived usefulness has an influence on the intention to use but was not the most influential factor. Moreover, literature shows that researches

using TAM or models derived from TAM showed that, there is a relationship between the two factors on the one hand and behavioural intention on the other [40].

In spite of, all above researches referred to have used the same model TAM, but the results differ for the same factors. Differing views of previous researches underline the importance of the need to discuss this in terms of the environment, this issue has been confirmed by previous studies like [10]. Accordingly, this research aims to identify the factors that determine students' acceptance of e-learning system (Sadeem) in the Iraqi environment, as far no earlier research has investigated in this environment.

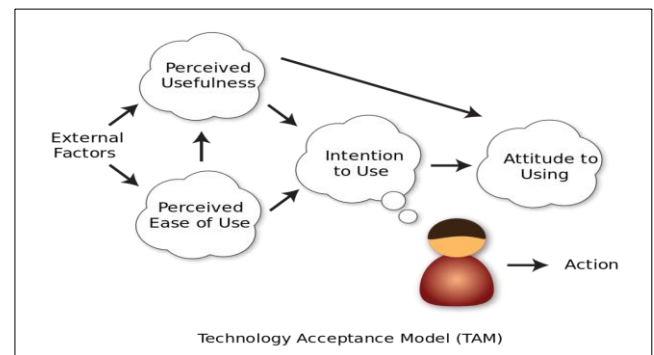


Fig. 3. The original Technology Acceptance Model. Source: Davis (1986, 1989).

III. RESEARCH METHODOLOGY AND TOOLS

Kothari (1990, p. 8) defined the research methodology as "a way to systematically solve the research problem" and "research methods do constitute a part of the research methodology.". In order to obtain research data, 200 questionnaires were distributed to the students through the teachers. However, only 188 copies (representing a response rate of 94 %) were collected back from respondents. Data were later transferred to SPSS software for the purpose of statistical analysis and to reach the goal of research.

A. Theoretical Framework

Many studies on the acceptance of e learning have used the original model of TAM [41, 42]. As well as, in some previous studies such as [43], the external factor are not included in this study since, there is no need to include external factors before investigate the main factors. Furthermore, the original model of TAM is more convenient to measure the acceptability of use [42]. In the same context, this study used the original model without external variables as shows in Fig. 4.

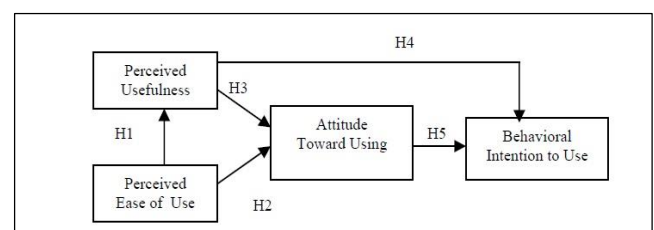


Fig. 4. Theoretical Framework. (Masrom, 2007.)

Hence, based on the previous researches that using TAM model, five hypotheses are created for this research as follows:

- H-1:** PEU has effect on the PU
- H-2:** PEU has effect on Attitude Toward Using (ATU).
- H-3:** PU has effect on ATU
- H-4:** PU has effect on intention to use.
- H-5:** Attitude towards using has effect on intention to use.

B. Measures

At first, a pilot study has been done for 30 participants in order to make sure that the questions are understandable to the participants and to ensure there is no misunderstanding, all values scores are above 7.00. Although, the formats of questions were drawn from the previous study, measurement of validity and reliability had evaluated and supported by Cronbach alpha scales. Furthermore, the values scores for all 188 samples are above 0.842. Table. I, shows the reliability of the measurement scales. Hence, the results show that all the questionnaire is a reliable [44].

TABLE I. CRONBACH ALPHA.

Scale	Cronbach's. -alpha
PEU	0.941
PU	0.859
Attitude towards using	0.874
Intention to use	0.842

C. Study Questionnaire

The questionnaire contained (15) questions answered by ticking the box that reflects the conviction of the participant as shown in below. The standard questionnaire format has selected from previous studies that addressed in the same subject of this study based on the five point of Likert-scale questionnaire; the most commonly used to measure the emotional factors [45]. All questions have been translated into native (Arabic) language for students. The statistical software, SPSS V.22 has used for the purpose of analyzing the results.

Study Questionnaire details: "Statements are with: 5- Strongly Agree, 4- Agree, 3- Uncertain, 2- Disagree and 1- Strongly Disagree"

A. "Perceived Ease of Use (PEOU)"

- 1- "EASE1: I found (Sadeem system) easy to use."
- 2- "EASE2: Learning to use (Sadeem system) would be easy for me."
- 3- "EASE3: My interaction with (Sadeem system) was clear and understandable."
- 4- "EASE4: It would be easy for me to find information at (Sadeem system)."

