A contingency model of citizens’ attitudes toward e-government use

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Abstract: This paper explores the contingency effects of citizens’ demographic and relationship quality characteristics on the connection between e-government attitudes (as measured by satisfaction) and e-government acceptance (as measured by visit frequency and number of transactions). A series of statistical analyses of responses collected from a sample of 268 citizens uncover several noteworthy findings. The study reveals that the relationship between e-government attitudes and visit frequency and the number of completed transactions differs according to citizens’ education and gender as well as their perceptions of the trustworthiness and value of e-government. In particular, it is interesting to note that trust in e-government plays a stronger role in moderating the relationship between e-government attitudes and the number of completed transactions, whereas perceived e-government value exerts a stronger role in moderating the relationship between attitudes and visit frequency. The practical and research implications of these results are discussed.

Keywords: e-government; acceptance; use; attitudes; satisfaction; age; gender; education; trust; value.


Biographical notes: Adel M. Aladwani is a Professor of Information Systems at Kuwait University. His publications have appeared in several leading information systems journals such as Journal of Management Information Systems, European Journal of Information Systems, Information Systems Journal, Information & Management, The DATABASE for Advances in Information Systems, and several other scholarly journals. He is currently serving as a member of the editorial review board or a referee for a number of information systems journals. His current research interests focus on the performance of information systems projects; the management of internet technologies, applications, and metrics; and individual, organisational, and societal impacts of emergent information technologies such as social media.
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1 Introduction

In the past decade, electronic government (e-government), or the delivery of government-related information and services through the internet (West, 2004), has attracted considerable attention from researchers across the globe [see, for example, reviews by Heeks and Bailur (2007), and Yildiz (2007)]. This interest in the e-government initiative is inspired by its promises to improve operational efficiency, expand services offered to the public, increase transparency, reduce corruption, empower citizens, and improve the governmental decision making process. Convincing citizens to use e-government services is crucial to achieving these objectives, and understanding the factors motivating this use is important to decision makers interested in this issue.

A review of previous e-government acceptance studies reveals that these studies come from parts of the world as diverse as North America (McNeal et al., 2009; Schaupp et al., 2010; Belanger and Carter, 2008; Klamo et al., 2006), South America (Padget, 2005; Navarrete, 2010; Filho and dos Santos, 2009), Europe (Kolsaker and Lee-Kelley, 2008; Millard, 2006; Dwivedi and Williams, 2008; Kalvet, 2012; van Veenstra et al., 2011; Papadomichelaki and Mentzas, 2011), Asia (Holliday, 2002; Gotoh, 2009; Abu-Shanab and Baker, 2011; Srivastava and Teo, 2009; Hossan and Bartram, 2010; Zhang and Hsieh, 2010), Africa (Heeks, 2002; Rorissa and Demissie, 2010; Schuppan, 2009; Abdallah and Fan, 2012), and Australia (Huang et al., 2002; Gauld et al., 2010, 2009). In general, prior e-government investigations, although important, suffer from at least three shortcomings. First, they focus on use intentions as the outcome variable and pay scant attention to actual use. Second, they give limited or no attention to citizens’ satisfaction with e-government and to the contingency effects of important contextual characteristics on the relationship between citizens’ satisfaction with and use of e-government. Although the theoretical relationship between e-government attitudes and use is appealing, empirically, this link seems not to be well established. Support for this supposition has been reported in some studies (Treiblmaier et al., 2004; Sahu and Gupta, 2007), but a lack of indisputable evidence has been noted in other investigations [Gauld et al., (2010), p.182; Hubona and Burton-Jones, 2003]. Given these mixed results, it is worthwhile to explore the conditions under which e-government attitudes and use are related. Third, previous research has paid little attention to the use of e-government in Arab Gulf countries. Research focusing on e-government in the Middle East in general has not attracted similar attention from e-government scholars as research on e-government in other regions of the world (Chatfield and Alhujran, 2009). Scholarly attempts focusing on e-government issues in Arab Gulf countries are even less common (e.g., Al-Shafi and Weerakkody, 2007; Al-Busaidy and Weerakkody, 2009; Al-Shehry et al., 2009; AlAwadhi and Morris, 2009; Almutairi, 2010; Al-Busaidy and Weerakkody, 2011; Kostopoulos, 2004). This study addresses these voids in prior e-government research.

