

A Questionnaire Approach for User Trust Adoption in Palestinian E-Government Initiative

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Abstract: Problem statement: The present study attempts to identify the construct that impacts the user's trust in e-Government initiative and its adoption in Palestinian public sector organizations. **Approach:** It utilized a quantitative approach using survey based questionnaire as its primary research methodology. **Results:** The related constructs were: Information quality, system quality and service quality, perceived ease of use, perceived usefulness, security and privacy. All these constructs were modified to suit the context of the study. This study outlines the details of each construct and its relevance toward the research issue. **Conclusion/Recommendations:** The outcome of the study represents series of approaches applied in a PhD research study which focuses on Palestine as its case study.

Key words: Methodology approach, research methodology, sampling technique, questionnaire design, service quality, information quality, system quality, palestinian public, quantitative approach, government initiative

INTRODUCTION

Research methodology is defined as procedures, ways, methods and techniques that are employed to capture and gather all the required information for the purpose of the research issue. Methodology refers to that branch of philosophy that analyzes the principles and procedures of an inquiry in a particular discipline. It is generally a guideline for solving a problem that outlines specific components, example: Phases, tasks, methods, techniques and tools. There are various methods that can be employed in gathering information from different sources such as sampling, site visits and observation of the study environment, questionnaires, interviews, prototyping and joint requirement planning. These methods would be applied in order to validate and refine the proposed hypothesis and organized according to structure of the PhD thesis's chapters. Thus, the study is organized specially to reflect the research methodology that would be applied to address the proposed research issue. Debates surrounding the field of research reveal two main principal research categories: quantitative and qualitative. It is important to note that quantitative research has been associated with the positivist stance

while qualitative research with the interpretative stance (Creswell, 2005). However, qualitative and quantitative should not be considered synonymous to interpretive and positivist views respectively. In addition, the possibility of qualitative and quantitative research to be either interpretive, positivist, or critical have been proposed. For instance, a case study research may fall under any of the categories.

Qualitative research is a type of research that produces findings not arrived at by means of statistical procedures or other means of quantification and the purpose behind the research is the understanding of human experience in order to reveal both the processes by which people construct meaning about their worlds and to report what those meanings are.

Table 1: Comparison between Qualitative and Quantitative Research

| Qualitative | Quantitative |
|--|---|
| What is X | How many X |
| Inductive process | Deductive process |
| Sample is selective (non-random) | Sampling is random |
| Researcher looks for patterns, themes and concepts | Concepts and hypothesis are chosen before the research begins |
| Researcher develop a theory or compares patterns with other theories | Researcher use instrument to measure the variables in the study |

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A qualitative research is considered to be an investigation process that explains social phenomenon through constructing, comparing, replicating, categorizing and classifying the object of the study.

In other words, qualitative research is concerned with words rather than numbers (i.e., in data that is not quantifiable). On the other hand, quantitative research is research that relies on developing metrics (numbers) that can be used to describe the phenomena (objects and relationships) under study. It is a deductive process (i.e., logic based on rules, models and laws) consisting of measuring and analyzing the relationship between variables. This process reveals how often or how many people act in a particular way but it fails to answer the question of “why”. Table 1 shows the comparison between qualitative and quantitative research.

MATERIALS AND METHODS

The decision of whether to carry out a qualitative or a quantitative approach lies on the researcher’s assumptions (Kanaan, 2009). The present study is based quantitative approach and a survey questionnaire is utilized for the purpose of meeting the objectives of the study. The researchers opt for a survey as it helps to provide a description of the trends in a population or a description of the relationships among its variables (Creswell, 2005). In addition to this advantage, a survey questionnaire is also inexpensive to be conducted and it is less time consuming as it enables the researcher to acquire both quantitative scale and qualitative data from a large research sample. For this reason, a survey design coupled with quantitative analysis was employed in the present study to examine the variables in the adoption model and to achieve the research objectives. Moreover, a Likert Scale is applied for each set of questionnaires. The likert scale is designed to examine how strongly subjects agree or disagree with statements on a five-point scale with the following anchors: 1- Strongly disagree, 2 Disagree, 3- Neither agrees nor disagrees, 4- Agree, 5- Strongly agree (Chomeya, 2010). In this study the methodology was developed in four phases as presented in Fig. 1. The objectives of each phase are outlined.

