
Research Paper

E-Government Services Assessment from the Perspective of Citizens Interaction and Satisfaction in Jordan: Pilot Study

Hazem Mohammad Al-Kaseasbeh, Yoshifumi Harada,
Umami Naiemah binti Saraih

School of Business Innovation and Technopreneurship,
Universiti Malaysia Perlis, Perlis, Malaysia

Corresponding Author: Hazem Mohammad Al-Kaseasbeh

ABSTRACT

Although several studies have discussed models and factors for understanding e-Government adoption, but citizen satisfaction with e-Government services still remains a key research theme. This can partly be attributed to the fact that few studies have attempted to understand holistically the link between provisioning of digital information and transactions and its take up and usage. This background has contributed to an ever-widening gap between e-Government implementation, and use resulting in lack of understanding of how citizens' satisfaction influences adoption and continue use e-Government services. To fill this gap, the expectation-confirmation theory was developed to investigate the relationship between satisfaction, interaction, and usage of e-Government services. A questionnaire was constructed and distributed among the lecturers and administration staff of the University of Jordan to examine the model. Factor analysis test, Item-total correlation test, and Cronbach's alpha were utilized to verify the reliability and validity of the questionnaire. The findings indicated that the questionnaire is suitable to achieve the objective of the study.

Keywords: Citizens' satisfaction, Citizens' interaction, e-Government services, Jordan.

INTRODUCTION

The importance of e-Government services has always been of interest to governments and to researchers because of its influence on the relationship between citizens and their governments (Waheduzzaman & Miah, 2015). Governments have displayed an interest in the exploration of the determinants of citizens' intentions to interaction in the e-Government services development (Venkatesh, Thong, Chan, & Hu, 2016). Initial acceptance is obviously the first stage for e-Government services success (Kurfalı, Arifoğlu, Tokdemir, & Paçin, 2017). The citizen interaction (i.e. feedback from citizens then enables governments to enhance the e-Government services) is

crucial for the long-term operation of the e-Government services (Valle-Cruz, 2019). Based on that, citizens' satisfaction with the e-Government services is the main key for citizens' intentions to interaction (Anwer, Esichaikul, Rehman, & Anjum, 2016). However, there is the growing recognition of the need for citizen-centric services from a citizen demand-side perspective (Reddick, 2005) and the need to study citizen's role in service demand and self-service delivery options. In consequence, there is an increased impetus on building citizen satisfaction with government's Web 2.0-enabled self-service delivery options. In a context of IT-mediated customer transactions with the business, marketing literature shows the increasing importance

of high-quality technology-customer linkages in building customer satisfaction and creating business value through better serving customers (Parasuraman & Grewal, 2000). So while it is relatively straightforward to provide citizens with government websites for information access, there is the growing recognition that enhanced technological and organizational process integration and interoperability between government agencies and between the public sector and the private sector organizations such as banks is critically important to make e-Government more successful in engaging citizens and providing integrated convenient and timely government services (Chatfield & AlAnazi, 2013). However, e-Government research still lacks empirical studies that investigate problems of low-level use of e-Government services (Chatfield & AlAnazi, 2015; Fan, 2018). Therefore, the promised benefits of e-Government may be difficult to realize without continuing use of e-Government services (Yu, Lin, & Liao, 2017).

Jordan is one of the regionally leading countries regarding national IT infrastructure available for online services in the Middle East (Malik, Shuqin, Mastoi, Gul, & Gul, 2016). However, e-Government in Jordan faces the problem of low usage levels of e-Services (Kanaan & Shahizan, 2016; Al-Refaie & Ramadna, 2017). Joo, So, and Kim, (2018) stated that the citizen satisfaction is the strongest determinant of citizens interaction to use e-Government services. In the case of low performance, customers will be disappointed or even discontent, but on the other hand, if the expected performance meets real performance, the customers will be satisfied and happy. According to Mensah, Vera, and Mi (2018) developing the websites on the internet play a major role in achieving customer satisfaction and useful to gain fast services, which is also important in assessing the quality of electronic services. In Jordan, policymakers and planners of e-Government are facing strong pressure to answer the question of whether and how the

