



M-Government: Measuring the Factors that influence Mobile Government Services Acceptance among Bahraini Youth

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ABSTRACT

In recent years, the advancement of Information and Communication Technologies (ICTs) and particularly the rapid changes in mobile technologies have led to the development of new applications. Many governments worldwide have started moving towards Mobile Government (M-Government) as M-government can be a powerful component of the e-government that could facilitate more and better services to the citizens. For a better application of these services, it is important to investigate the factors that influence the intention to use M-government services. Therefore, this study is to investigate the factors that influence the intention to use M-Government services among Bahraini Youth. The theoretical model that was developed by [1] was employed for this purpose. The model is tested through a survey administered to Bahraini Youth. Results suggested Perceived Trust in Technology, Perceived Service Quality, and Perceived Compatibility affect Youth's intention to use M-services. The results also revealed that Ease of Use and Usefulness are antecedents to attitude toward using M-services. This research provides mobile service providers in Kingdom of Bahrain with a practical and communicable checklist of contextual and conditional factors, which are seamlessly integrated, and cover the end user's (Youth) perspectives which should be considered as the cornerstone for any M-Government project.

Indexing terms/Keywords

M-Government, Youth, Acceptance, Mobile Technology Acceptance model (TAM).

Academic Discipline And Sub-Disciplines

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INTRODUCTION

The attractive and efficient features of '3G' and '4G' enabled mobile phones have attracted a lot of people into the world of wireless network specially the Youth sector. Periodical enhancements in the mobile devices have encouraged public and private sectors to use them as a platform to serve the citizens and to offer them vital services such as health care, transportations, governance, public safety, education, etc.

Therefore, the significant of Mobile Technologies are becoming more observed than it was in the past, especially in the public sector as new concept that is becoming widely exchanged that is called 'M-Government'.

M-Government is "the innovative concept, employed by governments to utilize mobile technologies to communicate and offer services to the citizens" [1]. The difference between e-Government and M-Government resides in the technique of the transformation of the public services [2]. E-Government offers services through wired network with interactive and intelligent web applications. On the other hand, M-Government comes from the competences of applications supporting mobility for citizens, businesses and internal procedures to support mobility of the typical challenges of E-Government are naturally shared by the M-Government efforts [3].

The M-Government in Kingdom of Bahrain started since the first quarter of 2010 after extensive studies conducted by the e-Government Authority in May 2009. There are three types of M-services which are: SMS, WAP and Mobile applications (one application per service). There are two strategies that the Government adopts; the first strategy is to provide 167 M-Services and the second one is to increase it to 200 M-Services.

The success of M-Government requires active engagement by both government and its citizens. Providing is one and only aspect of the M-Government equation. However, the more challenging aspect is achieving acceptance and widespread persistent use of M-government by citizens [4,5].

There is a growing body of academic research which has examined acceptance of M-Services among users [6, 7, 8, 9,1]. Number of theoretical models are available that attempt to explain the relationship between user's attitudes and beliefs in use of technology including the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), Unified Theory of Acceptance and Use of Technology (UTAUT), and the Technology Acceptance Model (TAM). The objective of this study is: to examine the factors that affect Youth acceptance of using M-Government in Kingdom of Bahrain.

RESEARCH MODEL AND HYPHOTHESES

This research employed the theoretical framework provided by reference [1] as shown in Fig 1 in which they identified nine major factors as significant antecedents of the intention of citizens to use M-Government. They developed their framework based on several sources including the Theory of Reasoned Action (TRA), the Unified Theory of Acceptance and Use and the Technology (UTAUT), and Acceptance model (TAM) [10], various theories in information systems, social psychology, economics, and culture; and recent published literature on mobile internet or service adoption [11, 12,13].

The following hypotheses are postulated:

H1a: The perceived usefulness of the M-Government service has a significant effect on the attitude towards using m-government service

H1b: The perceived usefulness of the M-Government service has a significant effect on the behavioral intention to use m-government service

H2a: The perceived ease of use of the M-Government service has a significant effect on the attitude toward using M-Government service.