B. "Perceived Usefulness (PU)"

- 5- "USE1 : Using (Sadeem system) would enhance my effectiveness in learning."

- 6- "USE2 : Using (Sadeem system) would improve my course performance."
- 7- "USE3 : Using (Sadeem system) would increase my productivity in my study."
- 8- "USE4 : I found (Sadeem system) useful".

C. "Attitude Toward Using (ATTITUDE)"

- 9- "ATT1: I dislike the idea of using (Sadeem system). (R)"
- 10- "ATT2: I have a generally favorable attitude toward using (Sadeem system)".
- 11- "ATT3: I believe it is (would be) a good idea to use this (Sadeem system) for my Study".
- 12- "ATT4: Using (Sadeem system) is a foolish idea. (R)"

"Note: R = reversed item"

D. "Intention to Use (ITU)"

- 13- "INT1: I intend to use (Sadeem system) during the semester".
- 14- "INT2: I will return to (Sadeem system) often".
- 15- "INT3: I intent to visit (Sadeem system) frequently for my course work."

IV. RESULTS AND DISCUSSION

This research aims to identify the factors that determine students' acceptance of (Sadeem system). The analyses show the following findings:

- From the descriptive statistics for all variables under investigation as shown in Table. II and Table III; it is clear that, there is strongly agreement among the students that Sadeem system is useful. Hence, the minimum mean for all questions for perceived usefulness factors is (4.97) as shown in Table. II, and the mean for usefulness is (4.9761) as shown in Table. III. In contrast, there is no agreement among the participants on perceived ease of use factor. Hence, the maximum mean for all questions for perceived ease of use is (3.98) as shown in Table. II, and the mean for ease of use is (3.9814) as shown in Table III.
- From the correlation analysis that reported in Table IV. There is strong positive relationship and high significant between the intention to use (Sadeem system adoption) and perceived usefulness factor. Here, the results indicate that the factor perceived usefulness influences the intention to use of the students where, ($\alpha = 0.189^{**}$, $p = 0.009$). In contrast, the ease-of-use factor did not affect the acceptance of the use of Sadeem system. Here, ($\alpha = 0.015$, $p = 0.837$). This result corresponds with the research results of [37] that perceived ease of use do not has a direct and significant influence on the intention to use the system.

Overall, it's clear that, the students' feeling and belief that Sadeem system will yield positive results in developing their abilities and scientific level make them accept the idea of Sadeem system, although if the tools are not easy because, students have to improve their grades.

TABLE II. DESCRIPTIVE STATISTICS OF ALL QUESTIONS

	N	Minimum	Maximum	Mean	Std. Deviation
Ease of Use 1	188	2	5	3.98	.350
Ease of Use 2	188	2	5	3.96	.364
Ease of Use 3	188	2	5	3.95	.391
Ease of Use 4	188	3	5	3.98	.310
Usefulness 1	188	4	5	4.98	.145
Usefulness 2	188	4	5	4.97	.176
Usefulness 3	188	4	5	4.98	.145
Usefulness 4	188	4	5	4.98	.145
Attitude Toward Using 1R	188	4	5	4.97	.161
Attitude Toward Using 2	188	4	5	4.99	.103
Attitude Toward Using 3	188	4	5	4.99	.103
Attitude Toward Using 4R	188	4	5	4.98	.145
Intention to Use 1	188	5	5	5.00	.000
Intention to Use 2	188	5	5	5.00	.000
Intention to Use 3	188	4	5	4.63	.483
Valid N (listwise)	188				

TABLE III. DESCRIPTIVE STATISTICS OF MEANS

Constructs	N	Minimum	Maximum	Mean	Std. Deviation
Ease of Use	188	3.00	5.00	3.9814	.27298
Usefulness	188	4.50	5.00	4.9761	.08629
Attitude Toward Using	188	4.50	5.00	4.9827	.08197
Intention to Use	188	4.00	5.00	4.4929	.39973
Valid N (listwise)	188				

TABLE IV. CORRELATION OF CONSTRUCTS.

Constructs		Ease of Use	Usefulness	Attitude Toward Using	Intention to Use
Ease of Use	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	188			
Usefulness	Pearson Correlation	-.033-	1		
	Sig. (2-tailed)	.651			
	N	188	188		
Attitude Toward Using	Pearson Correlation	.060	.083	1	
	Sig. (2-tailed)	.412	.258		
	N	188	188	188	
Intention to Use	Pearson Correlation	.015	.189**	.098	1
	Sig. (2-tailed)	.837	.009	.180	
	N	188	188	188	188

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

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