Exploring interaction’s quality attributes at Mobile Government services

To cite this article: Abdulla Jaafar Mohamed et al 2019 J. Phys.: Conf. Ser. 1339 012094

View the article online for updates and enhancements.
Exploring interaction’s quality attributes at Mobile Government services

Abdulla Jaafar Mohamed1*, Mohd Khalit Bin Othman2, Suraya Binti Hamid2, Ali Hussein Zolait3, and Norliya binti Ahmad Kassim4

1Faculty Of Computer Science And Information Technology, University of Malaya, Kuala Lumpur, Malaysia
2Department Of Information System, University of Malaya,Kuala Lumpur, Malaysia
3College Of Information Technology, University of Bahrain Sakheer, Kingdom of Bahrain
4Faculty of Information Management, Universiti Teknologi MARA (UiTM) Shah Alam, Malaysia

*a.desmal@outlook.com

Abstract. Popularity of smart devices among people leads organizations from different sectors to extend the channels of service delivery to maximize total beneficiaries. Mobile Government is one of these extended channels that use nowadays by government sector to allow end users performing the transactions with less time and efforts. Main features of mobile government services are the mobility which enables the public to perform their transactions online at anywhere and anytime. Dealing with smart devices for online services has limitations that need to be considering by the service provider to be sure that the delivered services meet the end users’ perspective. To measure satisfaction of m-government services, it required a compatible measurement scale that fits with the environment of such services. Using other S.Q. measurement’s scale (i.e., e-commerce, e-services, e-government) at the context of m-government leads to difficulties analysis of the service delivery process and inaccurate results. However, there’s a lack of service quality framework at the context of mGovernment services which is important nowadays to construct a compatible and suitable service quality measurement’s scale that must contain quality attributes that reflecting the environment of m-government. From this point, it encourages the researchers at the current paper to analyze the concept of mGovernment S.Q. with particular focusing on “interaction” attribute. This study uses a systematic literature reviews in the related fields of electronic S.Q., human-computer interactions, and mobile government services, which guided the researcher to identify the related sub-dimensions of interaction. Study finds that the sub-dimensions of interactions’ quality are: 1) User control, 2) Synchronicity, 3) Two-way communication, and 4) Responsiveness.
1. Introduction

Mobile Government (m-Government) is a concept describing the status of the collection of government services provided at the applications installed at smart devices like “iPad, iPhone, PDAs” to enable public perform their transactions at any time and anywhere. [1, p. 433]. It’s a form of governmental services targeted public with assisting of smart devices that connected to wireless internet connection[2]. Mobile government services is an extended form of the electronic services portal [3], [4]. Mobile government channel aims to allow the public accessing government’s information and services as a form of transparency. The form of m-government has unique characteristics that distinguished from the e-government portal, such as mobility and portability [5].

The technology of mobile government is extending the availability of such services for remote areas, by providing and supporting wireless infrastructure to avoid disconnection of services. It’s important to ensure the availability of satisfactions’ features that encourage end users to perform the transactions through mobile government platform to ensure continues uses of such services. To identify and analyses end-user satisfaction toward m-government services, it’s necessary to identify and construct a unique S.Q. measurement scale for m-government that can investigate the major issues in the context of the platform of mobile government. Lack of S.Q. measurement scale at the field of mobile government leads government authorities to use e-government service quality scale to apply it into the context of mobile government, which is considered difficulties to understand end-users’ satisfaction and expectations.

The study of [6] proposing a framework for service quality at m-government services that consisting of five dimensions measuring the criteria of mobile government based on the a) interactions between service provider and end users, b) measuring the quality of information provided through the platform, c) measuring the environment quality, d) measuring the quality of network, and e) measuring the quality of system, while the study of [7] proposing another framework for m-government service quality that consisting of four dimensions that were “interactivity, understandability, authenticity, and security”. Both studies [6], [7] agreed that there is a weak framework to measure the service quality at the context of mobile government platform which is important nowadays due to extending and popularity of mobile government services.

However, the main problem is that there is a weak framework measuring the service quality for mobile government services, and the current paper discussing one dimension of the S.Q. framework called “interaction”. By analyzing the service quality dimension of “interaction” at the context of mobile government platform, we will be able to identify the relevant sub-dimensions related to it, which provide a step to construct m-government service quality framework. Therefore, the main objective of this paper is to construct a comprehensive service quality framework for mobile government services in order to encourage government service providers to evaluate their services in term of quality.