Sampling technique: Sampling is a procedure that entails utilizing a small number of units in a given population as a basis for drawing conclusions regarding the whole population (Jemain *et al.*, 2007). The sample is considered

as a subset of the population comprising of some members selected from it (Al-Omari *et al.*, 2008).

The researcher’s aim is to be able to draw generalized conclusions based on the population under study. In Palestine, the e-Government initiative project is still in the infancy stage and the present study focuses on Government To Government (G2G) context as it is the core element of e-Government implementation (Seifert, 2003) and this will pave the way for e-Government usage in the whole country (Sang and Lee, 2009). Hence, the population chosen for the study comprises of public officers working in ten (10) government ministries in Palestine. The public sector organization in the Palestinian territory consists of 180,500 employees (Wang and Liao, 2008). Therefore, the random sample size for population 180,500 is 384. A random sample technique is selected to encompass 384 officers from different levels of employment in these ministries.

Analysis techniques: There are three objectives of implementing data analysis: (i) getting overview for the sample data and its attributes, (ii) testing the goodness of data and (iii) validating the proposed hypotheses. Quantitative analysis will be used in the research to analyze data through Statistical Package for Social Science (SPSS).

Variable measurement: The research methodology applied in the study is based on the questionnaire approach. The objective of the questionnaire approach is basically to determine the impact of information system factors on user’s trust in e-Government. The questionnaire contains eight sections: personal information, information quality, system quality, service quality, perceived usefulness, perceived ease of use, security and privacy and trust in e-Government. All these sections have a number of questions constructed to evaluate the factors affecting user’s intention to use.

Research instruments and validity: To ensure the content validity of the scales of the study, the items selected for the constructs should represent the concepts about which generalizations are to be made. Consequently, the items selected for the constructs in this study were mainly adapted from prior studies to ensure content validity (Wang and Liao, 2008).

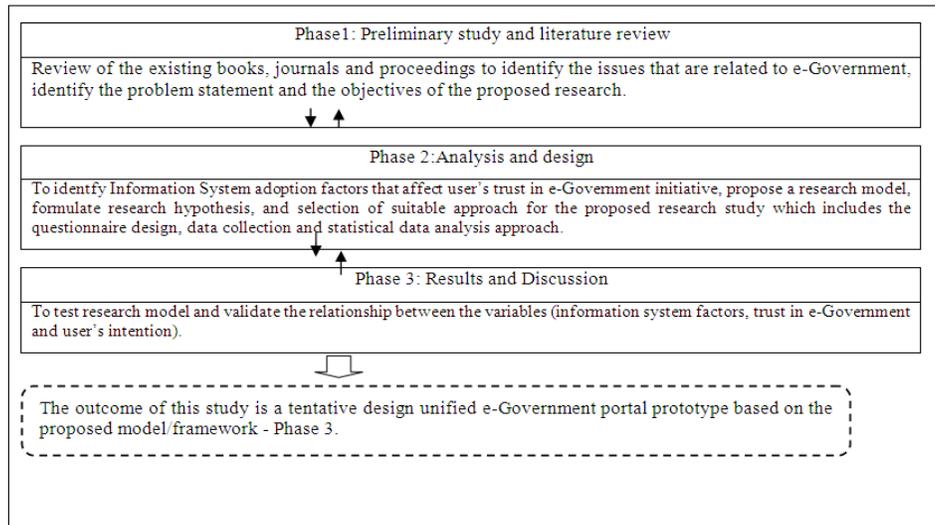


Fig. 1: Research methodology

RESULTS

Service quality: In recent years, researchers have shown ample of attention for the measurement of e-service quality in the e-commerce domain. As a result, a wide range of studies have been attempted for the identification of the key dimensions of e-service quality associated with online environment (Alanezi *et al.*, 2010). These studies were carried out in various contexts, including e-service area, online banking, online travel agency, online public library, online retailing, online shopping and web portal services (Nardal and Sahin, 2011). The major dimensions used in literature review to measure the construct of service quality are website design, reliability, responsiveness and personalization.

