

Factors Affecting Employees' Adoption of E-Government Services in the Iraqi Public Sectors:

Case Study: Department of Education, Suq Al Shuyukh

ABSTRACT

The using of information technology has many benefits. However, the use of technology differs from one society to another; that is clear between the developed and developing countries such as, Iraq.

This research aims to find the factors that effect on the acceptance of e-government services among employees in the Iraqi public sectors. The questionnaire was distributed over 300 employees, but only 273 responses were collected. Extended TAM model and SPSS have used to conduct statistical analyses into four factors that have elected based on earlier studies and related works.

The results detected that, the trust on Internet and perceived usefulness have strongly affected with less effect to the trust on the government. By contrast, the ease-of-use has not affected. The contribution of this study resides in; the findings could be used as a guideline for future work. As far, no earlier research has investigated in this environment.

Keywords: E-government; adoption; employees; Iraq; Ministry of Education.

1. Introduction and background

Nowadays, our life has been a digital area. It is not easy to think of any event in the world that is not using Information Technology (IT). With this growth, the using of electronic government (e-government) applications has become a necessity that cannot be ignored. The impact of IT and Internet services have been visibly demonstrated in the private sector, such as media, tourism, travel and e-commerce. Therefore, the governments over the world have worked on this issue with great efforts to set up the e-government services to exploit the advantages of this electronic revolution (Huang 2010; MuhammadA et al.).

There is no denying that, governments of many countries have been consistently pursuing software of e-government based on the belief that will result in improved the level of life of their citizens (Suri 2017). The benefits of e-government are assessed by its capacity to enhance transparency and accessibility of government programs (R. Kumar et al. 2017; Srivastava and Panigrahi 2016).

It is universally accepted that, e-government represents the using of IT applications by citizens, business organizations, education and other stakeholders to get access to various government services online, without any third party intervention (Bhaskaran et al. 2013).

The Ministry of Education in Iraq has several educational directorates over the provinces, and each directorate has a group of departments. Department of Suq Al-Shuyukh is following to the Thi-Qar general directorate. The department's missions are organization and management of 6764 employees and teachers who are distributed over the departments' units, and 278 schools.

However, most of the employees are suffered from the time losing and the cost transformation when they have to connect with the department. Therefore, in 2018, March, the general administration directorate decided to use the Internet and the means of communication as tool instead of using traditional methods.

Governments must monitor and measure the satisfaction of employees with new e- services (V. Kumar et al. 2007). Therefore, the aim of this study is to identify the factors that affect the acceptance employees to use the technology instead of using traditional methods.

2. Literature Review

2.1 E-government

In every person's life the education is fundamental core, in the other hand the development of countries depends on the level of education of their citizens. Absolutely, all governments are keen to raise the level of education by using the modern ways. One way that has proven as an effective in developing education is by using Information Technology (IT) applications (Tarek et al. 2017), which has opened a great new wide possibilities and facilities for human's life. The integration of information technologies and educational process will raise the education level (Laurillard 2002). E-government provides citizens with several benefits; for instance, a transparent governance process, cost and time savings via simplified procedures, efficient services, enhanced friendly personnel, and office management.

E-government is defined by the using of IT applications in order to enhance the public sector activity (Turban et al. 2018; Corradini et al. 2018). Consequently, e-government also defines by different terms like e-Gov, Digital Government, Electronic Government, Electronic Governance, Online Government, etc. E-government is a government's tool to improve the citizen services. The use of e-governance has many benefits such as speed, cost reduction, transparency, accountability, efficiency improvement, data sharing within and among governments, etc.

E - government are classified into four categories according to the sector that are dealing with(Turban et al. 2018) , as shown in Fig. 1.

- 1- Government to Citizens - (G2C).
- 2- Government to Government - (G2G).
- 3- Government to Business - (G2B).
- 4- Government to Employee - (G2E).



Fig. 1: Electronic Government Categories.

