A proposed instrument dimensions for measuring e-government service quality

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Abstract

Owing to the rapid global growth in the internet and information technology, many governments around the world have transformed their services from the traditional services to electronic means. This study aims to propose an instrument dimensions for measuring e-government service quality. The proposed instrument dimensions are identified based on SERVQUAL scale and on revising the literature. The proposed seven dimensions for measuring e-government service quality are website design, reliability, responsiveness, security/privacy, personalization, information, and ease of use. The contribution of this paper is to create awareness among e-service managers to give more attention to e- government service quality, as well as assisting them to improve e-service performance and effectiveness.

Keywords: E-government service, E- service quality dimensions.

1. Introduction

Owing to the rapid global growth in the internet and information technology, many governments around the world have transformed their services from the traditional services to electronic means. Using the internet, the governments are able to offer more convenient and faster access to their services and information. Governments attempt to increase effectiveness and efficiency by introducing e-government. Many researchers have realized that the key determinant to the success or failure of e-government projects is the e- service quality [1, 34].

Even though, the concept of e-service quality is still in its early stage, it has become an important issue in recent years [12, 18, 20]. E-service quality can not only provide organization competitive advantages in the online environment, but also involves clients in the product process through customer's feedback, and improve clients' relationships and satisfactions [18]. However, Chutimaskul, Funilkul and Chongsuphajaisiddhi [34], affirmed that many e-governments have been developed without paying full attention to the quality of the e-government services and the requirements of citizens. Papadomichelaki et al. [35] confirmed that the quality of e-government services has become the subject of great concern in the recent years. Therefore, it is very important to ensure quality characteristics to those services such as reliability, ease of use, security and etc [31]. However, it is difficult to develop a global measure of online service quality, because the measure of service quality has become industry or context dependent [41]. Thus, a specific domain or specific context is needed to identify the main influences of e-service quality.

In consideration of this requirement, this study has been focused on the quality of e-services in e-government domain. Without identifying the main characteristics of quality e-government services, it is not obvious whether e-government projects would succeed or not.

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Thus, this work seeks to propose a theoretical scale to measure e-government service quality by exploring e-service quality dimensions in different domains and based on the SERVQUAL scale. A review of the most common dimensions of e-service quality that have been used in online environment is also presented.

2. Literature review

2.1 Service quality

Service quality has been recognized as one of the major factors for organization sustainability and one of the driving forces for an organization's achievement [18]. Service quality represents the comparison between customers' expectations of how a company or organization should perform and the service performance that customers perceive [4]. The most dominant and extensively used scale for assessing service quality is SERVQUAL [20], which was developed by Parasuraman, Berry and Zeithmal in 1985. It contains 97 items within ten service quality dimensions [3]. Later, in the early of 1988, the authors diminished the dimensions to five dimensions with 22 items. The dimensions are tangibles (physical facilities, functional appeal and appearance of employees), reliability (the ability to execute the promised service in an accurate and trustworthy way), responsiveness (willingness to assist the end users and provide punctual service), assurance (personnel cognizance which persuades user confidence and trust), and empathy (providing caring and paying individual attention to customers). Since then, these five service quality dimensions constitute the foundation for universal measurement of service quality [38]. Although, SERVQUAL scale was developed in a marketing environment, it has been widely used in an IS context and IT [13]. According to Lee and Lin [12], many research have successfully employed SERVQUAL in e-commerce context such as (Devaraj et al. (2002); Kim and Lee (2002); Li et al. (2002); Kuo (2003) and Negash et al. (2003)). As a result of the differences between the methods of measuring service quality in e-government and physical market services, it is very important to reword and reformulate the SERVQUAL scale items before they are used extensively in the online government context [12, 20]. Considering this requirement, new instrument dimensions are needed for measuring e-government service quality.