Website design: The quality of website design is imperative to an online government services because the interface's connects the users and governmental organizations. Web site design is comprised of the technical functioning of e-Government web site and web site appearance. Thus, these dimensions are considered crucial in attracting customers. Several studies have looked into the impact of website design upon e-service performance and revealed that website design's plays a major role in customer satisfaction (Alanezi *et al.*, 2010). The dimensions of website design have been measured with the help of various items in other previous studies but for the purpose of this study, two items are adopted as illustrated in Table 2.

Reliability: Reliability is considered as the degree to which a promised service provided by an e-government web site is going to be performed at the promised time (e.g., e-mailing or calling the customer, as well as providing the confidence of delivering the right products and correct charges). Reliability is one of the most important dimensions in service quality instrument. In addition, this has been evidenced by other studies concerning e-service quality which reveal that reliability is the most important dimension among the e-service quality dimensions (Zeithaml, 2002). The construct of reliability is measured by 2 items and adapted to the context of this study as shown on Table 3.

Responsiveness: This refers to the degree to which the services provided by an e-government web site are helpful without any delays (Alanezi *et al.*, 2010). Generally speaking, an online user expects a quick response to their inquiries from the organization (Yang and Jun, 2002) as this will help them make faster decisions. Several studies have revealed the important correlation between responsiveness dimension and customer satisfaction. Responsiveness is measured by 2 items which are adapted to be applicable within the context of this study as shown in Table 4.

Personalization: This is the degree to which an e-Government web site provides a variety of services to satisfy specific individual citizen's need (Alanezi *et al.*, 2010). This type of service plays a major role in improving customer's satisfaction by personalizing services such as, payment methods, delivery methods and service process (Li and Suomi, 2009).

Table 2: Website design measuring items

| Dimension | Items |
|--|---|
| Website design (Alanezi <i>et al.</i> , 2010) | Sq1: I trust e-Government website when it is visually appealing Sq2: I trust e-Government website when it user interface has a well-organized appearance |

Table 3: Reliability measuring items

| Dimension | Items |
|---|---|
| Reliability (Alanezi <i>et al.</i> , 2010; Yang <i>et al.</i> , 2004) | Sq3: I trust e-Government website when it delivers the right and wanted services Sq4: I trust e-Government website when performs it service accurately |

Table 4: Responsiveness measuring items

| Dimension | Items |
|--|--|
| Responsiveness (Alanezi <i>et al.</i> , 2010) | Sq5: I trust e-Government website when it gives prompt service Sq6: I trust e-Government website when it tells me what to do if the service cannot be offered |

Table 5: Personalization measuring items

| Dimension | Items |
|--|---|
| Personalization (Alanezi <i>et al.</i> , 2010; Kim <i>et al.</i> , 2009) | Sq7: I trust e-Government website when it offers a choice for personalization Sq8: I trust e-Government website when it contains links to other web sites that citizens may be interested in |

The dimension of personalization was measured by 4 items that are adapted to be applicable to the context of the study as shown in Table 5.

DISCUSSION

Information quality: This refers to the quality of the information produced by the system as well as to the degree this information output aligns with the needs of the users on the basis of accuracy, reliability, relevance, completeness and precision of information. According to Delone and McLean (2003), information quality is considered to be the measure of the output of the system. Therefore, users normally assess the information value according to their desired characteristics of accuracy, meaningfulness, completeness and, timeliness. These quality attributes have been extensively explored in the information system research arena Delone and McLean (2003). In addition, information quality has been indicated to encompass complete, accurate, organized, understandable, up-to-date and timely information provided in the website for the customers (Hussein *et al.*, 2007). Consequently, the measurement of information quality in this study focuses on the characteristics of information produced by e-Government website. The most common dimensions used in the literature review to measure the construct of information quality are illustrated in Table 6.