More importantly, according to (Turban et al. 2018); e-government has the capability of providing superior government services and to empower its citizens through G2C, improve the business activities among firms and industries through G2B, enhance the interaction among government agencies through G2G, and enhance the employees' outcome through G2E. These services have developed over time at the international arena but challenges still exist and deploying and adopting them. More specifically, G2E refer to the relationship between the employees and government, it refers to transaction conducted online.

Ministry of Education has direct links with citizens being an educational institution linked to a relationship directly with students and their parents, the relation is G2C and certainly the educational process needs cooperation between the departments of government schools and districts and divisions which are related to the relationship of cooperation of the Iraqi Ministry of Education, the relation is G2G. While, G2B less presence within the educational sector institutions and has no clear indications in the education institutions because, the aim of education rather than commercial.

G2E type, which represents the cooperation between the Ministry of Education institutions and employees. It is one of the most important issues to the educational process because, it is representing the mediator between the government and the target of education who are students.

According to (V. Kumar et al. 2007), the perception of the employees towards a novel technology in the organization differs from those of citizens or businessmen. This is because the employees have to be given special attention in the form of training programs and IT team support. Their needs have to be met when designing services and support should be provided through relevant hardware and software. The awareness of the employees also have to be ensured concerning the advantages if the services. Another point worth noting is user characteristics directly influence e-government adoption.

2.2 Acceptance Models and Theories

However, not all information technology applications are succeeding; it is related to the extent to the degree of user acceptance and continuity of use (Šumak et al. 2011). Moreover, 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 (Melone 1990; Srinivasan 1985). In addition to that, the scientists have proposed a lot of theories, approaches and models to determine what are the effecting factors. Fig. 2, shows the most familiar approaches that used in this objective.

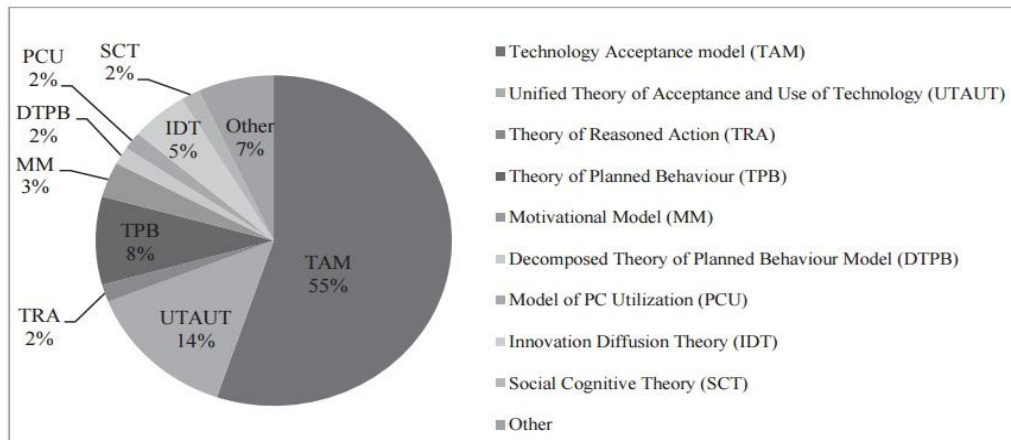


Fig. 2, The most approaches that used in the acceptance of IT

In this regard, some models and theories have been employed in literature to provide a description of the factors relevant for potential success in the adoption of e-services. The literature review revealed well-known theories including UTAUT, TAM, IS success model and TAM2. Nevertheless, there has yet to be a model/theory that highlights the issue of low - level e -government service adoption, particularly in the developing nations. Many of e-government researches such as (Rehman et al. 2012; Carter and Weerakkody 2008; Ahmad et al. 2012).

Furthermore, prior studies in literature stressed on various factors who affect acceptance of e-services, including reliability, perceived risk, trust, image, ease of use, facilitating conditions, cultural differences and relative advantage. While, some studies confined themselves to specific issues such as differences in gender (Schaupp et al. 2009; V. Kumar et al. 2007), the lack of security awareness and the lack of services (Heeks 2008; Rehman et al. 2012), as well as computer anxiety and self-efficacy (Bélanger and Carter 2008).