2.2 E-service quality

E-service quality has received researchers' attentions in the recent years due to its importance [20]. The concept of e-service quality is derived from the concept of quality of traditional services. E-service quality can be classified as the key determinants to the success or failure of online organizations [17, 28]. According to Lee and Lin [12], many online organizations fail as a result of poor e- service quality. E-service quality can be defined as overall consumer evaluations and opinions about the excellence of e-service delivery in the virtual marketplace [18]. Colier and Bienstock [16] describe e-service quality as user's perceptions of the outcome of the service delivery along with service recovery perceptions, if service failures happened. For e-government user, a high quality service is measured by which potential advantages of the internet are realized [37]. Research has often referred to e-government service quality as the degree to which an e-government web site facilitates the competent delivery of efficient e-services to help citizens, businesses and agencies in achieving their governmental transactions [9]. Quality e-services can

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provide online organization competitive advantages by improving the organization performance and clients' satisfactions [18]. As a result of that, the quality of e-government services can play an enormous role in improving e-government efficiency, as well as, increasing citizens' satisfactions.

2.3 E-service quality dimension

The measurement of e-service quality on e-commerce domain has received the bulk of the attention in the recent years. Consequently, there has been a range of studies that had attempted to identify the key dimensions of e-service quality associated with online environment. Those studies have been conducted in various contexts, including e-service area, online banking, online travel agency, online public library, online retailing, web portal and online shopping (Table 1). The table shows, the majority of e-service quality dimensions that have been used in online environment, the contexts which they have been used and the frequency of citation.

Table1: A review of e-service quality dimensions

Dimension	Context of application	Authors	Time of use
Website designs/ Web site appears/ Aesthetic design	• E-service • Online retailing • Online shopping • Online banking	1. Cox and Dale (2001) 2. Loiacono et al.(2002) 3. Wolfinbarger And Gilly (2003) 4. Yang and Fang (2004) 5. Lee and Lin (2005) 6. Cristobal et al. (2007) 7. Yoo and Douthu (2001) 8. Madu and Madu (2002) 9. Yang et al. (2003) 10. Jun and Cai (2001) 11. Kim and Stoel (2004) 12. Kim et al. (2009)	12
Reliability	• E-service • Online retailing • Online banking • Academic and public libraries	1. Zeithaml et al.(2000) 2. Jun and Cai (2001) 3. Yang (2001) 4. Wolfinbarger and Gilly (2003) 5. Zeithaml (2002) 6. Madu and Madu(2002) 7. Yang and Jun (2002) 8. Santos (2003) 9. Yang et al. (2003) 10. Sukasame (2004) 11. Yang et al. (2004) 12. Yang and Fang (2004) 13. Lee and Lin (2005) 14. Sohn and Tadisina (2008) 15. Shachaf et al. (2008)	15
Delivery	• E-service	1. Surjadaja et al. (2003) 2. Sohn andTadisina (2008)	2

Ease of use	• E-service • Online retailing • Online banking	1. Yoo and Douthu (2001) 2. Jun and Cai (2001) 3. Yang (2001) 4. Zeithaml et al. (2002) 5. Santos (2003) 6. Yang et al. (2003) 7. Sukasame (2004) 8. Yang et al. (2004) 9. Sohn and Tadisina (2008) 10. Obi (2009)	10
Efficiency	• Online retailing • E-service	1. Zeithaml et al.(2000) 2. Zeithaml (2002) 3. Santos (2003) 4. Parasuraman et al. (2005) 5. Kim et al.(2006) 6. Sahadev and Purani (2008) 7. Obi (2009)	7
Fulfilment	• Online retailing • E-service	1. Zeithaml et al. (2000) 2. Zeithaml (2002) 3. Parasuraman et al. (2005) 4. Kim et al .(2006) 5. Surjadaja et al. (2003) 6. Sahadev and Purani (2008)	6
Privacy	• Online retailing • E-service	1. Zeithaml et al. (2000) 2. Zeithaml (2002) 3. Zeithaml et al.(2002) 4. Parasuraman et al. (2005) 5. Kim et al. (2006) 6. Sahadev and Purani (2008) 7. Obi (2009)	7
Responsiveness	• Online retailing • Online banking • E-service • Online travel	1. Zeithaml et al. (2000) 2. Jun and Cai (2001) 3. Yang (2001) 4. Zeithaml et al. (2002) 5. Madu and Madu (2002) 6. Yang and Jun(2002) 7. Surjadaja et al. (2003) 8. Yang et al. (2003) 9. Yang et al. (2004) 10. Kim and Stoel (2004) 11. Yang and Fang (2004) 12. Parasuraman et al. (2005) 13. Lee and Lin (2005) 14. Kim et al. (2006) 15. Nusair and Kandampully (2008)	15
Compensation	• Online retailing	1. Zeithaml et al. (2000) 2. Zeithaml (2002) 3. Parasuraman et al. (2005) 4. Kim et al. (2006)	4