The present investigation attempts to make at least three contributions. First, unlike past empirical e-government research, it considers two dimensions of e-government use: visiting frequency and number of transactions. This approach allows a deeper understanding of citizens’ behaviours in an e-government setting. Second, it tests the contingency influences of relationship quality characteristics (trust and value) as well as citizens’ demographics (age, gender, and education) on the relationship between
e-government attitudes and use. Third, it implicitly examines the role of the Arab Gulf culture in shaping e-government related attitudes and behaviours. It is important to examine the applicability of findings from prior e-government investigations that were conducted in other parts of the world to countries that differ culturally, such as the countries of the Arab Gulf. To elaborate on these ideas, the remainder of the manuscript is organised as follows. The next section presents the background of the Kuwaiti context and the proposed research model and hypotheses. In the following three sections, the research methodology is described, the data analysis and research results are presented, and the findings are discussed.

2 Background

2.1 The Kuwaiti context

Economic and cultural factors are important for understanding information systems (IS) implementations in a global setting (Watson et al., 1997). The context for the use of IS applications in Arab Gulf countries is characterised by certain attributes that distinguish it from uses in most other countries (Aladwani, 2003b). For example, the country context of this study, the State of Kuwait, is a typical Arab Gulf country in terms of its economic and cultural attributes. Kuwait possesses excellent financial liquidity, and most of its foreign investments are in international blue-chip companies. Consequently, for Kuwait, investing in cutting-edge e-government technologies does not represent a significant burden. The work of Hofstede (1983) suggests that Kuwait’s national culture is characterised by high uncertainty avoidance; that is, people feel strongly intimidated by unknown situations. As such, Kuwaitis are expected to have security-seeking attitudes. Thus, Kuwaiti citizens may be reluctant to accept wide-ranging changes introduced by an information technology application such as e-government. Furthermore, Kuwaitis are expected to be more hesitant to embrace web-based services due to certainty-related concerns, such as internet security (Aladwani, 2001b).

In Kuwait, the most pressing issue facing the newly established e-government is the challenge of how to convince Kuwaiti citizens to accept this national initiative. In mid-September 2010, the official Kuwaiti e-government website reported that 63% of the surveyed internet visitors (using a drive-by interactive web survey) were satisfied with the e-government portal. This is a noteworthy result if one considers the cost-benefit matrix of a project in which the government invested large amounts of money. Why does the public have a mediocre satisfaction rate with the e-government website? E-government in Kuwait has been at the centre of decision makers’ interests and support for quite some time, but it is not clear to the neutral observer why Kuwaiti citizens maintain these perspectives. Aladwani (2003a, 2006) reported that individuals’ positive attitudes are an important driver of their intention to accept cutting-edge technology applications in Kuwait. Surprisingly, however, there are no scientifically verified data on Kuwaiti citizens’ attitudes toward e-government. The research findings of some scholars (e.g., Wang and Shih, 2009) suggest that technology acceptance patterns may differ depending on the type and context of technology.
2.2 Theoretical background

Most IS investigations that build on popular theories of individual-level technology acceptance behaviour have measured acceptance with intention to use as a surrogate variable. To a lesser extent, these studies have employed actual use as an outcome variable (see, for example, LeGris et al., 2003). This trend can also be observed in previous e-government adoption investigations (see, for example, Titah and Barki, 2006).

For example, Wang (2003) considered intention to use an electronic tax filing system as a surrogate construct to assess e-government acceptance. Several other e-government researchers (Hung et al., 2006; Sahu and Gupta, 2007; Schaupp et al., 2010) have followed Wang’s lead. Almost none of the reviewed e-government studies employed actual use as an outcome variable. In this study, the author extends past research by differentiating between two e-government acceptance levels: exploration use (visit frequency) and transactional use (number of transactions). The former reflects citizens’ informational discovery or collection behaviours, and the latter illustrates citizens’ information sharing or monetary transactional activities. Based on this important distinction between the two use variables, it is possible to better understand the nature of the relationship between citizens’ attitudes and behaviours when interacting with e-government portals.