However, according to, (Joseph 2013), current literature is still limited on the subject for developing countries in the Middle East. Certainly, this region differs in terms of the environment from developed countries. The sets of data obtained from testing the theories of acceptance of technology will vary in developed countries.

To this end, this study attempts at shedding insight into the current situation of the G2E sector in Iraq, as a Middle Eastern country and a developing one by reconnaissance the success factors that affect the accreditation of Iraqi employees to e-government services in government agencies. This study research aims to detect what are the factors that impact on the acceptance of e-government services in the Iraqi public sectors and the case study is Department of Education, Suq Al Shuyukh in Thi-Qar Province.

2.3 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) has been created by Davis (1989), ground on the theoretical model of Reasoned Action (TRA); it so often used in previous studies to know "What causes people to accept or reject information technology?" ; it is a successful measuring widely used to understand how to improve user acceptance (Chen et al. 2017).

According to (Wingo et al. 2017), Previous research indicated that TAM, is the most frequently used model. In addition, TAM is very useful in comparing and evaluating techniques within institutions. TAM is also useful in investigating the behavior of the intention to accept information technology and to help explain the behavioral problems of Internet users (Wingo et al. 2017; Hossain et al. 2017).

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) (Davis et al. 1989). PU, refers to the degree to which an individual believes that the use of a new enhances their job level (Davis et al. 1989). Perceived ease of use refers to the belief of the user that using this system does not require an increase in effort.

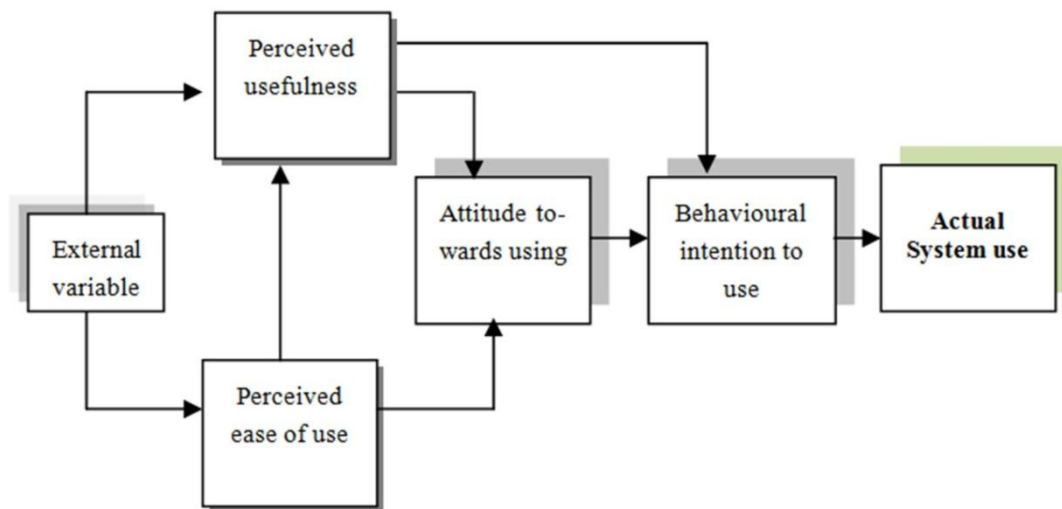


Fig 3. TAM Model

2.4 Factors Influencing Employees' Usage of E-Government Services

Previous studies like, (Bhuasiri et al. 2012; Ngampornchai and Adams 2016), indicated that the factors associated with acceptance of technology in general differ from those in developed countries in developing, Iraq is one of the developing countries (Elliott 2018). However, as many researchers have stressed, the need to incorporate a trust factor gives a clear vision of user acceptance. Below the opinions of some studies that have addressed this issue.

The analytical study (Dahlberg et al. 2003), referred that the TAM model is very effective to explain the status of acceptance. As well as, the study outlined that the model desperately needs to be supported by the trust factor, to promote and determine the decision of the user's acceptance. Similarly, the researches (Gefen et al. 2003; Tung et al. 2008), showed the trust factor is no less value than the commonly TAM factors, perceived ease of use and usefulness. The research also showed that the Internet trust factor is very important in accepting of technology.