Contact	• Online retailing • E-service	1. Zeithaml et al. (2000) 2. Zeithaml (2002) 3. Parasuraman etl. (2005) 4. Kim et al. (2006)	4
Processing speed	• Online retailing	1. Yoo and Douthu (2001) 2. Loiacono et al. (2002)	2
Security	• Online retailing • E-service	1. Yoo and Douthu (2001) 2. Yang (2001) 3. Zeithaml et al. (2002) 4. Madu and Madu (2002) 5. Yang and Jun (2002) 6. Surjadaja et al. (2003) 7. Santos (2003) 8. Yang et al. (2003) 9. Yang et al. (2004) 10. Jun and Cai (2001) 11. Surjadaja et al. (2003) 12. Obi (2009)	12
Communication	• Online retailing • E-service • Online financial service	1. Cox and Dale (2001) 2. Loiacono et al. (2002) 3. Santos (2003) 4. Yang and Fang (2004) 5. Yang et al. (2003) 6. Sohn andTadisina (2008) 7. Surjadaja et al. (2003) 8. Kim et al. (2009)	8
Accessibility	• Online retailing	1. Cox and Dale (2001) 2. Jun and Cai (2001) 3. Yang (2001) 4. Yang and Jun (2002) 5. Yang et al. (2003) 6. Yang and Fang (2004) 7. Surjadaja et al. (2003) 8. Yang eta (2005) 9. Obi (2009)	9
Credibility	• Online retailing	1. Cox and Dale (2001) 2. Yang (2001) 3. Yang et al. (2003) 4. Yang and Fang (2004) 5. Jun and Cai (2001)	5
Understanding	• Online retailing	1. Cox and Dale (2001) 2. Jun and Cai (2001)	2
Availability	• Online retailing	1. Cox and Dale2001) 2. Parasuraman et al. (2005) 3. Surjadaja et al.(2003) 4. Sahadev and Purani (2008)	4

Information	• Online banking • Online retailing • Online travel • Web portal	1. Jun and Cai (2001) 2. Yang (2001) 3. Zeithaml et al. (2002) 4. Loiacono et al. (2002) 5. Surjadaja et al. (2003) 6. Kim and Stoel (2004) 7. Yang and Fang (2004) 8. Kim et al. (2006) 9. Nusair and Kandampully (2008) 10. Yang et al (2005) 11. Barnes and Vidgen (2002) 12. Kim et al. (2009) 13. Obi (2009)	13
Courtesy	• Online banking • Academic and public libraries	1. Jun and Cai (2001) 2. Yang et al. (2003) 3. Yang and Fang (2004) 4. Shachaf et al. (2008)	4
Customer service	• Online shopping • E-service	1. Wolfinbarger and Gilly (2003) 2. Santos (2003) 3. Cristobal et al. (2007)	3
Performance	• E-service	1. Madu and Madu (2002)	1
Features	• E-service	1. Madu and Madu (2002)	1
Service ability	• E-service	1. Madu and Madu (2002)	1
System integrity	• E-service	1. Madu and Madu (2002) 2. Surjadaja et al (2003)	2
Trust	• E-service • Online retailing	1. Madu and Madu (2002) 2. Loiacono et al. (2002) 3. Zeithaml et al. (2000) 4. Kim and Stoel (2004) 5. Lee and Lin (2005) 6. Sohn andTadisina (2008) 7. Nusair and Kandampully (2008)	7
Service differentiation	• E-service	1. Madu and Madu(2002)	1
Customization	• E-service • Online financial service	1. Madu and Madu (2002) 2. Yang and Jun (2002) 3. Surjadaja et al. (2003) 4. Sohn andTadisina (2008) 5. Surjadaja et al. (2003) 6. Kim et al. (2009)	6
Web store police	• E-service	1. Madu and Madu (2002)	1
Reputation	• E-service	1. Madu and Madu (2002)	1
Assurance	• E-service	1. Madu and Madu (2002) 2. Cristobal et al. (2007)	2
Empathy	• E-service	1. Madu and Madu (2002)	1