Jordan e-Government portal creates and attains a high level of satisfaction by Jordanians (Al-Hujran, Al-Debei, Chatfield, & Migdadi, 2015; Al-Refaie & Ramadna, 2017; Rana & Dwivedi, 2015). Where, the previous studies confirmed that the large percentage of the Jordanian citizens are not interested in using e-Government services and are not willing to use them even if it offers more benefits than the traditional services (Al-Soud, Al-Yaseen, & Al-Jaghoub, 2014; Kanaan & Shahizan, 2016). Thus, the aim of this paper is to investigate and identify the critical factors influencing citizens' satisfaction on e-Government services adoption from citizens' interaction perspective. It also aims to develop a conceptual model for citizens' satisfaction on e-Government services based on the expectation-confirmation theory which studies the influence of perceived usefulness and service quality in intention to use and citizens' satisfaction.

LITERATURE REVIEW

e-Government Services in Jordan

Information Technology (IT) is regarded as an important tool in the constant efforts of public administrations to increase efficiency, by offering the possibility to digitalise manual routines (Mohammed, Ibrahim, Shawkat, & Hasson, 2013). However, the usage of IT was not only a matter of increasing efficiency and effectiveness in internal working procedures, but also a means of handling interactions with external users, such as making e-services, provided by public administrations, available to citizens (Twizeyimana & Andersson, 2019). Therefore, public services around the world have acknowledged the importance of more accessible and efficient e-Government services (Anthopoulos, Reddick, Giannakidou, & Mavridis, 2016).

In the Jordanian e-Government context, Jordan has taken many steps in ICT infrastructure as considered a prerequisite for e-government adoption, benefiting from the golden opportunity provided by its human resources, which can be a valuable

asset to support the development of ICT projects in the country (Almarabeh & AbuAli, 2010). The e-government initiative in Jordan was started in 2000 by the Ministry of Information and Communication Technology (Alrawabdeh, 2017). The initiative aimed to give Jordanians the ability to access government information and services irrespective of their location, education, economic situation, or IT ability (Nassuora & AlMushasha, 2012). The Government of Jordan was worked on enhancing the number of e-government services available in efforts to transform the way stakeholders interact and participate with the government. Innovative Jordan, (2019) noted that nearly 150 e-Government services are now available in all government institutions. Al-Jaghoub, Al-Yaseen, and Al-Hourani, (2010), and Venkatraman and Alazab (2016) stated that Jordan's efforts to provide e-Government services to the public were recognized. Despite the passage of more than eighteen years for the application of Jordanian e-Government strategy, unfortunately, it failed to increase interaction the citizens with the e-Government services (Kanaan & Masa'deh, 2018; Rana & Dwivedi, 2015). Actually, this fact has been confirmed by the United Nations studies, where the development of e-Government index of Jordan fell from 50 in 2010 to 98 in 2018 (UN, 2010, 2018).

Citizen Satisfaction

The e-Government services are a key driver of a government's effectiveness and as such is a useful tool with which to increase citizens' satisfaction with government performance (Mohammed, Hasson, Shawkat, & Al-khafaji, 2012). Citizen satisfaction is defined as a pleasant or positive emotional state resulting from the evaluation of using options for the provision of e-government services to perform a personal task (Medina & Rufin, 2015). Many studies are showed that citizens satisfaction has a positive relationship with the usage of e-Government services (e.g., Sa, Rocha, & Cota, 2016;

Santa, MacDonald, & Ferrer, 2018; Wirtz & Kurtz, 2016). Citizen satisfaction was used to measured post-acceptance expectations and was the only construct consistently influencing user intention in both adoption and post-adoption phases (Anwer, Esichaikul, Rehman, & Anjum, 2016; Arfat, Rahman, Rahman, & Mahmood, 2018). Malik et al. (2016) indicated that citizen satisfaction is a critical and decisive factor for persistent use of e-Government services as it can substantially impact on failure or success of e-Government projects. Moreover, citizen satisfaction can increase the level of citizen interaction based on the level of e-Government services provided (Lee & Tseng, 2018). Level of e-Government services is the extent to which an e-Government platform enhances the delivery of efficient e-services in order to assist citizens, businesses, and the general public to undertake transactions with the government (Mohammed et al., 2016). Otherwise, the level of citizen interaction has the potential to improve e-Government efficacy and by extension provide citizens with high levels of service satisfaction (Alanezi, Kamil, & Basri, 2010). Reviewing past empirical studies had shown that factors shaping citizens satisfaction which include perceived usefulness, service quality, and confirmation have a relationship with the intention of citizens' interaction (e.g., AL-Athmay, Fantasy, & Kumar, 2016; Skordoulis, Alasonas, & Pekka-Economou, 2017).