Likewise, (Karavasilis et al. 2010), used the trust factor as a main factor in the TAM model, this research constructed the teachers' acceptance of e-governance in Greece. In the same way, (Wu et al. 2011) classified the Technology Acceptance Model (TAM) as one of the best approach that can interpret the adoption. Furthermore, showed that among the external variables, the trust is considered an impact factor affecting the user behavior across the Internet.

According to, (Welch et al. 2004) and (Teo et al. 2008), there is a close relationship between trust factor and satisfaction with e-government. In addition, the study pointed to the role of the trust factor in the success of e-government. In the same way, the results of (Carter and Bélanger 2005) indicated that compatibility, ease of use and trust are impact indicators of the intention of citizens to use e-government service. Moreover, (Tolbert and Mossberger 2006) gave a conclusion that, there is a statistically significant relationship between the use of e-government and trust, as well as the trust in the government, are fundamental concerns of democratic governance and public administration.

On the other hand, (Warkentin et al. 2002), indicated that the citizen's trust is very important in the adoption. Moreover, the study indicated that the trust factor when experienced users, is a key incentive for continued use. In the same way, (Bélanger and Carter 2008), highlighted that trust in e-government consists of trust of government (TOG) and trust of Internet (TOI). Furthermore, the survey results indicated that trust factor has a positive impact on TOI and TOG, which in turn affects the intent to use the e-government service. While the research paper (Horst et al. 2007), clarified that the perceived usefulness is the impact factor of the intention to use. In addition, the trust in e-government is the main driver of the perceived usefulness.

All the above, this study used TAM model, with two external factors; the trust in government and trust in the Internet.

3. 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".

This study was conducted into understand the effectiveness of using the e-government applications. To elicit the data used in the study, 300 questionnaires were distributed; however, only 273 copies (representing a response rate of 91 %) were collected back from respondent.

The questionnaire contained 17 questions have answered by ticking the box that reflects the conviction of the participant. All questions format taken from previous studies that addressed in the same subject of this study such as (Choi et al. 2018; Joo et al. 2018; Hussain et al. 2014). Questionnaires are formatted based on five point of Likert-scale questionnaire ; the most commonly used to measure the emotional factors, it ease and successful (Nemoto and Beglar 2014). Statements are with " 5- Strongly Agree, 4- Agree, 3- Uncertain, 2- Disagree and 1- Strongly Disagree".

All questions were translated into native (Arabic) language. As well as (Khoi and Van Tuan 2018; Díaz 2017; Alimuddin and Sukoco 2017; Sing and Saudi 2018), SPSS 22 has used for statistical analyses in this research for the purpose of analyzing the results of the questionnaire.

3.1 Theoretical Framework

As shown in the literature review, a lot of studies on the acceptance of e government have used the model of TAM (Money and Turner 2004; Sallehu et al.). As well as in some of previous studies such as (Masrom 2007), the external factors TRUST_EGOVERNMENT, (Trust-G) and TRUST_INTERNET (Trust-E) are included in this study.

Fishbein & Ajzen's have shown that "as a person forms beliefs about an object, he automatically and simultaneously acquires an attitude toward that object." (Tao 2008; Ajzen and Fishbein 1980). Moreover, (Davis 1989) also documented that the TAM without the attitude construct was "a powerful [model] for predicting and explaining user behavior based on only three theoretical constructs: intention, perceived usefulness, and perceived ease of use." . Some of previous studies have also found significant causal relationships between behavior intention and behavior beliefs. Therefore, they used the simplified TAM model without the attitude construct (Klobas 1995; Thong et al. 2002).

Above all ,this study used the TAM model with trust external variables after deleting the attitude construct as shows in Figure (4).