Response time	• Online retailing	1. Loiacono et al. (2002) 1. Kim and Stoel (2004)	2
Intuitiveness	• Online retailing	1. Loiacono et al. (2002)	1
Flow	• Online retailing	1. Loiacono et al. (2002)	1
Innovativeness	• Online retailing	1. Loiacono et al. (2002)	1
Substitutability	• Online retailing	1. Loiacono et al.(2002)	1
Interactivity	• Online retailing • Web portal	1. Loiacono et al. (2002) 2. Surjadaja et al. (2003) 3. Yang et al. (2004) 4. Surjadaja et al. (2003) 5. Yang et al (2005) 6. Obi (2009)	6
Structure	• E-service	1. Santos (2003)	1
Content	• E-service	1. Santos (2003) 2. Sohn andTadisina (2008) 3. Jun and Cai (2001) 4. Yang et al (2005) 5. Sukasame (2004)	5
Linkage	• E-service	1. Santos (2003) 2. Sukasame (2004)	1
Incentive	• E-service	1. Santos (2003)	1
Convenience	• Online retailing	1. Yang et al. (2003)	1
Competence	• Online retailing • Online shopping	1. Yang et al. (2003) 2. Yang et al. (2004) 3. Yang and Fang (2004)	3
Personalization	• Online retailing	1. Yang et al. (2003) 2. Lee and Lin (2005) 3. Surjadaja et al. (2003) 4. Nusair and Kandampully (2008)	4
Collaboration	• Online retailing	1. Yang et al. (2003) 2. Jun and Cai (2001)	2
Product portfolio	• Online retailing	1. Yang et al. (2004)	1
Entertainment	• Online retailing	1. Kim and Stoel (2004)	1
Transaction capability	• Online retailing	1. Kim and Stoel (2004)	1
System availability	• E-service	1. Kim et al. (2006)	1
Graphic style	• E-service	1. Kim et al. (2006)	1

Order management	• E-service	1. Cristobal et al. (2007)	1
Functionality	• Online financial service	1. Sohn andTadisina (2008) 2. Surjadaja et al. (2003)	2
Usability	• Web portal	1. Yang et al. (2005) 2. Zeithaml et al. (2002) 3. Barnes and Vidgen (2002)	3

s Even though, the five dimensions of SERVQUAL scale were created in the physical market services, most researchers have used the dimensions based on the SERVQUAL scale for online environment [20]. Zeithaml [31] stated that some dimensions of SERVQUAL scale can be used in online environment by adding some technical dimensions. Lee and Lin [12] identified the main dimensions that have influenced service quality in online shopping by modifying the SERVQUAL. Those dimensions are web site design, reliability, responsiveness, trust and personalization. Moreover, Zeithaml [32] modified the SERVQUAL scale to consider the e-service environment and identified 11 dimensions including: access, ease of navigation, efficiency, flexibility, reliability, customization/ personalization, security/privacy, responsiveness, assurance/trust, site aesthetics, and price knowledge. Based on these 11 dimensions, Parasuraman, Zeithaml, and Malhotra [2] developed an E-S-QUAL scale which has E-core service quality and an e-recovery service quality. The E-core service quality includes four dimensions: efficiency, fulfillment, system availability, and privacy. Meanwhile, the e-recovery service quality has three dimensions: responsiveness; compensation; and contact. However, Kim et al. [25] modified the e-S-QUAL and e-RecS-QUAL scales by adding three dimensions namely: privacy, information, and graphic style and removed the compensation dimension. They developed the aforementioned nine dimensions to measure the service quality of online apparel retailers.