Perceived Usefulness

Perceived usefulness is defined as "the extent to which a person believes that using particular technology will enhance his/her job performance" (Davis 1989, p.320). In the context of e-Government services, perceived usefulness is defined as the degree to which a citizen believes that the interaction and use of e-Government services enhance his or her public transactions completion. Generally, citizens' intention to use a particular system will increase if they find that the system is useful (Bhattacharjee, 2001). There is quite a

consensus among scholars about the great and positive impact of such this factor related to the user's acceptance and adoption of information systems (Joo et al., 2018; Sfenrianto, Wijaya, & Wang, 2018). Similarly, such influence has been widely approved related to the citizen's acceptance and adoption of e-Government systems (Gupta, Singh, & Bhaskar, 2016). Arfat et al. (2018) conducted a study using a sample of 250 students from upper Punjab in Pakistan. The study tested and analyzed the perceived usefulness of e-Government as a parameter to improve user's satisfaction and their intention of interaction with e-Government services. The findings showed that the perceived usefulness advances the user's satisfaction and intention of citizens interaction with e-Government services. While Thominathan and Ramayah (2015) attempted to investigate the relationship between perceived usefulness that influence citizens' satisfaction in determining the citizens' interaction of e-filing system by taxpayers in Malaysia. This study was conducted by using a sample of 153 citizens in the northern region of Malaysia. The findings showed that citizens' interaction depends on the perceived usefulness and citizens' satisfaction.

Service Quality

E-Government is prominence as the means for effective public service delivery to citizens which has resulted in increased interest in investigating the service quality dimensions and its impact on the intention of citizens' interaction (Anwer, Esichaikul, Rehman, & Anjum, 2016). Service quality is the major factor for organization sustainability and one of the driving forces for an organization's achievement (Santos, 2003). In the context of e-Government, e-Government service, quality could be defined as the degree to which an e-Government portal or website facilitates the competent delivery of efficient e-services to assist citizens, businesses, and the general public to have a successful interaction with government and its state institutions (Mensah, Jianing, & Durrani, 2017). The

quality of e-Government services can play an enormous role in improving e-Government efficiency and increasing citizens' satisfaction (Alanezi et al, 2010). Comprehending that quality of e-Government services has an impact on user's satisfaction, Skordoulis, Alasonas, and Pekka-Economou (2017) examined the relationships between satisfaction and service quality for citizens who used TAXISnet information system, a widely-used e-Government service in Greece. The result showed that service quality of TAXISnet information system contributed more, as compared to other factors, in making citizens feel satisfied. Similarly, Sharma (2015) analysed the relationship between service quality dimensions and the willingness to use e-Government services in Oman. The study performed on 248 e-Government service users showed that the service quality dimensions were a function of citizens' satisfaction and willingness to use e-Government services. Weerakkody, Irani, Lee, Hindi, and Osman (2016), using a sample of 1518 citizens in the United Kingdom, examined the impact of services quality on user satisfaction of e-Government services. The findings showed that the quality of the service has a strong effect on citizens' satisfaction with e-government services. Hence, Fan and Yan (2015) confirmed that the service quality perception was found to have a significant effect on public satisfaction that impacts on the intention of citizens' interaction to use e-Government services.

