

# The Evaluation of Service Quality for M-Gov: A Conceptual Framework Building by Extant Review

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**Abstract**—Citizens' perceiving m-government service quality has become a large challenge for the improvement of m-government in Jordan. This research has produced a model m-government service quality, the perceived service quality on m-government context upon citizens' trust and their willingness to use it, little attention has been given to examining the perceived service quality which contributed by m-government from citizens' perspective. This paper presents a systematic and analytical review of the contemporary literature on citizens' perceiving m-government SQ, with a singular focus on the common critical factors affecting citizens toward m-government SQ. The prior literature was recognized through eight well-known journals, from 2004 to 2017. Academic studies were examined if they contained a relevant discussion of the antecedents or factors influencing citizens' perceptions in the m-government context. This research supports the elements of m-government service quality by (PLS) analysis and then examines the proposed conceptual model using modeling of the structural equation. The conclusions of the study present that the concept of m-government service quality has three relevant dimensions: ease of use, trust, and web design are positively correlated with the m-government service quality.

**Keywords**— *M-government, SQ, Service quality, Citizens perspective, Ease of use, Trust, and Web design*

## 1. Introduction

The extensive diffusion of Information Communication Technology has produced a new approach in delivering services at all levels, which includes businesses, citizens, and government. To provide adequate management of government information, providing better services and clarity to the community. Thus, according to Salameh and Hassan [1], the quality of service is essential, particularly the service quality of the internet environment (e-service). The consumers are expecting greater quality higher, services providers must enhance the service quality by enhancing operational processes, recognizing problems speedily and measuring consumers' satisfaction and pleasure to meet the needs of consumers' expectations [2].

Service quality has been described as the distinction between consumers' expectations for service performance and their thoughts of the received service [3, 4]. When performance does not meet their thoughts, quality is assessed as low and when performance outperforms their thoughts, the quality is assessed to be high. Therefore, in any service quality evaluation, consumer expectations and thoughts are the keys. Furthermore, Asubonteng, et al. [3] suggest that when the quality of service rises, the satisfaction of citizens and their intentions to reuse the service will rise. The main dimensions that were chosen for analysis:

- 1) Ease of use: the amount the user accepts using services with no extra cost [5, 6].
- 2) Trust: the citizen's reliance and confidence regarding the website freedom from risk of hazard or doubt through the e-service process.
- 3) Web design: display and layout of date, the contrast of color, graphics, and size of web pages.

Many researchers have focused on e-government service quality under the impact of service quality and information quality, with many approaches. In this study, citizens are recognized as clients for m-government service, the government issuing the service are considered as providers. Accordingly, this research aims to clarify m-government service quality based on the dimensions of ease of use, web design, and trust that will help in evaluating e-government service quality.

## 2. Literature review

### 1.1. Quality of e-government services

The accelerated growth in global communication and information technology for the past two decades involves government services and information, and the Internet is a vital service. While each government agency can present a standalone site which might or might not offer a variety of interactive services, it is the interactions complexity with other agencies of the public sector's, suppliers and citizens that place the

government in a notable position in the development of integrated services [7].

In the state of e-government, a gateway that connects through the government agencies, interconnectivity, service quality contains information and stakeholders' thoughts of their online expertise concerning their jobs or inquiries [8]. User thoughts of quality are exposed by meeting the challenge in reaching information and services, and lack of online support [9]. There are various country studies of M-government service quality using various evaluation models.

Furthermore, there are various ways to evaluate e-government quality of service, changing the traditional quality of service models, improving simplified or complicated models to capture a variety of opinions, and replies from the stakeholders. Thus, there is an inadequate agreement about the detail of these models, they attend to share a familiar approach in the variables to be evaluated, that is the simplicity of access and design, the user can obtain the result that is required from the site or portal [10-12].

