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Analysis of the technology acceptance model in evaluating students' perspective towards the use of Zankoline system

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ABSTRACT

The development and utilization of technology has motives the society's dependence on Information and Communication Technology (ICT). One of technology variants is the zankoline system, which is described as the use of services through the internet. In which it's an e-service system which provides access to students to apply for the region's universities for the undergraduate studies. The research aims to analyze the technology acceptance model (TAM) in order to evaluate students' perspectives towards the use of Zankoline system. The total of 200 forms was distributed and 140 survey response rate was received. Elements that were evaluated comprised of perceived usefulness, perceived ease of use, and intention to use. The collected data were analyzed using SPSS based on the TAM technique via hypothesis test. The findings revealed that the research participants' perspectives were low regarding the use of zankoline system, this is due to the most of the research participants were not applied to the zankoline and were accepted through direct admission.

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TAM, effectiveness.

Introduction

Nowadays the world is opening on significant acceleration in the use of technology and developing new technologies in various fields, notably in the fields of services that is provided by the government. Thus, the e-government is simply facilitated the government's management and services by the use of information and communications technology, that leads to make government more efficient and transparent with a fast growing in market, commerce and services (Thomas, 2002). Consequently, it might help in enhancing the transparency, accountability, and reduces the level of corruption (Shareef , et al., 2012). E-government can be used as a digital interaction between government and its citizens, improving the efficiency and effectiveness of public services with low cost and more transparent (Gonçalves & Pannetier, 2014). This system has different forms, including the e-services, which is an electronic delivery of government information, programs, and services often (but not exclusively) over the Internet. Various researchers discussed the influence and effectiveness of electronic communication and interactions among government institutions along with citizens and businesses. They suggested four classes of communication, government to government (G2G), government to citizen (G2C), and government to Business (G2B) and government to employee (G2E) (UN, 2010; Wiskott, 2002; Wimmer and Tambouris, 2002).

Recently, most developed countries with the use of e-services reached high levels of user satisfaction as far as the user satisfaction is the key success of these services. While, developing countries trying to use these new technologies in different fields, but not by having many computers and websites. E-government is a process that requires planning, sustained dedication of resources and political will and helping people to access the government services in their daily lives (UNPAN, 2002).

The Ministry of Higher Education and Scientific Research of Kurdistan Regional Government (KRG) established the Zankoline system, it's an e-service system which provides access to students to apply for the region's universities for the undergraduate studies (Heshmati, et al., 2013). Zankoline system provides students the ability to apply for all the public universities in the region based on their field of study and their average grades. Zankoline has been designed to make student work easier for application and changing the paper-based system that handle errors to electronic-based system that reduce the time and errors. Besides, it reduces the time students physically visit the ministry in case of errors and mistakes. In addition, it reduces the asset and materials such as papers in the paper-based system. Although students are lack of experiences of using computer and internet, still this system is much easier to use. This system is not limited only for public students, it includes the entire students in the region. Students might not be accepted in a public university, he/she can apply to private universities through direct admission. Zankoline system encompasses of three stages; the admin for collecting data from the MOHE, the companies for performing works related to the servers and the securities and finally the integration of all of them.

In this research our focus will be on analyzing the technology acceptance model in order to evaluate students' perspectives towards the use of Zankoline system. In other words, to evaluate the Zankoline system through the gathering undergraduate students' perspectives where they used this system for applying to universities. How to make students accept this system and how can we make them guaranty the results in terms of security and reliability. Evaluating by using TAM and trying to answer the following questions:

1. Do students adapt to this system?

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2. Do the results of this paper help the authorized people working on a Zankoline system to approve their system in case if the system not accepted by students or the evaluation is under the accepted one?
3. Do people in general and the new and young generation are comfortable with using new technology?
4. Can we depend on the result of this paper to work in the field of e-government in general and e-system in particular and help our culture to be more adapted to such technologies.
5. Do students prefer this system or the old paper-based system for applying for undergraduate studies at universities?