In the past three decades, IS researchers have shown a great deal of interest in understanding the connection between attitudes toward and use of information technology (Robey, 1979). The importance of this relationship stems from both theoretical and practical reasons (Goodhue, 1988). However, this interest has been subsiding since Davis’s et al. (1989) influential technology acceptance study, which recommended the exclusion of the attitude construct from Davis’s (1986) original model. Most subsequent technology acceptance investigations have discarded technology attitudes from their analyses. According to a meta-analytic investigation by LeGris et al. (2003, p.196) “only approximately eleven percent of the sampled studies attempted to empirically examine the link between attitudes and use”. This trend could be related to one of two reasons:

1. technology attitudes no longer predict acceptance
2. technology attitudes predict acceptance, but they do so contingent upon the values of individual and contextual variables.

The former explanation directly contradicts several well-established theories, such as the theory of reasoned action (Fishbein and Ajzen, 1975) and the theory of planned behaviour (Ajzen, 1985), as well as the vast behavioural psychology literature highlighting the importance of attitudes for behaviour. The latter explanation was not examined by previous IS research and is the focus of the present study.

On one hand, this study seeks to shed light on the link between attitudes and use in e-government acceptance research by focusing on age-, gender-, and education-related differences. Individual variables are critical correlates of people’s attitudes toward the use of information technology applications in general. Several studies (Agarwal and Prasad, 1999; Aladwani, 2001a, 2003a; Gefen and Straub, 1997; Venkatesh and Morris, 2000; Morris and Venkatesh, 2000) have suggested that demographic variables can differentiate between individuals who develop favourable attitudes and intentions to use a technology application and those who do not. However, this role has not been thoroughly examined.
in an e-government context. According to a review by Titah and Barki (2006), the majority of previous e-government research focused on examining organisational- and project-level characteristics. Only recently has the attention of e-government scholars targeted the role of individual-level factors in e-government acceptance. For example, some scholars (e.g., Dwivedi and Williams, 2008; Gauld et al., 2010; Fu et al., 2004; Choudrie and Dwivedi, 2005) have found that age, gender, and education significantly influence citizens’ attitudes toward and acceptance of e-government gateways. Although these findings suggest that demographic variables may moderate the relationship between e-government attitudes and use, little, if any, empirical research has explicitly tested the contingency role of these variables. Understanding the role of demographic characteristics in e-government acceptance is important to help decision makers in their quest to reach the widest base of portal users.

On the other hand, recent years have witnessed an increased interest in the notion of relationship quality (Hennig-Thurau and Klee, 1997), which suggests that customer satisfaction is only one step in a chain that seeks to strengthen the organisation-customer partnership. In this study, two important quality relationship strategies are used: trust and value. Variables of perceived trust and value occupy important positions in e-commerce relationships. For example, Gefen (2000) reported that trust in the web vendor influenced users’ intentions to inquire about and buy books. In an internet banking study, Aladwani (2001b) found that security (i.e., functional trust in the service) is perceived by users as the most important reason preventing them from engaging with a business online. The importance of trust for e-commerce acceptance has been echoed by many other studies (Cyr, 2011; Kim et al., 2009; Pavlou and Mendel, 2006; Gefen and Straub, 2004; Gefen et al., 2003). Nevertheless, some scholars suggest that these roles may not be as well established in the e-government literature as in the e-commerce literature (Virili and Sorrentino, 2009; Carter and Belanger, 2005). Although some studies have found that trust in e-government is directly related to its acceptance (Schaupp et al., 2010; Srivastava and Teo, 2009; Carter and Weerakkody, 2008; Belanger and Carter, 2008; Carter and Belanger, 2005; Warkentin et al., 2002), almost none of the studies in the e-government literature have attempted to test the interaction between e-government attitudes and trustworthiness. This study addresses this issue and defines e-government trustworthiness as the extent to which citizens trust the security measures of the portal. Keeney (1999) highlighted the importance of the value concept for internet customers, and several other scholars have advanced similar arguments (Grant et al., 2010; Kuo et al., 2009; see, for example, Chircu and Mahajan, 2006; Guo et al., 2010; Greenberg et al., 2008). However, the contingency role of perceived e-government value, or the extent to which citizens appreciate the value and benefits of the portal, remains to be verified in the e-government context. One notable exception is the study by Hung et al. (2006), which found a contingency effect for perceived usefulness (a dimension of value) on citizens’ attitudes toward and intentions to use an online tax filing and payment system. The author of this article argues that the relationship between citizens’ attitudes toward and use of the e-government portal may be stronger when citizens show high trust in and perceive high value of the e-government gateway.