Table 6: Studies that have identified common information quality dimensions

| Information quality dimensions | Author (s) |
|--------------------------------|--|
| Timeliness | Bradley <i>et al.</i> , 2006; Hussein <i>et al.</i> , 2007; Livari, 2005; Liu <i>et al.</i> , 2006 |
| Accuracy | Bradley <i>et al.</i> , 2006; Hussein <i>et al.</i> , 2007; Livari, 2005 |
| Completeness | Bradley <i>et al.</i> , 2006; Hussein <i>et al.</i> , 2007; Livari, 2005; Delone and Mclean, 2003 |
| Relevancy | Hussein <i>et al.</i> , 2007; Delone and Mclean, 2003; Lee and Kozar, 2006 |

Table 7: Information quality measuring items

| Dimension | Items |
|--|--|
| Timeliness (Wangpipatwong <i>et al.</i> , 2005) | IQ1: I trust e-Government website when the information provided is up-to-date IQ2: I trust e-Government website when the Information is sufficiently timely |
| Accuracy | IQ3: I trust e-Government website when the information is free from errors |
| Wangpipatwong <i>et al.</i> , 2005 | IQ5: I trust e-Government website when the information is sufficient for the task at hand |
| Completeness | IQ6: I trust e-Government website when the information is sufficiently complete for my needs. |
| Wangpipatwong <i>et al.</i> , 2005 | IQ7: I trust e-Government website when the information is relevant to the site |
| Relevancy | IQ8: I trust e-Government website when the information is useful to my needs |
| Wangpipatwong <i>et al.</i> , 2005 | |

Table 8: Information quality items

| | |
|------------------------------------|---|
| Reliability | SysQ3: I trust e-Government website when it available at all times |
| Wangpipatwong <i>et al.</i> , 2005 | SysQ4: I trust e-Government website when it is secured. |
| Usability | SysQ5: I trust e-Government website when the user interface is attractive |
| Wangpipatwong <i>et al.</i> , 2005 | SysQ6: I trust e-Government website when it is easy to use. |
| Efficiency | SysQ7: I trust e-Government website when it can save my time |
| Wangpipatwong <i>et al.</i> , 2005 | SysQ8: I trust e-Government website when it can save my expenses. |

The construct of information quality was measured by 8 items adapted to be applicable to the context of this study as shown in Table 7.

System quality: This is considered as the customer's perception towards a website's performance regarding information retrieval and delivery (Yang *et al.*, 2004). Various research dedicated to information system has revealed many instruments proposed to measure system quality. Based on the information system model, the system quality is the measurement of the actual system's production of output.

Table 9: Perceived ease of use items

| Constructs | Items |
|--|--|
| Perceived Ease of Use Lopez-Sisniega (2009) | PEU1: I trust e-Government website when it enables me to complete my transactions with the government more quickly |
| | PEU2: I trust e-Government website when it is easy to use |
| | PEU3: I trust e-Government website when it is easy to learn how to operate it |
| | PEU4: I trust e-Government website when it is easy to become skillful at using it |
| | PEU5: I trust e-Government website when it is flexible to interact with |

Table 10: Perceived ease of use items

| Construct | Items |
|---|--|
| Perceived Usefulness (PU) Lopez-Sisniega (2009); Colesca, 2009) | PU1: I trust e-Government website when it can increase the effectiveness in my transactions with the government |
| | PU2: I trust e-Government website when it can improves my performance in my transactions with the government |
| | PU3: I trust e-Government website when it can improve the service quality that I will receive, compared to dealing with real people for the same service |
| | PU4: I trust e-Government website when it is useful for my transactions with the government |
| | PU5: I trust e-Government website when it is provide a valuable service for me |