1. LITERATURE REVIEW

Some published works in the area of evaluating e-government services by using the Technology Acceptance Model (TAM). Which is one of the most popular and reliable models has been proposed by Davis (1989). In general, it is assessed that clarifies the 40% of the change in use aim (Ajzen & Fishbein, 1980). Authors in (Baharin, et al., 2014), evaluated web based online learning IDEWL using TAM by evaluating interacting, perceived usefulness, perceived ease of use, intention to use and effective. The data analysis based on SPSS and the results shows that it's acceptable of having an interactivity module in e-learning as it leads to the effectiveness of the system. Others in (Sharma, et al., 2014) find that TAM is a useful technology to demonstrate user intention and concentrate on the perception of e-government usefulness and ease of use. By depending on the various dimensions of TAM, the author in (Alsamydai, 2014) introduced two new dimensions to the five dimensions that introduced by Davis in 1986. However, the study of (Durodolu, 2016) shows that confidence in the use of technology can lead to increased personal control, flexibility and competent use of information. Therefore, increased knowledge can lead to better productivity. Comparing TAM to other methods and technologies for evaluating e-governments and e-services, TAM is more parsimonious and its stronger that other applications (Sharma, et al., 2014). Authors in (Martinez-Caro, et al., n.d.) evaluated the value of extended frameworks of TAM and the results obtained suggest that the core constructs of TAM (perceived usefulness, ease of use and attitude) significantly affect users' citizen engagement. Comparing TAM with other user acceptance models have been studied in (Bradley, 2009), by measuring the behavioral intention to use and user attitude. TAM relies on behavioral intention and attitude while the other models that been examined do not rely on behavioral intention and attitude. It has been suggested to combine TAM model with other models for beter user satisfaction with the e-services and systems. Comparing TAM, DOI and UTAUT model in (Khan & Woosley , 2011), found that the TAM is the most popular and mostly references and implemented. Further, TAM mostly used in information systems and technology adoption.

2. STUDY MODEL

The Technology Acceptance Model (TAM) is a model that based on an information theory that mostly used for understanding the relationship between the technology and its users and the acceptance of the user of the system through Perceived Usefulness (PU) and Perceived Ease of Use (PEU).

Based on the technology acceptance model resented by (Davis 1989), the following study model adapted for this paper:

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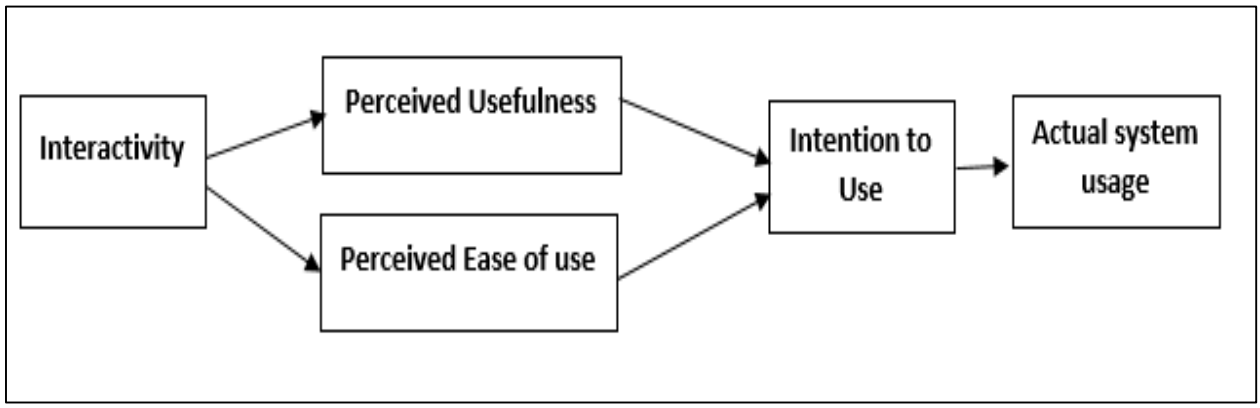