This investigation seeks to present a preliminary account of the nature of Kuwaitis’ attitudes toward and acceptance of e-government. More specifically, based on the above discussion, this study attempts to address the following research questions:
R1 Do Kuwaitis’ attitudes toward e-government use have stronger effects on visit frequency in the younger, male, more educated, high trust, and high value groups than in the older, female, less educated, low trust, and low value groups?

R2 Do Kuwaitis’ attitudes toward e-government use have stronger effects on the number of transactions in the younger, male, more educated, high trust, and high value groups than in the older, female, less educated, low trust, and low value groups?

Figure 1 depicts the contingency-based model of this investigation.

3 Research methods

To achieve the objectives of this study, the author developed a two-part instrument, with the first part soliciting respondents’ personal details and the second part covering question items that measured the constructs of the current study. The outcome variable, e-government use, was assessed using two items: visit frequency [anchored on a four-point scale: (1) at least once every few months to (4) at least once a day] and number of transactions [anchored on a five-point range: (1) conducted no transactions to (5) completed seven or more transactions]. The moderators included age, gender, education, trust, and value. Single-item questions were used to ascertain participants’ age, gender and education. The age of the participants was coded (1) for young and (2) for old, whereas the gender of the respondents was coded (1) for males and (2) for females. The respondents were asked to indicate their education level using a four-point scale: (1) pre-high school, (2) high school, (3) university degree, and (4) graduate degree. The author used a single-item scale to assess perceived e-government trustworthiness (I feel the Kuwaiti e-government website is trustworthy) and another to measure perceived value (I believe transacting with the Kuwaiti e-government website is beneficial) using a seven-point scale: (1) strongly disagree to (7) strongly agree. The participants in our study were asked to indicate their satisfaction with the use of the Kuwaiti e-government website on a Likert-type scale ranging from (1) extremely dissatisfied to (9) extremely satisfied. The decision to use single-item measures to assess overall attitudes
(satisfaction), trust, and value in this study was based on practical reasons and was supported by the findings of numerous empirical studies suggesting that single-item scales are an appropriate research design choice and are as reliable and valid as multiple-item measures (Wanous et al., 1997; Nagy, 2002; Dollinger and Malmquist, 2009; Bergkvist and Rossiter, 2007; Drolet and Morrison, 2001).

To ensure the content validity of the instrument, two experts examined the statements in the questionnaire and suggested minor changes focused on the rewording of some statements. The instrument was pilot tested using a sample of 60 university students enrolled in an introductory IS course. The students answered the survey questions without any complaints or suggestions for modification. The author then asked the research assistants to begin distributing the final version of the questionnaire to 500 randomly selected Kuwaitis working for ten randomly selected governmental organisations. Of the 500 questionnaires distributed, 272 responses were completed and returned to the research assistants. Four questionnaires were deemed inappropriate for further statistical analysis because of missing data. The final number of 268 usable questionnaires represents an approximately 54% response rate.