### 1.2. Global e-government development

M-government can be defined as the mobile version of government pointed at developing and enhancing public services proposed by the government, with additional thoughts such as participation, responsibility, and transparency [13].

e-Government can be classified into four types, specifically, (1) G2B (government to business) for cooperation between the government and companies (2) G2C (government to citizen) for interaction between the government and the society, (3) G2G (government to government) for the cooperation between fellow government agencies, (4) G2E (government to the employee) for cooperation between the government and its employees [14]. this research focused on the government to citizens.

### 1.3. Development of study model

#### 1.3.1. Association between ease of use and perceived m-government service quality

Ease of use is the extent to which users believe that using an information system would be loose of effort and work. A study in information systems has accumulated evidence for the presence of an effect of ease of use on initial user approval and sustained practice of systems [15].

Gefen and Straub [16] suggest that the importance of perceived ease of use will alter based on the type of

task being discussed. They hypothesize that ease of use will not have a significant impact on practice for something that is task-oriented, such as making a buying online, but will be important in a task that is more fundamental, such as collecting information.

Furthermore, a study by Ramayah and Lo [17] discovered that technologies or systems, which seemed to be easy to use and easy to learn, would be more helpful from the user perspective. Van Bruggen and Wierenga [18] hypothesize that ease of use will be positively related to the individual impact of m-government systems.

Ease of use has described usability in the online context [19]. Website search functions, web design, speed, download, and organization are the main elements that impact usability [20-22].

According to Jun, et al. [23], e-government websites should present a well-organized and well-structured site, which promotes use. E-government sites should be user-friendly by presenting easy steps for online services, with logical registration actions. Therefore, difficulty in using the website, complexity to find the required information, and in using online services will affect user disappointment. This is confirmed by researchers: a simple and easy to remember URL can help in reaching public sites [24]. Based on Yoo and Donthu [25], Based on what was mentioned before ease of use of the website is important in influencing online user satisfaction. Thus, the researcher hypothesis as follows:

#### 1.3.2. Association between trust and perceived m-government service quality

Trust is a very powerful dimension for using service online. It involves the policies to guard information, data, and all processes for a transaction [2]. Trust is an essential construct that concludes whether people will use e-government sites or not [26-29]. Though there is no generally accepted definition of trust and it has attracted the attention of several researchers [30-33].

Tan and Sutherland [31] claimed that trust various definition indicates the diversity of the issues. According to prior practitioners that defined the characteristics of trust, they integrated that the majority are focused on the concepts of competence (ability) and integrity, and the role of risk in promoting trust was also covered [34]. Trust includes security and privacy. The effect of trust as a critical phase of e-service has already been emphasized in other studies [35, 36].

Privacy contains the assurance of personal information, not giving personal information for others, preserving anonymity, ensure archiving of private data, and giving informed permission. Lastly, security is preserving users from the risk of financial disaster and fraud by using the user credit cards or any financial data it ensures that the entire transaction process is taken out the way it was assumed to be. Security can be improved by encrypting information, by access control, by having plans for obtaining passwords and usernames [37].

### 1.3.3. Association between website design and perceived m-government service quality

This dimension relates to the quality of the data itself as well as to the display and layout of it, like the use of color, graphics, and size of web pages. The quality of information is anxious characteristics as completeness, correctness, conciseness, and relevancy are recognized as positive while too many or too few information is both considered to be negative elements. Timeliness of information is also a critical factor since previous work has explained that government sites are not refreshed frequently [10].

The visual impression of a web page has an important influence on user experience and has significant implications for powerful communication [38] and, in particular, the interaction users have with a website [39].

Many elements develop website design, such as hyperlinks, customized information display, functionality, customized information display, and answer time [40, 41]. Links to other sites and the availability of search abilities were recognized during the study as being essential e-SQ items.

The above explained are displayed in the model Fig. 1, that describes how the m-government service quality is defined by, website design, ease of use, and trust.