Figure 1- Proposed TAM model

1. ***Interactivity***, measures the implementation of tools and modules of the technology with the evaluation of the technology enhancement.
2. ***Perceived Usefulness*** (PU), performance of technology is engaged with the enhancement of its users and PU improve the user performance to increase the user engagement with the technology (Davis , 1989).
3. ***Perceived Ease of Use*** (PEU), PEU prove that a particular system has efficiency and effectiveness (Baharin, et al., 2014).
4. ***Intention of Use*** (IU), for increasing the proof of the system's effectiveness, intention of use is used by showing the user's interest in using the technology.
5. ***Learning Effectiveness***, based on the user's response in using systems or technology, we can measure the effectiveness of the system.

The current study uses two dimensions, PEU and PU. Based on the questionnaire and perceiving the usefulness and ease of use of the system will be identifies, hence the system can be evaluated and then the decision about future improvements can be done.

3. METHODOLOGY

This research uses quantitative method and the data collected using the questionnaire method. The aim of this evaluation is to measure the effectiveness and the usefulness of the Zanko line system in the ministry of Higher Education and Scientific Research in the Kurdistan Region of Iraq (KRI). In this research, 22 questions were distributed among all the first year students at the Lebanese French university; which is one of the private universities in the region. In order to see their perspective and acceptance of the zankoline system. The total of 200 forms was distributed and 140 survey response rate was received. Most of the participants admission to the universities through zankoline, some of them were not accepted due to their low average mark. However, others preferred to study in private universities due to more opportunity for other degree courses with less average mark.

The users of the evaluation results are mainly the ministry who has defined the aims of the Zankoline systems, and the study results enable them to make better decisions in their future activities and overcome weaknesses in the present practices. At the same time, the study results, bring more transparency to this sector, increase awareness among students on the work that has been done,

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highlight the benefits of this investment from the side of the government, and identify areas for improvement. Findings of the data analysis

The research participants' perceived ease of use, and perceived usefulness, towards the use of zankline, and their behavior to use an actual system were identified as the deterministic of students' acceptance and usage of zankoline. Many statistical techniques are used to find the results, including: Cronbach's alpha, and descriptive statistics. The latter was carried out to identify the status of these determinants between participants.

By using descriptive analysis, it was determined that the results of all questions, are around (3) as shown in Table (1).

Table 1 – Descriptive statistics and t-test

	N	Mean	Std. Deviation	Std. Error Mean
Q3	140	2.96	1.370	0.116
Q4	140	2.94	1.168	0.099
Q5	140	2.74	1.134	0.096
Q6	140	1.53	0.501	0.042
Q7	140	2.95	1.254	0.106
Q8	140	2.75	1.094	0.092
Q9	140	2.79	1.274	0.108
Q10	140	2.91	1.175	0.099
Q11	140	3.02	1.208	0.102
Q12	140	2.89	1.188	0.100
Q13	140	2.93	1.209	0.102
Q14	140	2.96	1.153	0.097
Q15	140	2.80	1.189	0.100
Q16	140	3.17	1.409	0.119
Q17	140	2.88	1.172	0.099
Q1	140	3.0	1.2	0.1

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8		2	49	06
Q19	140	3.16	1.207	0.102
Q20	140	3.02	1.249	0.106
Q21	140	2.83	1.169	0.099

Table 2 - One-sample test

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
3	25.605	139	0.000	2.964	2.74	3.19
4	29.819	139	0.000	2.943	2.75	3.14
5	28.619	139	0.000	2.743	2.55	2.93
6	36.102	139	0.000	1.529	1.44	1.61
7	27.830	139	0.000	2.950	2.74	3.16
8	29.752	139	0.000	2.750	2.57	2.93
9	25.874	139	0.000	2.786	2.57	3.00
10	29.283	139	0.000	2.907	2.71	3.10
11	29.587	139	0.000	3.021	2.82	3.22
12	28.741	139	0.000	2.886	2.69	3.08
13	28.653	139	0.000	2.929	2.73	3.13
14	30.417	139	0.000	2.964	2.77	3.16
15	27.871	139	0.000	2.800	2.60	3.00
16	26.636	139	0.000	3.171	2.94	3.41