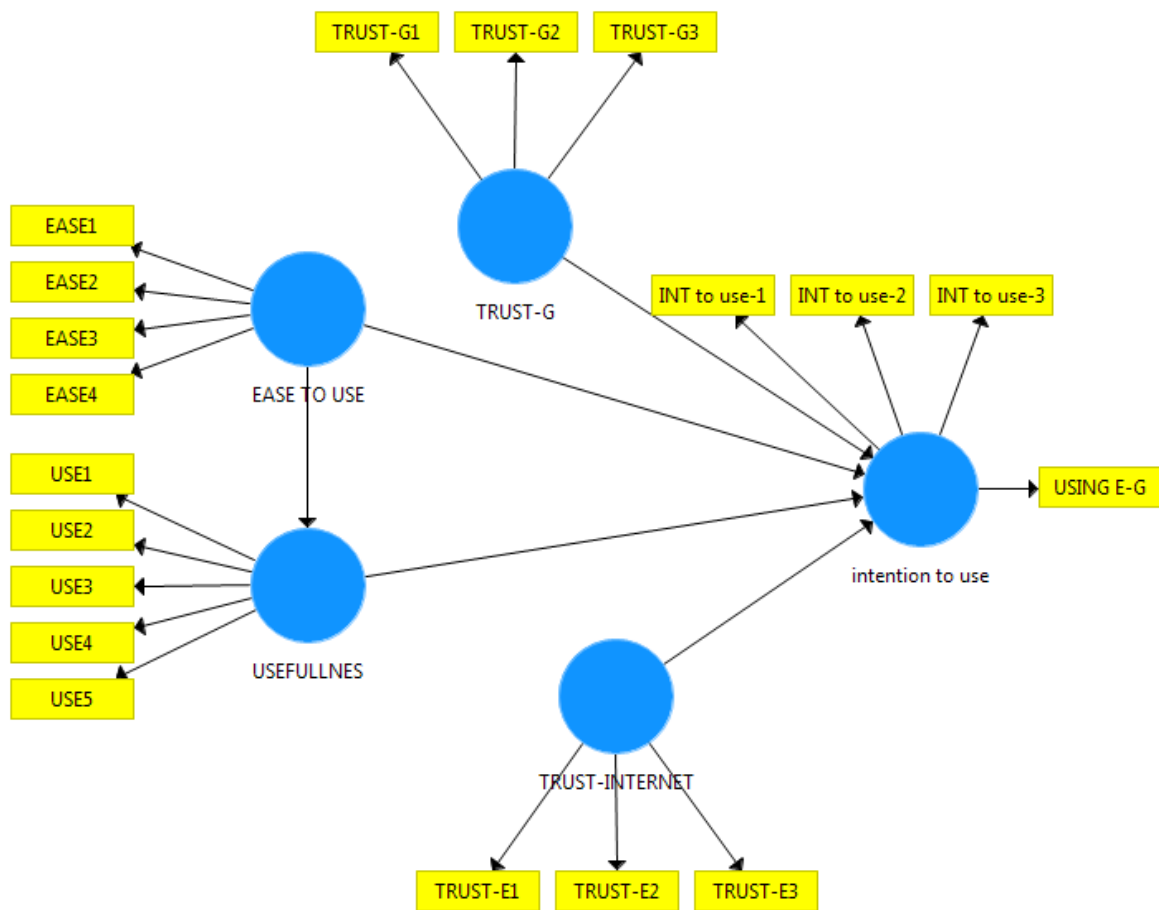


Fig 4. TheTheoretical Framework

Therefore, five hypotheses are created for this research as follows:

H-1: "PEU(Perceived Ease of Use) has effect on the PU (Perceived Usefulness)"

H-2: "PEU has effect on intention to use".

H-3: "PU has_ effect on intention to use".

H-4: "TRUST_GOVERNMENT has_ effect on intention to use"

H-5: "TRUST_INTERNET has_ effect on intention to use"

3.2 Measures

At first, a pilot study has been done for 30 participants in order to making sure that the questions are understandable to the participants and to ensure there is no misunderstanding, all values scores are above (0.754). Although, the formats of questions were drawn from the previous study, measurement of validity and reliability had evaluated and supported by Cronbach alpha scales Table.1, shows the reliability of the measurement scales. Hence, the results show that all the questions are reliable (Raykov 1997).

