Factors Affecting the Use of E-Government Services Among Youths in Oman

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Abstract - Many countries, including the Sultanate of Oman have implemented e-government for better services to their citizens and residents. In this study, the researchers examined the factors that are perceived to affect adoption of e-government among young citizens of the country. Factors such as usefulness, ease of use, risk, and trust of technology were incorporated into the survey questionnaire. The questionnaires were then distributed to students in the Dhofar University. Findings of the study indicate that perceived ease of use of e-government services is one of the most important factors to encourage the young citizens to use the e-government services. Besides that, all other factors in the study suggested that they are related to the intention of use of e-government e-services among Omani youths.

Keywords - risk, trust, ease of use, e-government, business environment

1. Introduction

With the advancement of Information and Communication Technologies, e-government has emerged as an effective means of delivering government services to citizens. Due to this, e-government has been established and developed in many countries. The Sultanate of Oman had embarked on e-government projects with the support of His Majesty Sultan Qaboos bin Said Al Said.

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The royal directive of His Majesty stresses that Omani citizens must be equip with appropriate ICT skills so that they are able to use the e-government services smoothly, while the government institutions are expected to provide their services through ICT that in turn will enhance their performance [1].

In responding to the call, the Sultanate of Oman had prepared an e-Government Transformation Plan. Based on this plan, they developed the official Oman e-government Services Portal known as Omanuna. It is the gateway to the services and information from the government to the citizens of Oman. Here, the citizen will be able to use the e-services or to find information on any services provided electronically. In addition, the citizen can fill in electronic forms and/or also download forms for a particular service. They may receive response through the SMS services indicating the level of services rendered. Now, the e-services are available 24/7 or seven days a week through the e-government portal. The most popular e-services are:

- 1. Pay Traffic Fines;
- 2. Registering Businesses;
- 3. Tax Calculation; and
- 4. Paying Utilities Bills.

Source: [2]

However, e-government services will have little value for the citizens if the people do not have the knowledge, motivation or resources to make use of such e-services. One of the reasons for these may be due to lack of promotion to the citizens. The infrastructure of most e-government developed will become valueless, if citizens do not have the necessary skills or economic motivation to access and use the services electronically [3]. Further, the government expected that citizens who own personal computers and/or smartphones should be able to use them for personal use in terms of accessing the needed information and services, and performing various transactions, such as renewing driving license, through the interactive facilities provided for fulfilling citizens' needs and requirements.

Even though the establishment of e-government has started since 2008 in the Sultanate of Oman, the government still has to do more to promote the e-services available through the e-government portal.

Based on the ICT household use Report in 2013, most individuals use the portal more to obtain information; however, they use it less for interactive transactions, such as submitting applications through online forms [4]. One reason for this, maybe because the interactive services at that time were still in its infancy stage and were not well developed. However, based on the Omani e-Government Transformation Plan in 2017, the government launched about 69 eservices. The number of e-services implemented based on ministry or agency are as follows:

Table 1. Number of e-services on selected ministries or government agency

Ministry/Agency	Number of E-Services
Ministry of Manpower	5
Ministry of Environment and Climate Affairs	46
Muscat Municipality (enhancement on applications)	5
Public Authority	17
Ministry of Education	1
Total	69

Source: [5]

Thus, it is expected that the usage of the e-services by citizens will also be high as the number of eservices is increasing.

Based on the Omani's National Centre and Statistics (NCSI), 30 percent of Omani population is made up of the age group between 15 to 29 years in 2015 [6]. About 88 percent from the age group of 20-24 years are familiar with information technologies, such as using Internet. Basically, more than 50 percent from this age group uses electronic mails as their communication channel for sending and receiving mails. This indicates that the youths are at ease in using information technologies to serve their needs. Further, Muscat Daily (2018) reported that Omani's mobile phone ownership is 1.5 phones and rank at the third place in the world for mobile penetration rate at 152.3 points with 75.83% of age group between 15-64 years old [7]. In line with this, this research aims to identify the factors that affect the use of e-government for e-services among the youth in the country. We consider the youth as the main users of these e-services in the future.