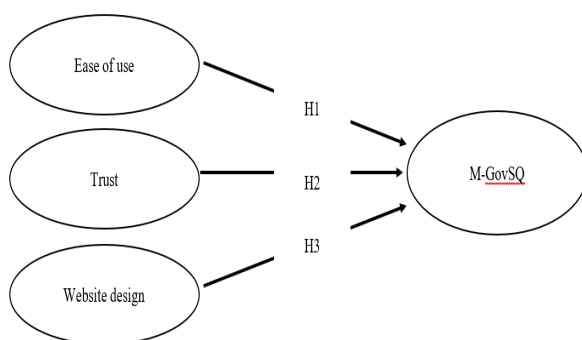


Fig. 1. The study model

## 3. Methodology

### 1.4. Sampling data

Data was collected from a survey that was presented to 223 employed citizens in the public sector at a Jordanian public university in Irbid, Zarqa, and Amman. To take part in this study, the employed citizens must have made at least one online government transaction within the previous one year. Descriptive data from respondents are presented in Table 1. About 69% of the members showed that they abort online government transactions at least once for any purpose. Some of the abandoning reasons of government online transaction were slow speed of the internet (16.2%), security and privacy (27.1%), whole price (handling and sailing) (33%), other reasons including concerns about quality, turn of mind, payment choices (10%).

**Table 1**  
Data of respondents.

Gender	54% male; 46% female
Education	high school certificate or lower degree (12%), undergraduate degree (56%) and master or higher degree or above (32%)
Age	20-29 (22%), 30-39 (41%) and $\geq 40$ (37%)
Experience using e-government	43% (<3 Times), 39% (3-5 Times) and 18% (> 5 Times)
Abandoning transaction	Yes (69%); No (31%)

A sum of 223 final samples from the distributed surveys was gathered in this study. This search leads to a two-organize investigation based on (SEM-PLS), including the structural model analysis and measurement model. The survey of this research was classified into two parts; first, the researcher asked the respondent about their demographic type of education, age, and duration of user involvement in using m-government websites. The second, the researcher estimated the indicator items that were used in the above hypothesis. From the distribution of the surveys, the gathered data reflect 54% male and 46% female. In overall, respondents aged 20-29 (22%), 30-39 (41%) and  $\geq 40$  (37%). Meantime, based on experience using e-government as much as 43% (<3 Times), 39% (3-5 Times) and 18% (> 5 Times). based on education, the high school certificate or lower degree (12%), undergraduate degree (56%), and a master or higher degree or above (32%).

#### 4. Data analysis

Using (SEM-PLS), two aspects must be done. The first aspect is examining validity and reliability, the second aspect estimates path coefficients and descriptive structural models. The goal of these two aspects to assert whether the construct is reliable and accurate; both aspects are used to support the relationship among constructs [42, 43]. (SEM-PLS) is held because it is reasonable for explaining causal associations between build factors and at the same time can accomplish model development [44].

#### 1.5. Content validity of variables

In this study, construct validity implies that all measure construct used must expose a high level of loadings in their particular constructs. the prior study was explained the multivariate investigation like that, the constructs of measuring should have a high load contrasted to the other constructs in the same column and row. Thus, factor loading has to be employed to evaluate content validity [45, 46]. As the researcher noted in the follow's tables (2, 3) all factors were loaded positively on respective constructs, that demonstrate the required content validity in the measuring model used possesses.

**Table 2**

Cross loadings of the instruments.

Variables	Items	EOU	TR	PRK	MGSQ
Ease of use	EOU1	<b>0.734</b>	0.460	0.366	0.406
	EOU2	<b>0.776</b>	0.522	0.241	0.296
	EOU3	<b>0.862</b>	0.342	0.225	0.324
Trust	TR1	0.414	<b>0.792</b>	0.266	0.125
	TR2	0.243	<b>0.844</b>	0.175	0.325
	TR3	0.406	<b>0.732</b>	0.099	0.404
	TR4	0.420	<b>0.822</b>	0.213	0.436
Web design	WD1	0.056	0.198	<b>0.706</b>	0.109
	WD2	0.103	0.156	<b>0.834</b>	0.244
	WD3	0.208	0.187	<b>0.783</b>	0.112
M-GovSQ	MGSQ1	0.451	0.328	0.332	<b>0.844</b>
	MGSQ2	0.302	0.239	0.129	<b>0.752</b>
	MGSQ3	0.449	0.404	0.208	<b>0.801</b>

**Table 3**

The significance level of factor loadings.