H2b: The perceived ease of use of the M-Government service has a significant effect on the perceived usefulness of M-Government service.

H3: Attitude toward using M-Government service has a significant effect on behavioral Intention to use M-Government services.

H4: Social influence has a significant effect on behavioral intention to use m-government services.

H4a: Social influence has a significant effect on perceived ease of use of M-Government services.

H4b: Social influence has a significant effect on the perceived usefulness of M-Government services.

H5: The perceived service quality of M-Government service has significant effect on behavioral intention to use M-Government service.

H6: Perceived cost has a significant effect on behavioral intention to use M-Government service.

H7: Perceived risk has a significant effect on behavioral intention to use M-Government service.

H8: Perceived trust in government has a significant effect on behavioral intention to use M-Government service.

H9: Perceived trust in technology has a significant effect on behavioral intention to use M-Government services.

H10: Perceived compatibility has a significant effect on behavioral intention to use M-Government services.

H10a: Perceived compatibility has a significant effect on perceived ease of use of M-Government services.

H10b: Perceived compatibility has a significant effect on the perceived usefulness of M-Government service.

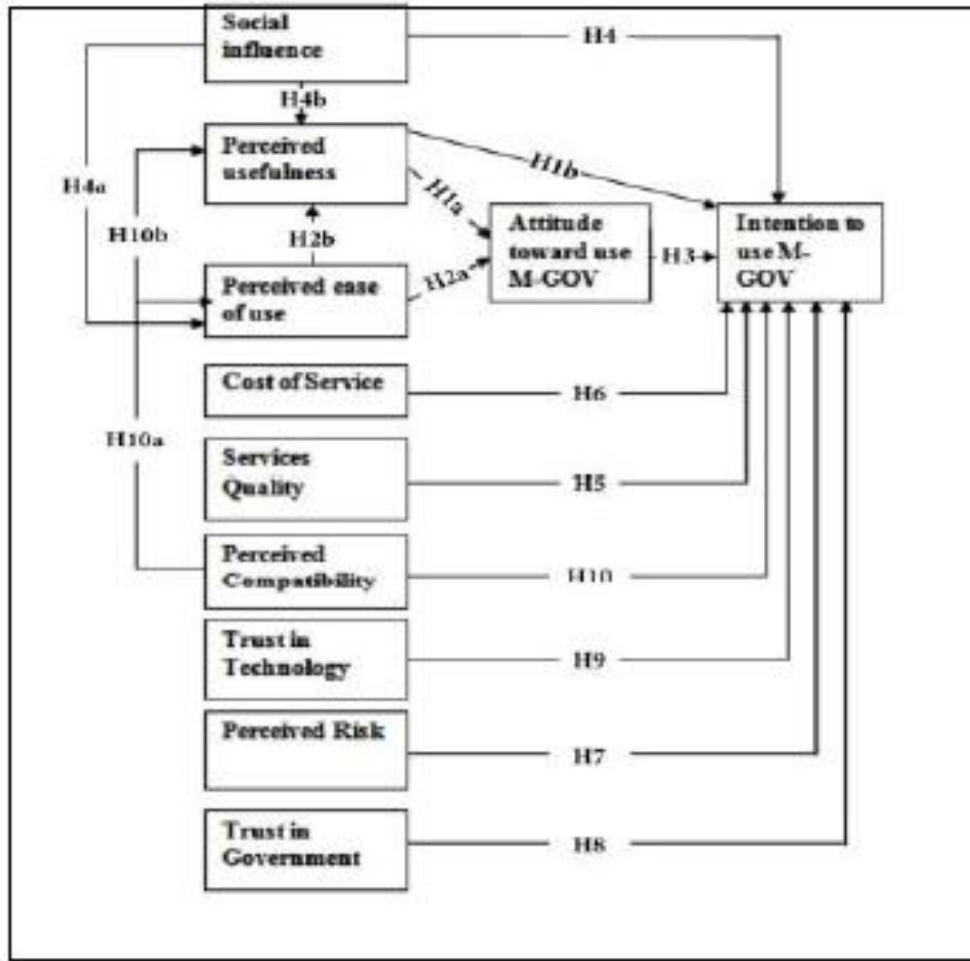


Fig 1: Factors influence M-Government services Model [1]

DATA COLLECTION

A total of 136 citizens responded to the questionnaire survey. The data from 136 respondents were analyzed using SPSS. The demographic distribution as shown in Table I that 72.1% of the respondents were male and the remaining 27.9% were female. With respect to age, most of the respondents (52.2%) were between 22 to 24 years. This age group has potential to become users of m-government because of their familiarity with the latest mobile technologies [14, 15].