Table 1 summarises sample characteristics. Table 1 shows that the average age of the respondents was approximately 33 years, with a standard deviation of approximately nine years. It also shows that close to 48% of the sample were males. In terms of education, the table reveals that 77% of the participants held at least a high school degree.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Average = 32.80</td>
</tr>
<tr>
<td></td>
<td>SD = 8.71</td>
</tr>
<tr>
<td></td>
<td>Unknown = 3</td>
</tr>
<tr>
<td>Gender</td>
<td>Males = 128 (47.8%)</td>
</tr>
<tr>
<td></td>
<td>Females = 140 (52.2%)</td>
</tr>
<tr>
<td>Education</td>
<td>Pre high school = 62 (23.1%)</td>
</tr>
<tr>
<td></td>
<td>High school = 102 (38.1%)</td>
</tr>
<tr>
<td></td>
<td>University = 88 (36.8%)</td>
</tr>
<tr>
<td></td>
<td>Graduate degree = 16 (6.0%)</td>
</tr>
</tbody>
</table>

4 Data analysis and results

This section reports on the results of a preliminary study of Kuwaiti citizens’ attitudes toward e-government. The participants in our study were asked to indicate their satisfaction with the Kuwaiti e-government website on a Likert-type scale ranging from one to nine, where one indicated ‘extremely dissatisfied’ and nine indicated ‘extremely satisfied’. Of those who visited or transacted with the Kuwaiti e-government portal (180 citizens), approximately 49% were satisfied (Figure 2). The largest part of the satisfied group was the ‘slightly satisfied’ segment, which represented approximately 54% of the satisfied respondents.
Figure 2  Satisfaction with e-government services (see online version for colours)

Figure 3  Satisfaction by preference of interaction with government (see online version for colours)
Figure 3 presents citizens’ satisfaction distributed by their preference for completing government transactions through the internet or in person, as they did previously. This figure shows that among the citizens who preferred to use the government portal, the ‘strongly satisfied’ group was the most prevalent, whereas among those who preferred to use the traditional face-to-face approach, the option labelled ‘strongly dissatisfied’ was the most prevalent.

Figure 4 summarises citizens’ satisfaction by the source through which they heard about the e-government website. Figure 4 shows that citizens with the highest satisfaction level were those who heard about the website from their relatives. The citizens who heard about the government gateway from web search engines were the most dissatisfied group.

Tables 2 and 3 summarise the findings of two univariate GLM analyses exploring the impact of age, gender and education on the relationship between attitudes toward e-government use and actual use (as measured by visit frequency and number of transactions). In the case of the visit frequency model, Table 2 shows that the interaction between citizens’ attitudes toward e-government use and gender ($F_{1,165} = 28.40, p < 0.01$) and education ($F_{3,165} = 4.08, p < 0.01$) is statistically significant. There is no interaction between e-government attitudes (satisfaction) and age ($F_{1,165} = 0.90, p > 0.05$), however. The adjusted R-square of the research model is 0.37 ($p < 0.01$). In the case of the number of transactions model, Table 3 reveals that the interaction between attitudes and gender ($F_{1,169} = 57.44, p < 0.01$) and education ($F_{3,169} = 5.27, p < 0.01$) is statistically significant. There is no interaction between e-government attitudes and age. The adjusted R-square of the research model is 0.62 ($p < 0.01$). Post-hoc comparisons using Tukey’s test revealed that the mean satisfaction scores for the ‘below high school’ group ($M = 4.34, SD = 1.19$) and the ‘high school’ group ($M = 4.35, SD = 1.86$) were significantly different from the ‘university’ group ($M = 6.35, SD = 1.85$).
Table 2  Satisfaction X demographics (visits frequency model)

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>0.497</td>
<td>1</td>
<td>0.497</td>
<td>0.920</td>
</tr>
<tr>
<td>Age</td>
<td>0.029</td>
<td>1</td>
<td>0.029</td>
<td>0.053</td>
</tr>
<tr>
<td>Gender</td>
<td>17.009</td>
<td>1</td>
<td>17.009</td>
<td>31.458**</td>
</tr>
<tr>
<td>Education</td>
<td>4.168</td>
<td>3</td>
<td>1.389</td>
<td>2.570</td>
</tr>
<tr>
<td>Age * Satisfaction</td>
<td>0.488</td>
<td>1</td>
<td>0.488</td>
<td>0.902</td>
</tr>
<tr>
<td>Gender * Satisfaction</td>
<td>15.358</td>
<td>1</td>
<td>15.358</td>
<td>28.404**</td>
</tr>
<tr>
<td>Education * Satisfaction</td>
<td>6.612</td>
<td>3</td>
<td>2.204</td>
<td>4.076**</td>
</tr>
<tr>
<td>Error</td>
<td>89.213</td>
<td>165</td>
<td>0.541</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>672.000</td>
<td>177</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R-squared = 0.41** (adjusted R-squared = 0.37**)  

Note: *p < 0.05, **p < 0.01.