2. Literature Review

a. Electronic Service Quality

A Service Quality is term refers to the strength of a business to meet or exceed the expectations of customer [9]. It generally acts as an overall judgment to the attitude of provided services and generally accepted based on previous customer’s satisfaction [10]. Service quality aims to provide the enhancement for organizations to perform the business tasks with best practice [11]. With increasing of business and customers, there was a necessary to provide unique criteria that can distinguish the best product or services from others based on standard quality criteria. Hence, study of [12] proposed a measurement scale for service quality called “SERVQUAL” which is base on multidimensional construct that contained ten dimensions “reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding the customer, and tangibles”, and later these ten dimensions were reduced to five dimensions only which are “reliability, assurance, tangibles, empathy, and responsiveness”. The service quality measurement scale of “SERVQUAL” was a well-known scale for the environment of offline services.

The development of ICTs has opened ways for organizations to lunch online services platforms and encourage customers to save time and efforts to get their needs through online services. By increasing the popularity of online services, there was a need to provide service quality scale for the electronic context to improve the service provided and maintain competitively.
Electronic service quality refers to “the extent to which a website facilitates efficient and effective shopping, purchasing, and delivery” [13]. When it’s come to online context, it’s difficult to use offline service quality measurement scales and applied them to online context due to unique features that are consisting at online context. Therefore, the service quality measurement scale “SERVQUAL” was reviewed and issued a unique measurement scale named “E-S-QUAL” that aimed to measure the quality of a website and it consisting of four main dimensions “efficiency, fulfillment, system availability, and privacy” [14]. Other scholars proposed a different measurement scale of e-service quality. Study of [15] proposed a scale targeted website quality of e-commerce and it consists of four main dimensions “Information and service quality, System use, Playfulness, and system design quality”. Study of [16] proposed a scale named “SITEQUAL” with four main dimensions “Ease of use, aesthetic design, processing speed, and security”.

However, the focused targets of e-Service Quality measurement scales are different. There are some of the measurement scales of e-service quality focusing of systems attributes [15], [17], [18] and others were focusing on quality of service [14], [16], [19].

b. The concept of interactivity

The human being is using the interactivity as a media to communicate with others. In the field of traditional business, the idea of interactivity is in the form of face-to-face and considered essential to deal with customers and to understand their perspective, feedback, etc. Academic researchers have defined the interactivity based on features of a particular medium, explaining the interactivity based on general criteria such as identifying the user control and reciprocal communication [20], [21], or describing it based on particular features such as chatbox, electronic form, etc. [22]. The authors [22], [23] stated that the investigation of the concept of interactivity is base on a user’s perspective, which analyzing how users perceive interaction at the communication process. The author [7] defined the concept of interactivity as “the degree to which participants in the communication process have control over, and can exchange role in, their mutual discourse”. Another definition of the author [24], which stated that it is “a measure of a medium’s potential ability to let the user exert an influence on the content and/or form of the mediated communication”.

With increasing the popularity of Information Technologies and fixed broadband internet among people, there was a need to enhance the interactivity into these technologies to improve e-business. Hence, electronic interactivity becomes more necessary to be focused and developed which leads academic researchers to study it. The context of mobile communication is different than the fixed broadband internet. In this case, the study of [25] stated that the unique features of mobile context are “interface, device, and use context”. Therefore, there is a need to extend the discussions of mobile’s interactivity due to its uniqueness and its popularity use, which can be enhanced and develop mobile government services.

3. Methodology

This study uses the systematic literature reviews in the fields of mobile government services quality by conducting a systematic literature review in the related fields of e-Service Quality, human-computer interactions, and mobile government services.

This study uses systematic literature review to form the conceptual framework of m-Government interaction’s quality attributes that is based on theoretical approach of “E-S-QUAL” model proposed by [8]. The first step is defining the research questions associated with targeted topic as a mean to guide for in-depth review. The second step is creating a search basis to direct identifying and selecting of studies from particular databases which is useful to focus on the scope of research and use of the relevant keywords (e-service quality, m-government, mobile interactions). These keywords guide researchers to form the query string (“e-service quality” AND “m-government” OR “mobile government”), (“e-service quality” AND “m-government” AND “interaction”), (“quality” AND “m-government” AND “interaction”), and (“e-service quality” AND “m-government” AND “e-interaction”).

By evaluating the main keywords among online databases, the researchers extracting the required studies and tabulate the relevant studies that are focused on current study. The results that have not focused on mobile interaction were ignore them.
The last step is synthesizing relevant literature reviews which are guide to develop of a conceptual framework. Therefore, the current paper aims to answer the three main research questions are:

RQ1: What are the relevant sub-dimensions of the interactions quality attribute of mobile government services?

RQ2: How can these interactions quality construct influence service delivery at the mobile government?

RQ3: How can m-government authorities execute their mobile applications with best interactions’ strategies?