Table 1. Demographic Distribution

Attribute	Demographic Distribution	
	Frequency	Percentage
Gender		
Male	98	72.1%
Female	38	27.9%
Age		
16-18	7	5.1%
19-21	38	27.9%
22-24	71	52.2%
25-27	10	7.4%
28-30	10	7.4%



QUESTIONNAIRE DEVELOPMENT

The items were formulated as Likert-type statements anchored by a five -point scale, ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). Generally the researchers are to obtain the level of validity by asking questions and look for the answers, and often look for the answers in the research of others. The values of Component Extracted are all above 0.5 which are at acceptable level [16]. Table 2 presents the results of alpha coefficients for each factor with reliability analysis. Cronbach’s alpha values of each construct are from 0.797 to 0.951. Indicating a level above 0.70; the threshold recommended by reference [17].

Table 2. Cronbach's Alpha for Each Factor

Factors	Cronbach's Alpha
Perceived Usefulness(PU)	.880
Attitude Toward Use M-Gov services (ATU)	.802
Social Influence (SI)	.797
Service Quality (SQ)	.951
Cost of Service (CS)	.822
Perceived Risk (PR)	.800
Perceived Trust in Technology (PTT)	.881
Perceived Trust in Government (PTG)	.883
Perceived Compatibility (PC)	.837
Perceived Ease Of Use (PEOU)	.910
Behavioral Intention (BI)	.878

HYPOTHESES TESTING

As the research model involves more than one dependent variable the multiple regression analysis is used to test the hypotheses. In addition to this, the linear regression cannot test all the relationships in a single statistical test; therefore, it is necessary to use three separate regressions to test the model fully [18].

The first regression analysis was run for H1b, H3, H4, H5, H6, H7, H9, and H10, BI is the dependent variable while SI, SQ, PU, ATT, CS, PC, PTT, PTG and PR are the independent variables

The coefficient of determination (R^2) measures the proportion of the variance of the dependent variable about its mean that is explained by the independent or predictor variables [19]. (The higher the value of R^2 , the greater the explanatory power of the regression model.

The regression model R^2 value for the dependent variable behavioral intention (BI) is 0.669, meaning that 66.9% of the variance in behavioral intention is explained by the regression model. This value is considered high and thus the power of the regression model is good.

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The regression model R² value for the dependent variable behavioral intention (BI) is 0.669, meaning that 66.9% of the variance in behavioral intention is explained by the regression model. This value is considered high and thus the power of the regression model is good.

Table 3. Behavioral Intention Regression Analysis

Model	Standardized Coefficients		T	Sig.
	Beta			
SI	.108		1.540	.126
CS	.059		.929	.354
SQ	.190		2.333	.021
PC	.328		3.801	.000
ATT	-.049		-.479	.633
PR	-.044		-.659	.511
PTG	.076		.903	.368
PTT	.227		2.454	.015
PU	.106		1.069	.287

Table 3 presents these first regression variables. The results show determinants of BI – SI, PU, ATT, CS, PTG and PR were found to be insignificant. However, SQ, PC, and PTT were found to be significant.

The regression model supports the following hypothesis:

H10: Perceived Compatibility has a significant effect on behavioral intention to use M-Government services ($\beta = 0.000$, $p < 0.05$).

H9: Perceived Trust in Technology has a significant effect on behavioral intention to use M-Government service ($\beta = 0.015$, $p < 0.05$).

H5: The Service Quality of M-Government service has significant effect on behavioral intention to use M-Government service. ($\beta = 0.021$, $p < 0.05$).