2. Literature Review

A. E-Government

E-government is the term used for the use of information and communication technologies (ICT) to provide web-based services from various government agencies to the main users such citizens,

businesses, employees, and government. government can be defined as "Utilizing the Internet and the World Wide Web for delivering government information and services to citizens" [8]. In addition, e-government can be referred as the delivery of citizens, businesses, services to and governments through electronic based [9]. Another definition of e-government is "as a way for governments to use the most innovative information and communication technologies, particularly webbased Internet applications, to provide citizens and businesses with more convenient access to government information and services, to improve the quality of the services and to provide greater opportunities to participate in democratic institutions and processes" [10]. All these definitions suggested that the tasks fit between technology, people and processes for achieving the objective of egovernment establishment. The purpose to use the ICT in government is to increase government's efficiency and transparency plus citizen participation [11]. In other words, e-government uses the ICT to "provide government services, support government options, and engage citizens" [12]. Many countries already had established e-government to support their governmental related functions and activities to increase their governing efficiency. Through this platform provided by e-government, the citizens can easily access the government services and information at their convenience. This is part of fulfilling the Government to Citizen (G2C) relationship category where citizens can "demand for information from the citizen in any life situation or a transfer of an official document to the citizen" [13]. In addition, for the citizens to be able to interact electronically with the government, in turn they should have better information on government related functionality, laws, policies and services.

As one of the main purposes of e-government is to ensure high citizen participations through the eservices made available to the citizens, the Sultanate of Oman has established e-participation initiatives. Such initiatives include the e-Government Social Media Account for the citizens to give feedback, suggestion, and complaints. An example is the It is a group decision-making Tanfeedh. participation where members from both public and private sectors may discuss how to enhance performance standards and execution. example is the Shurkum, where it is an avenue for community members to discuss government's projects, services, and initiatives using social media [3]. With all these e-participation initiatives, there is a hope that the citizens will participate in the discussion put forward by the government. This is in accordance to that being suggested in "Participation is the real goal of e-government" by Vice President of the European Commission, Viviane Reding [14].

Example of factor studies included in the services, technology, and innovativeness of personal to information technology (IT), facilitation conditions social influences and service, and product trust had shown to affect user's intention to accept and use them [15]. While Raymond (2007) pointed out that the main objective for adapting an existing egovernment system and methodology is to obtain new computing requirements based on the concept of citizens' new services [16]. These reviews identify the essential of adopting e-government (reasons for use) for the people of the country.

B. E-Government Adoption Model

The importance of e-government for e-services, has led many researches to identify the factors that affect the use of e-services through e-government website. Here, based on citizen personal computing behavior, the government expected that the citizens would use the e-services provided to them [17]. For examining e-government adoption or intent to use, many researchers have applied the Technology Acceptance Model (TAM) to assess the factors affecting the adoption of e-services of e-government. The TAM provides the theoretical bases for probing factors affecting acceptance of new technologies, system use, and technology acceptance where the TAM is capable in explaining user behavior [17],[18]. The aim of Technology Acceptance Model (TAM) is to determine the influence of external variables on beliefs, attitude and intentions. The user attitude in accepting information technology has been an important issue and aspect in discussing security and trust regarding information technology use. Since [17] provided the Technology Acceptance Model (TAM) and showed that the theoretical basis for actual use depends mostly on behavioral intention, the TAM has been primarily used in explaining the information technology usage [19].

C. Perceived Ease of Use

Perceived ease of use refers that "a person believes that using a particular system would enable and help in complete the desired task free of effort" [17]. This factor has been validated to explain perceived of use and system usage [20]. This indicates that citizens should be able to use the e-government of e-services easily without difficulty. Moreover, when citizens feel at ease, they would use the e-service provided more often.