Constructs	Items	Loadings	Standard Error (STERR)	T Value	P-Value
Ease of use → M-GovSQ	EOU1	<b>0.734</b>	0.140	22.760	0.019
	EOU2	<b>0.776</b>	0.067		
	EOU3	<b>0.862</b>	0.056		
Trust → M-GovSQ	TR1	<b>0.792</b>	0.079	33.120	0.045
	TR2	<b>0.844</b>	0.118		
	TR3	<b>0.732</b>	0.229		
	TR4	<b>0.822</b>	0.189		
Web design → M-GovSQ	WD1	<b>0.706</b>	0.048	9.886	0.000
	WD2	<b>0.834</b>	0.241		
	WD3	<b>0.783</b>	0.102		
M-GovSQ	MGSQ1	<b>0.844</b>	0.032	12.654	0.050
	MGSQ2	<b>0.752</b>	0.080		
	MGSQ3	<b>0.801</b>	0.010		

#### 1.6. Outer model validation

The related examination for the utilized model used is discriminant validity to test each construct, reliability to guarantee that each item is internally consistent, and

convergent validity. Each item is examined with a similar loading factor. Factor loading is given to explain the construct by adjusting validated questions with values higher than

0.6; this indicator is applied to describe individuals' reliability [45]. Based on the analysis statistics outcomes, all measurement items should meet the standard. Composite reliability (CR) for each construct

is presented in Table 4. All CR values for each construct are greater than the value threshold of 0.7 [46], showing constructs are internally consistent.

**Table 4**

Convergent validity of variables.

Constructs	Cronbach's Alpha	Composite Reliability	AVE <sub>b</sub>	R square
Ease of use	0.71	0.74	0.81	
Trust	0.84	0.92	0.77	
Web design	0.79	0.86	0.75	
M-GovSQ	0.89	0.94	0.86	0.76

In convergent validity, examine each item using factor loading and composite reliability and AVE. If the three factors value is higher than 0.5, then the model is assumed to have sufficient convergent validity [47]. In Table 1 that the AVE for the model variable in this research is between 0.75 and 0.86, showing that the model is of good value.

## 5. Discussion, limitations, and future study directions

This research proposes a conceptual framework for the factors of m-government on the literature gap and the SERVQUAL Model. It is expected that the suggested framework expands the SERVQUAL Model to include more than technological factors [48]. But other factors that should be studied, such as trust, ease of use, web design, agencies of government factors, and citizens' perspective as factors that impact service quality in m-government.

Four fundamental assistance is the result of this study. First, this research studies literature that talks about m-government service quality by explaining the concept of service quality and the concept of m-government. By combining the prior research on the concepts of service quality, and m-government, this research presents a complete understanding of service quality of m-government. Second, this research sheds light on the factors that impact citizens' measuring service quality in m-government by a precise review of the literature on service quality in the m-government context. In this research, three types of factors affecting citizens'

service quality to adopt m-government are measured: trust, web design, and ease of use.

Like many other studies [49-50], this study had also limitations, particularly, as it is an ongoing study. First, the outcomes of this research are based on quantitative analysis more studies need to focus on qualitative research and secondary data analysis of citizens' service quality in m-government. Accordingly, the outcomes of this study cannot be generalized as complete unless the suggested framework is supported with the assistance of data that was gathered from the employed citizen of public universities. The second limitation is that the examination of the existing literature was recognized from eight well-known journals which are available in reputable electronic databases, with the attention of the keywords: "m-government"; "trust"; "citizens' perspective"; "ease of use"; "web design"; and "service quality". Next practitioners might investigate further related databases and journals with the use of other compounds keywords such as "responsiveness" and "reliability".

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