However, it does not support the following hypotheses:

H1b: Perceived usefulness of the M-Government service has no significant effect on the behavioral intention to use M-Government service.

H3: Attitude toward using M-Government service has no significant effect on behavioral Intention to use M-Government services.

H4: Social influence has no significant effect on behavioral intention to use M-Government services

H6: Perceived Cost has a significant effect on behavioral intention to use M-Government service.

H7: Perceived Risk has a significant effect on behavioral intention to use M-Government service.

H8: Perceived Trust in government has a significant effect on behavioral intention to use M-Government service.

The second regression analysis was run for H2b, H4b and H10b. PU is the dependent variable while PEOU, SI and PC are the independent variables.

Table 4 presents these second regression variables. The results show that perceived ease of use (PEOU) and social influence (SI) have a significant effect in predicting of PU.

The regression model R² value for the dependent variable usefulness (PU) is 0.653, meaning that 65.3% of the variance in usefulness is explained by the regression model.

Table 4. Perceived Usefulness regression Model

Model	Standardized Coefficients		t	Sig.
	Beta			
SI	.272		4.263	.000
PC	.190		2.384	.019
PEOU	.469		6.116	.000



The regression model R² value for the dependent variable usefulness (PU) is 0.653, meaning that 65.3% of the variance in usefulness is explained by the regression model.

The second regression model supports the following hypotheses:

H2b: Perceived ease of use of the M-Government service has a significant effect on perceived usefulness of the M-Government service ($\beta=0.469, p<0.05$).

H4b: Social influence has a significant effect on the perceived usefulness of M-Government services ($\beta=0.272, p<0.05$).

H10b: Perceived compatibility has significant effect on perceived usefulness of the M-Government service ($\beta=0.190, p<0.05$).

The third regression analysis was run for H4a and H10a. Perceived Ease of Use (PEOU) is the dependent variable while SI and PC are the independent variables. Table 5 presents the third regression model variable. Results show that the two determinants of PEOU were found to be significant in predicating PEOU M-Government services.

Table 5. Perceived Ease of Use Regression Model

Model	Standardized Coefficients	t	Sig.
	Beta		
SI	.157	2.212	.029
PC	.642	9.064	.000

The regression model R² value for the dependent variable PEOU is 0.552, meaning that 55.2% of the variance in PEOU is explained by the regression model.

The third regression model supports all hypotheses:

H10a: Perceived compatibility has a significant effect on perceived ease of use M-Government services ($\beta=0.642, p<0.05$).

H4a: Social influence has significant effect on perceived ease of use of M-Government services ($\beta=0.157, p<0.05$).

The fourth regression analysis was run for H1a and H2a. Attitude toward use Technology (ATT) is the dependant variable while PEOU and PU are the independent variables. Table 6 presents the fourth regression model variable. Results show that the two determinants of ATT were found to be significant in predicating ATT toward use M-Government services.

Table 6. Attitude Regression Model

Model	Standardized Coefficients	T	Sig.
	Beta		
PEOU	.236	3.130	.002
PU	.625	8.284	.000

The regression model R² value for the dependent variable ATT is 0.669, meaning that 66.9% of the variance in ATT is explained by the regression model.

The fourth regression model supports the following hypotheses:

H1a: Perceived usefulness of the M-Government service has a significant effect on the attitude toward using M-Government service ($\beta=0.625, p<0.05$).

H2a: Perceived ease of use of the M-Government service has a significant effect on the attitude toward using M-Government service ($\beta=0.236, p<0.05$).

RESULTS AND DISCUSSION

This research main objective was to investigate the factors that influence the acceptance of M-services by Youth in Kingdom of Bahrain Building on the existing Technology Acceptance using the model of acceptance proposed by reference [1]. Overall, good support was found for the presented hypothesis using a sample of 136 participants.

The factors that may affect Youth intention to use M-services are: Perceived Usefulness, Perceived Ease of Use, Attitude toward use, Perceived compatibility, Social influence, Perceived Risk, Perceived Cost, Perceived Trust in Technology, Perceived Trust in Government Service Quality, and Behavioral intention.