There are a growing number of e-service quality studies which showed more different dimensions for measuring the quality of e-service. Yoo and Donthu [5] proposed a scale called SITEQUAL for measuring web site quality based on four factors namely ease of use, aesthetic design, processing speed, and security. Cox and Dale [15] claimed that traditional service quality dimensions such as competence, comfort, cleanliness and courtesy were not suitable for online environment, whereas dimensions such as accessibility, communication, credibility, understanding, appearance, and availability were very significant for online environment. A scale called WebQual has been developed by Loiacono et al. [11] to evaluate web site quality, which is composed of 12 dimensions: informational fit-to-task, tailored communications, trust, response time, ease of understanding, intuitive operations, visual appeal, innovativeness, emotional appeal, consistent image, online completeness, and relative advantage. By the same scale name, Barnes and Vidgen [28] developed WebQual scale for measuring web site quality based on three factors: usability, information quality, and service interaction quality. Additionally, performance, features, structure, aesthetics, reliability, serviceability, security and system integrity, trust, responsiveness, service differentiation and customization, web store police, reputation, assurance and empathy were identified by Madu and Madu [7] for web site design. Overall, there are a variety of e-service quality dimensions that have positive and significant impacts on online users' perceived quality [12].

Recently, many studies on e-service quality have been conducted in different domains such as e-service area, online banking, online travel agency, online public library; online retailing, web portal and online shopping. Nusair and Kandampully [19] identified six factors that have main influence on e-service quality in online travel settings namely: navigability, playfulness, information quality, trust, personalization, and responsiveness. In academic and public libraries, Shachaf et al. [27] elicited three dimensions that impact e-service quality namely: timely response, reliability, and courtesy. The overall aim of Yang et al. [14] study was to develop and validate an instrument to measure users' perception of service quality of business portals. The study found five dimensions as major factors that affected service quality including: usability, usefulness of content, adequacy of information, accessibility, and interaction. These dimensions focused on web business portals that function as an information presenting. In online banking, Herington and Weaven [6] explored the measurement of e-service quality in the financial services setting. They found four dimensions relating to e-banking service quality including: personal needs, site organization, user-friendliness and efficiency. In the context of online retailers, Collier and Bienstock [16] identified three dimensions: process quality, outcome quality, and recovery quality. Each of these dimensions has sub dimensions such as functionality, information accuracy, design, privacy, and ease of use to determine process quality. Whereas the outcome quality is determined by order accuracy, order condition, and timeliness; and recovery quality is determined by interactive fairness, procedural fairness, and outcome fairness. The increasing studies on e-service quality in different domains are the evidence that indicate the importance of e-service quality.

4. A proposed instrument dimensions for measuring e-government service quality

Based on the previous research on e-service quality, the construct and definitions of the instrument are proposed in this study (Table 2). The constructions of the proposed instrument dimensions for measuring e-government service quality have been investigated from relevant previous research and the measurements can be obtained from existing literature with minor modifications whenever required to consider e-government service quality context. The proposed instrument is identified by rewording and reformulating the five SERVQUAL scale dimensions and adding two dimensions. The reason of adding the two dimensions (i.e. information and ease of use) is as result of their relevant to online government based on the prior studies [5, 8, 20, 21]. The dimensions and items included in the proposed instrument have been used and validated in most measures of e-service quality research in e-commerce environment (See Chart 1). This chart shows the description of proposed dimensions properties such as contexts of usage, frequency of citation, and number of created items.
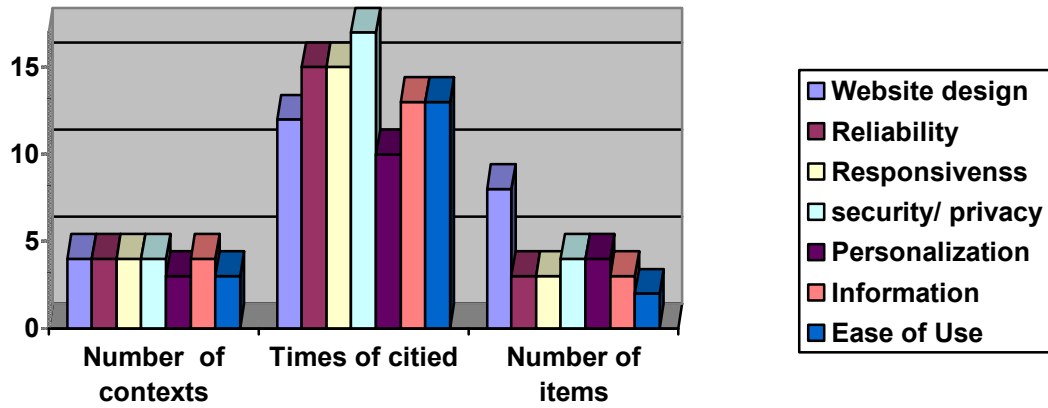
Chart 1: Description of proposed dimensions