Table 1. Reliability by Cronbach_alpha

Scale	Cronbach's alpha
✓ PEU	0.754
✓ PU	0.831
✓ INT to use	0.803
✓ TRUST_G	0.885
✓ TRUST_E	0.847

4. Results and Discussion

This study considers the identify the most important factors that have a role in accepting employees to apply e-government service. SPSS utilized in order to analysis 273 questioners to detect the impact factors among four factors had elected based on the related work and literature review

The questionnaire was designed to evaluate the factors that affect employees' attitude towards e-government services.

The analyses of the questionnaire shows the following findings :

- The first finding of the analysis is the descriptive statistics as shown in table .2 and table 3, for all variables under investigation. It is clear that, there is strongly agreement among the participants that the use of e-government applications is very useful and easy to use; the minimum mean for all questions for above two factors is 4.37. In contrast, there is no agreement among the participants on the Internet trust nor on trust in the government.
- The second finding of the correlation analysis reported in Table 3. The table shows
 - 1- There is strong, positive relationship and high significant between the ease-of-use and Perceived Usefulness factor.
 - 2- There is strong, positive relationship and high significant between the e-government adoption and trust on Internet.
 - 3- There is strong, positive relationship and high significant between the e-government adoption and Perceived Usefulness factor.
 - 4- There is positive relationship and significant between the e-government adoption and the trust of government factor.
 - 5- The ease-of-use factor did not affect the acceptance of the use of e- government services.

Overall, we conclude that the acceptance of the use of e-government services will increase strongly when there is high trust in the Internet (trust on Internet factor) as well as high confidence in the employees benefit from the use of e-government services. On the other hand, the trust in the government factor, has less effect than the two factors that mentioned above in the acceptance of the use of e-government services. By contrast, the ease-of-use factor did not affect the acceptance of the use of e-services.

Table 2. Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
Ease of Use -Q1	3	5	4.46	.618
Ease of Use -Q2	4	5	4.94	.242
Ease of Use -Q3	4	5	4.57	.496
Ease of Use -Q4	3	5	4.53	.624
Usefulness-Q1	3	5	4.50	.582
Usefulness-Q2	3	5	4.41	.542
Usefulness-Q3	3	5	4.54	.635
Usefulness-Q4	3	5	4.37	.623
Usefulness-Q5	2	5	4.48	.676
TRUSTG-Q1	1	5	4.03	1.074
TRUSTG-Q2	1	5	3.97	1.232
TRUSTG-Q3	1	5	3.54	1.414
TRUSTE-Q1	1	5	3.71	1.183
TRUSTE-Q2	2	5	3.79	1.092
TRUSTE-Q3	1	5	3.41	1.216
INT to use -Q1	3	5	4.67	.655
INT to use -Q2	3	5	4.44	.779
INT to use -Q3	3	5	4.55	.674
Valid N (listwise)	273			

Table 3. Descriptive Statistics for mean

Constructs	N	Mean	Std. Deviation
perceived ease of use	273	4.6264	.33971
perceived usefulness	273	4.4593	.49778
trust of government	273	3.8474	1.12745
trust of Internet	273	3.6374	.99012
intention to use	273	4.5507	.58366
Valid N (listwise)	273		

Table 4. Correlation of constructs

		Correlations				
Constructs		perceived ease of use	perceived usefulness	trust of government	trust of Internet	Attitude Toward Using
perceived ease of use	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	273				
perceived usefulness	Pearson Correlation	.399**	1			
	Sig. (2-tailed)	.000				
	N	273	273			
trust of government	Pearson Correlation	.043	.069	1		
	Sig. (2-tailed)	.484	.253			
	N	273	273	273		
trust of Internet	Pearson Correlation	.249**	.155*	.557**	1	
	Sig. (2-tailed)	.000	.010	.000		
	N	273	273	273	273	
intention to use	Pearson Correlation	.011	.320**	.123*	.243**	1
	Sig. (2-tailed)	.858	.000	.043	.000	
	N	273	273	273	273	273
** . Correlation is significant at the 0.01 level (2-tailed).						
* . Correlation is significant at the 0.05 level (2-tailed).						

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