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17	29.061	1 39	0.000	2.879	2.68	3.07
18	28.617	1 39	0.000	3.021	2.81	3.23
19	30.946	1 39	0.000	3.157	2.96	3.36
20	28.617	1 39	0.000	3.021	2.81	3.23
21	28.635	1 39	0.000	2.829	2.63	3.02

A reliability coefficient of (Cronbach's alpha) above or higher than 0.70 considered as "acceptable" and 0.80 or greater is "preferred" (Cortina, 1993). The results of the questionnaire shown in Table (2).

Table 3 – Cronbach's Alpha

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.270	0.272	19

According to the results, the Cronbach's alpha is below 0.70 thus its not acceptable.

Table 4 – All results

Questions	Mean	Standard Deviation	T-value
First dimension: Perceived ease of use			
Q3: Do you know how to use Zankoline system?	2.96	1.370	25.605
Q4: Do you feel comfortable using the Zankoline system to apply for university?	2.94	1.168	29.819
Q5: Do you think the system is (straight forward) easy enough to be used by all students?	2.74	1.134	28.619
Q15: Didi you get any assistance to learn how to fit in the Zankoline application from MOHE?	2.80	1.189	27.871
Q16: Did you get any training from your school on how to use the Zankoline system?	3.17	1.409	26.636

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Q18: Did you make any mistake(s) during the submission of your application through the Zankoline system?	3.02	1.249	28.617
Q19: In case you any mistakes, did you start the procedure from scratch?	3.16	1.207	30.946
Second dimension: Perceived usefulness			
Q7: Do you trust the Zankoline system in terms of privacy and security?	2.95	1.254	27.830
Q8: In your opinion, do you think that the Zankoline system answer any issues that you are during filling in the application form?	2.75	1.094	29.752
Q9: Do you think that time taken for the MOHE to announce the results is rapid?	2.79	1.274	25.874
Q10: Do you think the quality of the MOHE's website is good enough to apply for universities through the Zankoline system?	2.91	1.175	29.283
Q11: Do you think the response of the system is sufficient to convince you as an applicant?	3.02	1.208	29.587
Q12: Do you think that Zankoline has trustworthy and transparent system and service?	2.89	1.188	28.741
Q13: Do you think that data and information is available across multiple delivery channels?	2.93	1.209	28.653
Q14: Do you think that impact of security concerns in terms of changes and availability of information and services in the Zankoline system?	2.96	1.153	30.417
Q17: Did you pay any money to get help from someone to fill in the form for applying to the universities?	2.88	1.172	29.061
Q20: In your view do you think that Kurdistan's culture is ready for an electronic system to use in general and Zankoline in particular?	3.02	1.249	28.617
Q21: Do you think the Zankoline system is a successful and efficient system?	2.83	1.169	28.635

4. CONCLUSION

The main objective of this research is to analyze the technology acceptance model in order to evaluate students' perspectives towards the use of Zankoline system. This is due to the high focus of the ministry of higher education and scientific research on the zankoline adoption. Also the entire

students of the region accessing the system to apply for one of the region's universities to get a specific degree course. We utilized TAM to test the deterministic proposed which consist of PU, PEOU, and IU. Both PEOU and PU are seen to be negatively influenced participant's attitude towards the zankoline that leads to the low of intention to use the system. This low intention of use also affected the lack of effectiveness of the zankoline. In other words, the findings revealed that the research participants' perspectives were low regarding the use of zankoline system is low, this is due to the most of the research participants were not applied to the zankoline and were accepted through direct admission.

In future this research will be expanded to include tow universities (public and private) to observe the different perspectives of students from different universities. Involving two universities will increase the number of participants and respondents, and this leads to more information and results can be obtained.

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