D. Perceived Usefulness

Perceived usefulness is describing that a user believes in the existence of a positive user-performance relationship [17]. In this case, the citizens would perceive that the e-services provided through e-government is useful and an effective way for completing a given transaction as required. Perceived usefulness can be defined as "the degree to which a citizen believes that using e-government would heighten his or her job performance" [17].

E. Perceived Risk

Perceived risk is made up of a combination of uncertainty event happening and the negative consequences of outcome involved [21]. In terms of e-government, perceived risk refers to the "citizen's subjective expectation of suffering a loss in pursuit of a desired outcome" [22]. This reflects that the perceived risk to use e-services will depend on citizens' belief about the potential for something to go wrong when undertaking service transactions online, and the probability of suffering a loss if it does [23]. In other words, the adoption decision on information system may depend on several circumstances as defined by [24]:

- Feeling of uncertainty
- Conflict aroused in the consumer
- Concern
- Making the consumer feel uncertain
- Pain due to anxiety

Perceived risk had been shown to influence eservices acceptance in a study done in Jordan [25]. For this research context, the potential increased task performance efficiencies, while risks include possible different task performance related problems and the uncertainty of internet as perceived as an unsecured communications medium.

F. Trust in Technology

Trust in technology is an important factor that have the influence, power on user's online behavior, especially in the e-services. Trust is referred to as "one's belief about the event that other party will behave in a socially responsible manner and also fulfill the expectations of the trusting party's without taking advantage of its vulnerabilities" [26]. While, another definition of trust as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the latter one will perform particular actions, which are important to the former one" [27]. Even though many studies have been done on perceived trust for e-government acceptance, still, the research findings were inconsistent and contradictory [25].

G. Intention to Use

Intention to use is a measure of likelihood that a citizen will use the e-government services [17]. It can be used to anticipate of a citizen the willingness to perform the behavior, i.e., using the e-services and reflecting what could be expected in the future. Hence, this is the dependent factor in this study use to measure the intention of use of e-government services.

H. Research Model

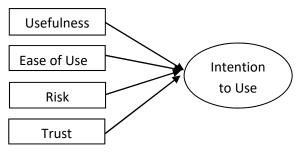


Figure 1. Research model

Figure 1. shows the research model on the intention to use e-government services that may be affected by usefulness, ease of use, risk and trust. Based on the research model, the following hypothesis were established:

H₁: There is relationship between perceived usefulness and intention of use of E-government.

H₂: There is a relationship between risk and intention to use E-government.

H₃: There is relationship between intent to use E-government and perceived easy to use.

H₄: Trust in technology is related to intention to use E-Government.

3. Methodology

A survey questionnaire was developed based on variables: perceived independent usefulness, perceived ease of use, perceived risk and perceived trust, and dependent variable: intention to use. The questionnaires were distributed to the target population for this study, students at Dhofar University. The unit of this study consists of students in different colleges in Dhofar University (CAAS, CCBA, and EC). Fifty questionnaires were distributed to each college consisting of twenty-five male and twenty-five female students as the respondents. Thus, a total 150 questionnaires were distributed. The probability sampling was the sampling technique applied in this research; mainly data collection procedure the questionnaires distributed to a random sample of Dhofar University students.

The study used interval scale for the questionnaires thorough and data was key in through Microsoft Excel program. Then the data was analysed using the Program IBM SPSS for statistical analysis. The analysis of reliability of constructs was performed on the variables. Table 2. showed that all the variables of Cronbach Alpha values are greater than 0.7. These indicate that the items in each variable "hang together" in the group. No item was deleted from this group. Thus, this also indicates that all variables are reliable for further analysis.

Table 2. Measurement of reliability

Description	Number of Items	Alpha Value
Ease of use	3	.861
Usefulness	3	.736
Risk	3	.726
Trust in	3	.826
Technology		
Intention to use	2	.816

• All variables have Cronbach alpha value greater than (0.7).