Confirmation

Users' satisfaction is influenced by their perceived usefulness and confirmation of expectation from prior information system use, while post-acceptance perceived usefulness is influenced by users' confirmation level (Ambalov, 2018). After some time using the product or service, a consumer will gain experience and understanding of the performance of the product or service, forming a new cognition. The consumer will compare this new cognition with his or her initial expectation

to ascertain whether the assessment is identical, which is called confirmation (Lai, Chen & Chang, 2016). When consumer expectation is lower than the actual performance of the product or service cognition, the result is a positive confirmation; when the expectation is higher than the actual performance of the product or service cognition, the result is a negative confirmation (Altarawneh, Omar, & Tahir, 2018). Therefore, in e-Government services context, positive confirmation leads to the realization of citizens satisfaction and impact positively on citizens interaction with e-Government services (Al-Yawer, & Ahmad, 2018).

Research Model

Past studies have utilized various theories or models in order to improve citizens' satisfaction to continue the use of e-Government services. The model of this study (Figure 1) is a revision and extension of the expectation-confirmation theory which is articulated by Oliver (1980), following an extensive literature review so as to end up with a model to examine the influence of citizens' satisfaction on the intention of interaction to use e-Government services.

Expectation confirmation theory (ECT) was first articulated by Oliver (1980) in the context of marketing decision-making. ECT aims to study consumer satisfaction and repurchase behaviour (Alawneh, Al-Refai, & Batiha, 2013). Limayem and Cheung (2008) argued that satisfaction is a key to building and sustaining the loyalty base of long-term consumers in the marketing literature.

Therefore, ECT was extended by Bhattacharjee (2001) from the consumer behavior literature to theorize a model of information system continuance which commonly referred to as the expectation confirmation model. ECT posits that user satisfaction is determined by two constructs: the expectation of the information system and confirmation of expectation following actual use (Alawneh et al., 2013). Expectation provides the baseline level, against which confirmation is assessed by users to determine their evaluative response or satisfaction (Bhattacharjee, 2001). In this study, the citizen expectation to use e-Government services depends on the quality of services that provided by the government. While confirmation is defined as the users' perception of the congruence between the expectation of e-Government services use and its actual performance. Based on the develop ECT by Bhattacharjee (2001), the perceived usefulness has been used in the context of this study to assess the degree to which a citizen believes that using e-Government services would enhance his or her job performance. Therefore, perceived usefulness, confirmation, and service quality are the factors that would assess citizen' satisfaction with the e-Government services.

Furthermore, past studies mentioned that increase citizens' satisfaction may increase the intention of citizen interaction to use e-Government services (Sa et al., 2016; Santa et al., 2018). Thus, citizens Interaction can serve as a Mediator in the Relationship between citizens' satisfaction and usage of e-Government services. Figure 1 showed the proposed model of study.