Table 2: An instrument dimension constructs and definitions:

SERVQUAL Dimensions	E-government Service Quality Dimensions		
Tangible	Web site design	Items	References
Refers to physical facilities, functional appeal and the appearance of employees.	The tangible dimension can be replaced by web site design in e-government domain because the web site design is comprised of technical functioning of e-government web site and web site appearance. Many researchers have replaced tangible dimensions with web site design dimension in considering online environment (e.g. [12, 19]).	1) The e-government web site is visually appealing. 2) The user interface of the e-government web site has a well organized appearance. 3) It is quick and easy to complete a transaction at the governmental web site. 4) The government site is always available for citizens. 5) The government web site launches and runs right away. 6) The government web site does not crash. 7) Pages at this site do not freeze after entering order information.	[12]; [2]
Reliability	Reliability	Items	References

Refers to the ability to execute the promised service in an accurate and reliable way.	Related to the degree to which a promised service provided by an e-government web site is going to perform by the promised time, such as e-mailing or calling a customer by the promised time as well as providing the confidence of delivering the right products, and correct charges.	1) When the e-government web site promises to e-mail or call me by a certain time, I like them to do so. 2) I like to ensure that the e-government web site will deliver the right services I order. 3) I like to ensure that the e-government web site will charge me correctly for my service order. Such as paying taxes	[38]
Responsiveness	Responsiveness	Items	Reference
Refers to willingness to assist the end users and provide punctual service.	Refers to the degree to which services provided by the e-government web site is helpful and there is no delay in responding to citizens.	1) I think the e-government web site gives prompt service. 2) I believe the e-government web site is always willing to help citizens. 3) I believe the e-government web site is never too busy to respond to citizens' requests.	[12]
Assurance	Security / privacy	Items	Reference
Refers to personnel knowledge which persuades users' confidence and trust.	Related to the level of security and protection of citizen's personal information provided by the e-government web site. We replaced the assurance dimension by security/ privacy dimension because we found in the literature that both security and privacy play enormous role in increasing customer's confidence in an organization [30].	1) The e-government web site assures me of the security it provides. 2) I am confident of the security of e-government site. 3) It does not share my personal information with other sites. 4) The site protects information about my credit card.	[5]; [30]
Empathy	Personalization	Items	Reference

Refers to providing caring and paying individual attention to customers.	Refers to the degree to which an e-government web site provides a variety of services to convince specific individual citizen's needs.	1) I like e-government web site that offers a choice for personalization. 2) This e-government web site contains links to other web sites that citizens may be interested in (e.g. links to its parent web site, branch web sites, or other e-government sites). 3) The e-government web site provides different e-government service options (e.g. Payment methods). 4) The e-government web site provides service delivery options.	[17]
Adding dimensions			
	Information	Items	References
	Refers to the information provided by e-government web site which should be accurate, current and easy to understand.	1) I like e-government information that is accurate. 2) I like e-government information that is current. 3) The e-government web site provides information that easy to understand.	[21]
	Easy to use	Items	Reference
	Relates to the degree of ease of using the web site and the facility to search for information.	1) The e-government web site is very easy to use. 2) It is easy to search for information in e-government web site.	[5]

4.1 Web site design

Web site design quality is important for online government user as it is an interface to connect the users and the organization [26]. Web site design is comprised of the technical functioning of e-government web site and web site appearance. Thus, it is taken into account as crucial dimensions to attract the customers. According to Lee and Lin [12], many studies, that have investigated the influence of web site design on e-service performance, found that web site design plays a major role in customers' satisfactions. From our review of more than 32 recent studies on e-service quality, we have found that 12 studies had used web site design as the important dimension in 4 different contexts.