Table 11: Measuring items for trust

| Construct | Items |
|---|--|
| Trust in Government (TEG) Wangpipatwong <i>et al.</i> , 2005; Collier and Bienstock, 2006; Fassnacht and Koese, 2006; Kumar <i>et al.</i> , 2007; Shareef <i>et al.</i> , 2009; Shareef <i>et al.</i> , 2011; Colesca, 2009) | TG1: I would use e-Government website when it will not misuse my personal information |
| | TG2: I would use e-Government website that will not act in a way that harms me. |
| | TG3: I would use e-Government website when it will not take advantage of me. |
| | TG4: In my opinion, the government is trustworthy, so I would use e-Government. |
| Trust in Technology (TT) (Wangpipatwong <i>et al.</i> , 2005; Collier and Bienstock, 2006; Fassnacht and Koese, 2006; Kumar <i>et al.</i> , 2007; Shareef <i>et al.</i> , 2009; Shareef <i>et al.</i> , 2011; Colesca, 2009) | TT1: I would use e-Government website when the technologies supported by the system are reliable all the time. |
| | TT2: I would use e-Government website when the technologies support the system are secure all the time. |
| | TT3: I would use e-Government website when my access to the internet is stable. |
| | TT4: I would use e-Government website when the legal and technological structures are adequately to protect me from problems on the Internet |

Table 12: Security/privacy measuring items

| Construct | Items |
|---|--|
| Security/ Privacy (Sahadev and Purani, 2008; Alanezi, <i>et al.</i> , 2010) | SP1: I trust e-Government website when it assures me of the security it provides |
| | SP2: I trust e-Government website when it does not share my personal information with other sites |
| | SP3: I trust e-Government website when it protects the information about my credit card |
| | SP4: I trust e-Government website when it usually ensures that transactional information is protected from any accidentally being altered or destroyed during a transmission on the Internet |
| | SP5: I trust e-Government website when it is not using my personal information for other purposes without my authorization |
| | SP6: I trust e-Government website when there is an effective mechanism to address any violation of my personal information |

Hence, the measure of system quality in the current study concentrates on features and performance characteristics of e-Government websites. In a related study (Wangpipatwong *et al.*, 2005) the characteristics of system quality's influence upon the use of e-Government websites by citizens is explored using a standard software quality model named ISO/IEC 9126. This standard software categorizes quality into functionality, reliability, usability, efficiency, maintainability and portability. The current study however, aims to explore all these categories with the

exception of maintainability and portability as they are not directly involved with end users (Wangpipatwong *et al.*, 2005). In the present study, the construct of system quality is measured by 8 items adopted from Wangpipatwong *et al.*, (2005) and modified to the context of the study as shown in Table 8.

Perceived ease of use: It refers to the degree to which a citizen believes that using the e-Government website in order to perform a certain transactions with the government would be effortless (Alomari *et al.*, 2009).

The measurement of perceived ease of use construct contained 5 items and modified to the context of this study as shown in Table 9.

Perceived usefulness: This is defined as the degree to which a citizen believes that using the e-Government website would improve the outcome of his/her governmental transaction. The measurement of perceived usefulness comprises of 5 items modified to the context of this study as shown in Table 10.

Trust in E-government: This is considered as the degree to which users of e-Government possess attitudinal confidence of the reliability, credibility, safety and integrity of e-Government from the standpoints of technical, organizational, social and political factors as well as from the effectiveness, efficiencies, promptness and sympathetic customer service response's standpoints (Abdulghader *et al.*, 2011). In the present study, trust in e-Government comprises of two dimensions, namely trust in government and trust in Internet technology (Omari and Omari, 2006). It is measured by 8 items (4 items for trust in e-Government and 4 items for trust in technology). They have been modified to suit the context of this study as shown in Table 11.

Security and privacy: In the present study, the security and privacy construct is measured by 6 items and modified to be applicable to the context of this study as shown in Table 12.

These constructs are considered as the level of security and protection of citizen's personal information provided by the e-Government web site (Alanezi, *et al.*, 2010). Among the many obstacles that hinders online environment development is the lack of confidence of the user stemming from the deficiency of security and privacy (Cristobal *et al.*, 2007).

CONCLUSION

The research methodology designed a questionnaire approach based on the literature studies aimed to investigate information quality, system quality, service quality, perceived usefulness, perceived ease of use and security and privacy, as important factors impacting users trust in e-Government adoption initiative in Palestinian public sector organizations. It proposes a PhD research study's methodology and thesis structure. Future research would formulate an adaption model based on the proposed constructs, focusing on the Palestinian E-government services. The proposed adaption model would be validated and refined to produce genuine research contributions that would ensure the success of Palestinian E-government initiatives.

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