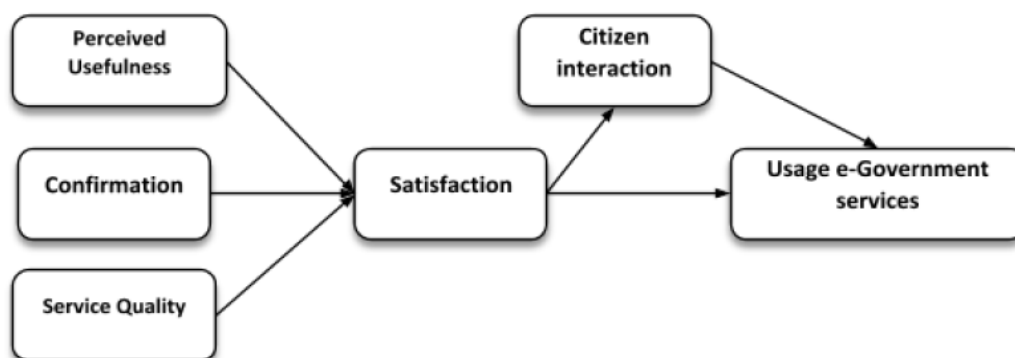


Figure 1. Conceptual Model

RESEARCH METHOD

Instrument development

The purpose of this paper is to examine and describe the citizens' satisfaction of usage e-Government services in Jordan. This study employed a survey method, using a questionnaire to evaluate the conceptual model. The constructs used in this study are measures from the literature which were adapted to the context of this study. The perceived usefulness was measured using 6 items adapted from Titah and Barki (2006), Horst et al. (2007), and Hung et al. (2013). Six items from Osman et al. (2014), and Santhanamery and Ramayah (2014) were utilised to evaluate service quality. Three items from Santhanamery and Ramayah (2014) were employed to assess the confirmation. Based on Al Hujran et al. (2013), five items measuring the satisfaction of citizen were adapted. Four items from Mouakket and Al-hawari (2012), and Andalib and Danaee, (2013) were utilised to evaluate citizen interaction. Finally, the usage of e-Government services was measured using 4 items adapted from Deng et al. (2010), and Tan, Lee, and Hsu (2015). The respondents were asked to indicate their level of perceptions on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Pilot study

A pilot study before the final data collection is useful to ensure the consistency and accuracy of the responses (Hair et al., 2015). In this study, 100 questionnaires were distributed among lecturer and administration staffs are working in the University of Jordan. The responses were collected from 86 participants; 70.9 per cent of respondents were male and 29.1 per cent were female. Of these participants, 8.1 per cent were aged 18-27 years, 16.3 per cent were aged 28-37 years, 32.6 per cent were aged 38-47 years, 23.3 per cent were aged 48-57 years and 19.8 per cent were aged older than 58 years. The respondents were educated, with at least high school, but the majority of participants had a postgraduate

degree. Additionally, all participants use the Internet daily. As for e-Government services usage, 50 per cent of participants used e-Government services largely, 25.6 per cent of participants used e-Government services somewhat, while 24.4 per cent of participants used e-Government services very little.

The Findings of Pilot Study

Pilot study is defined as an experimental study aimed to complete the pre-testing of a specific research instrument of investigation (Hair et al., 2015). The SPSS v25 was used to analysis the pilot study. For testing the construct reliability, the value of Cronbach's alpha coefficient for all the constructs is greater than 0.70 (where Perceived Usefulness (PU)= 0.863, Service Quality (SQ)= 0.892, Confirmation (CF)= 0.912, Satisfaction (SAT)= 0.883, citizen interaction (CI)= 0.833, and usage of e-Government services (UGS) = 0.879), which is within the acceptable range for the validation of the construct. For test the Item-total correlation, the findings showed a moderate relationship for all factors, where PU (0.575 to 0.724), SQ (0.592 to 0.784), CF (0.764 to 0.885), SAT (0.638 to 0.807), CI (0.536 to 0.767), and UGS (0.699 to 0.770).

For measures of sampling adequacy, the Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity were used as a pre-analysis check for ensuring that the data set is appropriate for the factor analysis using Principal component analysis (PCA). The Bartlett's test of sphericity was found in significant level at $p < 0.001$ and the KMO measure of sampling adequacy was also acquired with a significant value 0.800, as shown in Table 1 (Hair et al., 2015). The recommended KMO value is >0.05 and the values between 0.7 and 0.8 are good for analysis (Sekaran & Bougie, 2016).

Moreover, the findings of the factor loading of the twenty-eight items were utilized to measure the proposed model showed that six items were allocated in PU factor with loading values (0.537 to 0.912).

Six items in SQ factor had loading values (0.685 to 0.878), while CF factor had factor loadings (0.861 to 0.912) on three items. Five items were allocated in SAT factor with loading values (0.746 to 0.867), while four items in the CI factor had factor loading values (0.696 to 0.859). Finally,

four items allocated in the UGS factor had factor loading values (0.815 to 0.862). The recommended factor loading value is >0.5 (Sekaran & Bougie, 2016), it was concluded that the data were appropriate for factor analysis.