4.2 Reliability

Reliability refers to the degree to which a promised service provided by an e-government web site is going to perform by the promised time, such as e-mailing or calling the customer, as well as providing the confidence of delivering the right products, and correct charges. According to Parasurnaman et al. [4], they found that reliability is one of the most important dimensions in SERVQUAL instrument. Other works on e-service quality also found that reliability is the most important dimensions on e-service quality dimensions [26, 31]. Our literature review of the most recent studies on e-services quality, showed that reliability has been used in four different contexts in 15 studies on e-service quality which confirms that reliability is one of the most important factors that should be emphasized in ensuring a good quality e-services (Table 1).

4.3 Responsiveness

Responsiveness refers to the degree to which the services provided by an e-government web site is helpful and there is no delay in responding to citizens. Online user expects the organization to respond to their inquiries without delay [38]. Immediate response will assist e-government users to make decisions faster, answers their questions and resolves their problems. Several studies have revealed that there is an important correlation between responsiveness dimension and customers' satisfactions [12]. Responsiveness dimension has been used in various contexts in 15 most recent studies that we have reviewed (Table 1).

4.4 Security / privacy

Security / privacy factor represents the level of security and protection of citizen's personal information provided by the e-government web site. Since the assurance dimension in SERVQUAL scale refers to the sensation of security and trust that employees provide to customers [4], security and privacy dimension probably replace the assurance dimension in online environment [22]. One of the main obstacles to online environment development is the lack of confidence which is stimulated by the deficiency of security and privacy [10]. Our review indicated that this dimension has been cited 19 times in 32 of the literatures (Table 1).

4.5 Personalization

Empathy dimension in SEVQUAL scale concerns with providing caring and paying individual attention to customers [4]. In online environment, we have replaced the empathy dimension with personalization since there is no direct human interaction between the customers and employees in virtual environment [7, 12, 20]. Thus, personalization refers to the degree to which an e-government web site provides a variety of services to convince specific individual citizen's needs. Personalized service can play an enormous role in improving customer's satisfaction by personalizing some services such as, payment methods, delivery methods and service process [20]. In previous research works, empathy dimension has been used in different names such as customization [7, 8, 14, 38] and personalization [12, 19, 40].

4.6 Information

Information dimension concerns with the information provided by an e-government website, where desirably the information should be accurate, current and easy to understand. According to Ramous [20], in online environment, information is a very important factor for

users in making their decisions. Users need accurate, current and easy to understand information to examine what they want to do. The information dimension has been citied 11 times in the previous recent studies that we have reviewed (Table 1).

4.7 Ease of usage

Ease of usage refers to the degree of ease of using the web site and the facility to search for information. According to Yoo and Douth [5], ease of usage dimension is one of the most significant dimensions that have influenced customers' satisfactions and behaviors [5]. An e-government web site should be user friendly such that it is easy for users to use the web site to search for information. Since the ease of usage is crucial, the dimension has been used in different contexts by different authors (Table 1).

5. Conclusion and further work

The purpose of this paper is to propose suitable instrument dimensions for measuring e-service quality in e-government domain. A literature review of 32 relevant research works in this area has been conducted to determine the most common dimensions that have been used in e-service quality. The proposed scale is based on revising the literature and modifying the SERVQUAL scale. There are seven dimensions and 26 items in this proposed scale for measuring the e-service quality in e-government domain. The seven dimensions in this scale are: web site design, reliability, responsiveness, security/ privacy, personalization, information and ease of use. These dimensions have been used in the scale since they are important for ensuring customers' satisfactions.

A high quality e-government service is the determinant factor toward the success of governmental organizations. By understanding the characteristics of quality e-government services that enhance users' satisfactions, government service managers and governmental organizations can avoid investing valuable resources in offering e-service quality characteristics that may not work effectively. The proposed scale will allow the organizations to understand which area in e-government services that should be emphasized. This proposed scale will be able to identify and set up quality characteristics of e-government services that will contribute toward increasing users' satisfactions. This paper too will create awareness among e-service managers to pay more attention to e-service quality, as well as assisting them to improve e-service performance and competitiveness.

As a continuation of this work, the proposed scale will be validated and a model will be developed to examine the relationship between the scale dimensions, user's satisfaction and user's trust. The final model is intended to have the capability of setting up the main characteristics of quality e-government service and to be able to categorize the characteristics that will affect user's satisfaction and trust.

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