4. Results and Findings

Demographic Profile of the Respondents

Table 3. Respondent profile

	Freq	%	Cum. %
Gender			
Male	75	50.0	50.0
Female	75	50.0	100.0
Age			
Under 20 years	17	11.3	11.3
Between 21-25 years	116	77.3	88.7
Between 25-35 years	15	10.0	98.7
Above 40 years	2	1.3	100.0
Education			
Diploma	31	20.7	20.7
Bachelor Degree	116	77.3	98.0
Master Degree	2	1.3	99.3
Others	1	.7	100.0
Status			
Government	6	4.0	4.0
Private Sector	3	2.0	6.0
Own Business	2	1.3	7.3
Student	139	92.7	100.0
College			
CAAS	50	33.3	33.3
CCBA	50	33.3	66.7
CE	50	33.3	100.0

Note: CAAS – College of Arts and Applied Sciences, CCBA – College of Commerce and Business Administration, CE – College of Engineering

A hundred and fifty (150) respondents participated in this survey and the rate of return questionnaire survey is 100%. The table shows that the respondents both male and female are of equal percentage (50%). Overall, about 50% of respondents were male and aged between 21 to 25 years. This indicates that

many of the respondents fall in the young age category. In addition, most of the respondents belong to the bachelor degree category at DU.

Perceived Ease of Use

Table 4. Perceived ease of use

Item	Mean	Std Dev
Q1-E-government less effort to learn.	4.53	0.757
Q2-E-government will make the transactions at ease.	4.36	0.914
Q3-Using E-government services keep me from going government departments	4.31	1.031

Table 4. describes the respondents rated on perceived ease of use. Respondents were evaluated items using a Likert scale from 1-Strongly Disagree to 5-Strongly Agree. High mean values indicate that the respondents felt that the e-government e-services were easy to use in fulfilling the tasks they needed to do and less effort is needed to learn using it plus they can easily perform the task from anyway.

Perceived Usefulness

Table 5. Perceived usefulness

Item	Mean	Std Dev
Q4- I face difficulty in dealing with E-Government services. Reverse	3.27	1.185
Q5- The E-Government doesn't offer all the services that I need online	3.28	1.199
Q6- E-government system is enhancing tasks effectiveness	3.55	1.059

On the other hand, the perceived usefulness ratings were above neutral and respondents felt that egovernment e-services are useful in relation to fulfilling the necessary tasks related government services even though some services are still being developed. Also, they felt that the e-government e-services will enhance their tasks' effectiveness.

Perceived Risk

Table 6. Perceived risk

Item	Mean	Std Dev
Q7- By using E-government system, I have no problem with personal information privacy.	3.57	1.102
Q8- I am confident that current e- government system will perform as expected	3.67	1.139
Q9- Relying on the provided information in current e-government system would be risky.	3.25	1.41

For perceived risk, Table 6. shows that the majority of the respondents felt their personal information is less at risk while using the egovernment e-services. They were also having confidence with the current e-government system and it will perform as expected. Further, the respondents felt that the information provided by the current e-government system is reliable and less risky.

Trust in Technology

Table 7. Perceived trust in technology

Item	Mean	Std Dev
Q10-E-government system website is secure all time.	3.27	1.168
Q11-E-government system website can be accessed all the time.	3.57	1.155
Q12- E-government system website is reliable all the time.	3.35	1.227

Table 7. describes perceived trust in e-government technology. Basically, the respondents think the e-government technology should be secured all the time. This will encourage citizen to use the e-services as provided. The table also shows that the majority of the respondents agree that E-government system website can be accessed all the time. With good accessibility of the e-government system it will lead to high use of the e-services. The table shows that the majority of the respondents agree that E-government system website is reliable all the time.