At this stage, we exclude any researches that are not in the area of computer science, information system and management, to be able to analyze and investigate the sub-dimensions of interaction in the area of computer science and relevant areas. The period of uses literature reviews at the current study starting from the year of 2000-2017. The online databases uses are:

- Web of Science
- Emerald
- Springer
- Science Direct
- ACM
- IEEE

Since the researches at the field of interaction quality through mobile services is new, we use the nearest researches that can help to identify the relevant S.Q. attributes of m-interactions such as Electronic Service Quality, m-Service Quality, Human Computer Interaction (HCI), Electronic Government Service and Mobile Government Service. To answer the research questions, we use only the journal articles and excluded other type of papers. However, the next sections of current paper, discussing the proposed interaction model for mobile government services.

4. Proposed an interaction model for mobile government services

Many of academic researchers were introduce many interactivity’s dimensions belonging to website context, while there is a lack of analyzing the interactivity in the field of mobile [6], [7], [26]. Through this section, since the author investigating the service quality framework of m-government, the interactivity’s dimension is one of the framework components that can enhance the measuring of service quality at m-government context. Hence, the following are the proposed sub-dimension (constructs) of the interactivity’s dimension.

a. User control

It refers to the ability of end user to manage and control the contents, sequence, and timing of the communication to fit the viewing mode [27]. During the interactivity communication, it’s crucial to enable end users to exert the control which influencing information exchange [28]. User control is considered as a base for the interaction process [29]–[31]. User control aims to assist end-user in performing the task with less effort [28]. User control has included as the primary element of the interaction process in Website [26], [28], [32]. The features of user control targeted the freedom of the user to manage the system not vice versa[21]. In the case of mobile devices, it is considered personal gadgets and the end users are expecting to have maximum control over the mobile devices. Services provided through m-government platform should include the features and options for user control into service application to enable end users performing the transactions with the best satisfaction. However, the user control at m-government service quality framework aims to measure the flexibility and constraints faced by end users which influencing the quality of service provided through an m-government channel.

b. Synchronicity

One of the foremost vital elements of e-interactivity dimension is the term of Synchronicity. The term of Synchronicity describing the speed of electronic communication i.e. fixed broadband internet, wireless internet. The internet connection supports the synchronous interaction which representing the communication as real-time (i.e., instant messaging). In the other hand, the asynchronous interaction can be serving in the form of e-mails, which means that it not necessarily happened at the real time. In the case of mobile devices, the concept of synchronous has been increased due to the future of internet mobile that included in mobile devices. The availability of synchronous at m-government services
enhanced fast responses and more interaction process between m-government and end users which leads fast performing the transactions.

c. **Two-way communication**
Communication between the two parties translated as there is responsiveness which both of them considered as sender and receiver [28]. It may be represent in both ways, either in “post-and-response” which is occurs in form of emails and the received feedback from end users, or in the way of “real-time” which can be occurs in the form of live chat between the service provider and end users [31], [32]. The m-government service providers have been developing the communication with end users and add more options of “real-time” communication “voice call, video call”[33]. The real-time communication through m-government service encourages maximum end users to perform transactions through mobile devices due to facilities provided by the service provider [7].

d. **Responsiveness**
The term responsiveness describing the ability to respond with regards to reach quickly and positively. At the environment of electronic services, the “responsiveness” can be represent in the form of providing the services to end users as per the required timeline. End users are accepting to use electronic services to save time and efforts with quick response. Therefore, m-government services are targeted mobile handled devices, enabling end users performing transaction at anytime and anywhere. Therefore, responsiveness through the m-government channel is important for best interaction process due to end users expecting quickly response in term of getting the required service on-time with the best quality.

---

**Figure 1. Proposed sub-dimensions of m-Gov. interaction**

---

5. **Limitations and future researches**
The framework of m-government service consisting of many dimensions that are necessary to form a comprehensive service quality framework. The dimension of “interaction” is one of the framework’s components. This study limited only on interaction sub-dimension, which encourage other researchers to study and investigate more on other sub-dimensions of m-government service quality framework.

6. **Conclusions**
Mobile government services are increasing and developed which requires more attention from practitioners and researchers to improve it with the best quality. Due to the lack of comprehensive service quality framework that computable with mobile government service, this leads some researchers to use other measurement scales and apply it at the case of m-government service. Using other measurement scales at m-government service quality results in more difficulties and wrong results. The
interaction dimension is considered a main dimension of m-government service quality framework. This study aimed to propose the related sub-dimensions belonging to the interaction process at m-government service. The study finds that the interaction’s sub-dimensions were: 1) User control, 2) Synchronicity, 3) Two-way communication, and 4) Responsiveness. These proposed attributes guide researchers and practitioners measuring service quality of m-government service at an accurate level, which leads for best understanding of end users’ expectations.

References