The factors that support the Behavioral Intention in our result were Perceived Compatibility, Service Quality and Perceived Trust in Technology; which had a positive effect on user's intention to accept M-Government service. As reference [20] suggested an idea that more compatible was more convinced to the potential adopter; therefore, its adoption could be accelerated. New M-Government services should be seamlessly integrated into citizen transaction without requiring extraneous steps, equipment and training. Therefore, the M-Government services should be designed in a way to enforce these aspects by citizens. The M-Government services experience should also be helpful to enhance Youth lifestyle.



However, Social Influence, Perceived Risk, Perceived Trust in Government, Perceived Cost and Attitude toward were rejected by the tested hypotheses are not significance toward Youth Behavioral Intension.

The influence of Usefulness was determined by Perceived Ease of Use, Social Influence and Perceived Computability; which had a positively effects on user's perceived usefulness of accepting M-Government services. Relying on the finding, friends and families had a great influence toward adopting the M-Government services. Also, the Youth believe that if the services were easy, easy to get the services and understandable; it will enhance them to believe that the services are useful. These results should give an insight for designing the M-Services in a highly easy manner with the focus on the social context of the Youth who influence their acceptance toward using M-services.

The third regression tested the relationship of Perceived Ease of Use with Perceived Computability and Social influence. The results revealed that both the Compatibility and Social influence had significant effects on Youth to consider that if the service was compatible; it will be easy to use. Therefore, the designs of the M-Services have to be understandable and well compatible with their needs. Also, the result illustrated that the Social Influence toward using the M-Government services will amplify the ease to use them because the more people around the person using such of technology, it will give them the encouragement to try it and adopt it.

At last, Attitude toward Using the M-Government was supported by two factors. Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) were the original constructs in TAM, and they have been found to affect the Acceptance of Technology-enabled products and services by many prior studies. Therefore, it is not surprising to find that they also affect Youth's acceptance of M-Government services. According to reference [21] and [10], it was suggested that the inclusion of attitude is not meaningful. But our results suggested otherwise Therefore, the Government should make sure that offered M-Services should be useful to the Youth and target their needs as well as easy to use as a way to enforce their attitude toward using M-Service.

CONCLUSION AND FURTHER WORKS

This research was investigating the factors influence Youth's acceptance of using M-Government Services in Kingdom of Bahrain. Toward the achievement of these objectives, quantitative approach through which a questionnaire as used as a research instrument.

The findings suggested some factors that have significant influence on accepting M-services by Youth which are Perceived Trust in Technology, perceived service quality, and Perceived Compatibility. The result also revealed that attitude toward using M-services is affected by ease of use and usefulness.

The strength of this research resides on its scope as it concerned with a new area of E-Government application that need to be measured specially for Youth sector in the context of Kingdom of Bahrain it just started their applications since 2010. However, the weakness resides on the difficulty of generalizing the results because of small sample size that was included in this research.

The findings from this study have a number of important implications to both researchers and practitioners. Since this is the first known study that investigates Youth acceptance of M-Government services in the Kingdom. It will provide the theoretical foundation for researchers to develop future studies. For practitioners, understanding the key constructs in the proposed research framework is crucial in the design and development of M-Government services with high citizen acceptance. Using the research results, the following recommendations can be suggested:

-New M-Government services should be seamlessly integrated into citizen transaction without requiring extraneous steps, equipment and training. Therefore, the M-Government services should be designed in a way to enforce these aspects by citizens

-The M-Services should be designed in a highly easy manner with the focus on the social context of the Youth that influences their acceptance toward using M-services.

-The design of the M-Services has to be understandable and well compatible with Youth experience, expectation and objectives.

-The Government should make sure that the offered M-Services are useful to the Youth and target their needs as well as easy to use as a way to enforce their attitude toward using M-Services.

As a future work, this research has to be expanded to increase the sample size with measuring other dimensions of M-services such as its impact on Youth quality of life and its impact on other stakeholders, including businesses, Government agencies, Non-profit organizations and Non-Government organizations.

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