Perceived Intention to Use

Table 8. Perceived intention to use

Item	Mean	Std Dev
Q13- Intend to continue using E-government in the future.	4.34	0.968
Q14-I intend to frequently use E-government in the future	4.29	0.987

Intention to use is measuring the anticipation to use e-government e-services in the future. Here, the items are highly rated by the respondents. This indicates that the respondents anticipated themselves that they will be using the e-services provided in the future. Perhaps they had experienced using some e-services that had been installed by government and they intended to continue using e-services. As highlighted earlier that many e-services by various ministries or government agencies were being implemented to provide better and efficiency services from them to the users. Also, the respondents indicate they will frequently use e-government services in the future.

Measurement of Association

Table 9. Correlation matrix for factors association

Variable	Usefulness	Risk	Trust	IU
Ease of Use	0.205*	0.228*	0.283**	0.545*
Usefulness		0.430**	0.483**	0.250*
Risk			0.691**	0.284*
Trust				0.271*

Note: ** indicates significant at 0.01 and * indicates significant at 0.05

Table 9. highlights the degree of positive association and significant between variables. There is a moderate positive association between perceived ease of use and intention to use. This indicates the citizen will use the e-government e-services provided it is easy to use them. On the other hand,, perceived risk and trust in technology is positive significant related. This reflects that the citizen has trust in the e-government technology since they are able to access the website all the time and confidence with the implemented system. As for the others, all variables have a positive significantly weak correlation with intention to use. These suggests that all variables studied are of importance in e-government e-services adoption.

Table 10. Hypothesis testing

Hypothesis	P-value	Result
H ₁ : There is relationship between perceived usefulness and intention of use of E- government.	p-value = 0.002 < 0.01	Accept H ₁
H ₂ : There is a relationship between risk and intention to use E-government.	p-value = 0.000 < 0.01	Accept H ₂
H ₃ : There is relationship between intent to use E- government and perceived easy to use.	p-value = 0.000 < 0.01	Accept H ₃
H ₄ : Trust in technology is related to intention to use.	p-value = 0.001 < 0.01	Accept H ₄

Exploring Further Relationship

Table 11. Regression results

	Dependent variable: Intention to Use				
Independent					
Variable	b	Beta	t	sig	r
Ease of Use	.371	.497	6.986	.000	0.545*
Usefulness	.061	.094	1.196	.234	0.250*
Risk	.090	.137	1.439	.152	0.284*
Trust	006	010	106	.916	0.271*

a. Dependent Variable: Intention to Use with r = 0.575 and

Table 11. presents the further relationships assessment of intention to use of e-government e-services. An r² of 33% was obtained from the output of the regression model. The main contribution in this prediction is contributed by perceived ease of use with r² of 29%. This indicates that any kind of e-services implemented should be as of easy to use as to ensure high usage. Other variables, as shown in Table 11., are not significantly contributed, however they are of importance to consider in e-government services implementation.

5. Conclusion

The outcome of the research findings is to understand the factors that affect the use of e-government among DU student to know their prospective and viewpoints. This study conducted a literature review to address the gap in the knowledge in the youths' acceptance field of e-government and to outline the factors that could affect the use of e-government. In the researchers' prospective view, the result of the data shows that most of the responds from the students (the youth) are positive. This is as shown in the data analysis charts in the previous section.

The results show that the students (the youth) will use the e-government if they trust the technology; if it is easy to use; if it is useful for them and if it has no risk. The study found that amongst the factors, the perceived ease of use of the e-services as the main factor to pay attention to when developing egovernment e-services application. On the other hand, the students do not use e-government eservices because of the lack of knowledge about egovernment e-services availability. The main purpose of this study is to understand the factors that affect the use of e-government among the youth, the researchers notice that a number of them (students) are unaware of e-government. The lack of knowledge may affect the use of e-government eservices in the future. Thus, the government should focus on disseminating more information via advertisements, promotions and/or training programs related to e-services to their youths. As such, egovernment may possibly be fully utilized in the future.

 $r^2 = 0.330$

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