Table 1. Summarized the Findings of the Pilot Measurement Questionnaire

Variables and items description	Mean	Factor loading Value $\geq .50$	Item-total correlation Value $\geq .45$	Cronbach's alpha Value $\geq .70$
Perceived Usefulness				
PU1: Using e-Government services would enable me to complete tasks more efficiently.	3.76	.732	.575	.863
PU2: Using e-Government services Portal would increase my productivity on the tasks.	3.69	.537	.724	
PU3: Using e-Government services would enhance my effectiveness on the tasks.	3.58	.699	.648	
PU4: Using the e-Government services would make it easier to do tasks.	3.82	.810	.575	
PU5: Using e-Government portal and/or Ministry's website(s) allows me to access more government services than would otherwise possible	3.61	.833	.723	
PU6: Overall, I find e-Government portal and/or Ministry's website(s) useful for me to access government services	3.70	.912	.701	
Service Quality				
SQ1: Information on the e-Government services is accurate.	3.47	.685	.627	.892
SQ2: Information on the e-Government services is up-to-date.	3.75	.878	.784	
SQ3: The e-Government services always work properly without service disruption or downtime.	3.48	.777	.727	
SQ4: The e-Government services enable me to complete all necessary transactions online.	3.55	.712	.592	
SQ5: I find all the services that I need in the Portal of Jordan e-Government	3.66	.864	.768	
SQ6: The Portal of Jordan e-Government provides all required services for Jordanian citizens	3.56	.812	.744	
Confirmation				
CF1: My experience with using the e-Government services is better than what I expected.	3.23	.912	.885	.902
CF2: The service level provided by the e-Government services was better than what I expected.	3.31	.900	.801	
CF3: Overall, most of my expectations from using the e-Government services were confirmed.	3.39	.861	.764	
Citizen Satisfaction				
SAT1: I am satisfied with the technical quality of the e-Government portal and/or Ministry's website(s) (e.g. download capacity and speed).	3.26	.818	.701	.883
SAT2: I am satisfied with the information I receive from the e-Government portal and/or Ministry's website(s)	2.94	.865	.805	
SAT3: I am satisfied with the quality of the service offered by the e-Government portal and/or Ministry's website(s)	3.31	.779	.659	
SAT4: I am satisfied with the way in which e-Government service providers adjust to my needs	3.34	.746	.638	
SAT5: Overall, I am satisfied with the services offered by the e-Government portal and/or Ministry's website(s)	2.99	.867	.807	
Citizens' Interaction Intentions				
CI1: I intend to use the e-Government portal and/or Ministry's website(s) for gathering government services information	3.31	.859	.699	.833
CI2: I would not hesitate to provide information to an e-Government portal and/or Ministry's website(s)	3.20	.849	.767	
CI3: I intend to use government services provided over the e-Government portal and/or Ministry's website(s)	3.17	.776	.661	
CI4: Interacting with the government services over the e-Government portal and/or Ministry's website(s) is something that I would do	3.33	.696	.536	
Usage of e-Government services				
EGS1: I would like to continue using e-Government services in the future	2.59	.862	.770	.879
EGS2: I will continue using e-Government services than use any alternative means.	2.47	.860	.739	
EGS3: I will continue using the portal of Jordanian e-Government services even if I encounter some problems	2.48	.851	.755	
EGS4: I will strongly recommend others to use the e-Government portal and/or Ministry's website(s)	2.53	.815	.699	
Kaiser-Meyer-Olkin (KMO): 800				
Bartlett's test, Sig: 000				

DISCUSSION AND CONCLUSION

This study aims to understand and evaluate the e-Government services in Jordan from citizen satisfaction perspectives. A conceptual model to evaluate the influence of citizens' satisfaction on citizens' interaction and usage of e-Government services is developed. The conceptual model of e-government services evaluation includes the citizens' satisfaction, which supported by perceived usefulness and services quality. The citizens' interaction serves as a mediator between citizens' satisfaction and usage of e-Government services. For this purpose, a quantitative approach using a questionnaire survey has adopted to collect data. The findings of the pilot study showed that the 28 items of six factors have good reliability and validity to measure the relationships between variables. Therefore, it is believed that the conceptual model developed based on the expectation-confirmation theory can serve as a foundation for future research on evaluation of e-Government services in order to improve citizens satisfaction and to increase usage of e-Government services in Jordan.

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How to cite this article: Al-Kaseasbeh HM, Harada Y, Saraih UNB. e-government services assessment from the perspective of citizens interaction and satisfaction in Jordan: pilot study. *International Journal of Research and Review*. 2019; 6(12):50-60.