Table 3  Satisfaction X demographics (transactions model)

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>3.810</td>
<td>1</td>
<td>3.810</td>
<td>7.704**</td>
</tr>
<tr>
<td>Age</td>
<td>2.679</td>
<td>1</td>
<td>2.679</td>
<td>5.416*</td>
</tr>
<tr>
<td>Gender</td>
<td>25.362</td>
<td>1</td>
<td>25.362</td>
<td>51.283**</td>
</tr>
<tr>
<td>Education</td>
<td>11.281</td>
<td>3</td>
<td>3.760</td>
<td>7.604**</td>
</tr>
<tr>
<td>Age * Satisfaction</td>
<td>0.739</td>
<td>1</td>
<td>0.739</td>
<td>1.495</td>
</tr>
<tr>
<td>Gender * Satisfaction</td>
<td>28.409</td>
<td>1</td>
<td>28.409</td>
<td>57.444**</td>
</tr>
<tr>
<td>Education * Satisfaction</td>
<td>7.818</td>
<td>3</td>
<td>2.606</td>
<td>5.270**</td>
</tr>
<tr>
<td>Error</td>
<td>83.578</td>
<td>169</td>
<td>0.495</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>819.000</td>
<td>181</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R-squared = 0.65** (adjusted R-squared = 0.62**)  

Note: *p < 0.05, **p < 0.01.

Tables 4 and 5 report the findings of testing the moderating effect of trust and value on the link between e-government attitudes and both visit frequency and number of transactions. Table 4 summarises the results of testing these relationships in the visit frequency model and shows that the interaction effect between citizens’ attitudes toward e-government use and trust (F_{1,174} = 5.48, p < 0.05) and value (F_{1,174} = 10.20, p < 0.01) is statistically significant. The adjusted R-square of the research model is 0.26 (p < 0.01). In the case of the number of transactions model, Table 5 reveals that the interaction between attitudes and trust (F_{1,178} = 24.65, p < 0.01) is statistically significant. There is no interaction between e-government attitudes and value (F_{1,178} = 2.43, p > 0.01). The adjusted R-square of the research model is 0.48 (p < 0.01).
Table 4  Satisfaction X trust/value (visits frequency model)

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>5.235</td>
<td>1</td>
<td>5.235</td>
<td>7.973**</td>
</tr>
<tr>
<td>Trust</td>
<td>5.571</td>
<td>1</td>
<td>5.571</td>
<td>8.485**</td>
</tr>
<tr>
<td>Value</td>
<td>1.694</td>
<td>1</td>
<td>1.694</td>
<td>2.581</td>
</tr>
<tr>
<td>Trust * Satisfaction</td>
<td>3.600</td>
<td>1</td>
<td>3.600</td>
<td>5.484*</td>
</tr>
<tr>
<td>Value * Satisfaction</td>
<td>6.695</td>
<td>1</td>
<td>6.695</td>
<td>10.198**</td>
</tr>
<tr>
<td>Error</td>
<td>114.236</td>
<td>174</td>
<td>0.657</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>706.000</td>
<td>180</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R-squared = 0.28** (adjusted R-squared = 0.26**)

Note: *p < 0.05, **p < 0.01.

Table 5  Satisfaction X trust/value (transactions model)

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>26.116</td>
<td>1</td>
<td>26.116</td>
<td>38.055**</td>
</tr>
<tr>
<td>Trust</td>
<td>17.568</td>
<td>1</td>
<td>17.568</td>
<td>25.600**</td>
</tr>
<tr>
<td>Value</td>
<td>2.199</td>
<td>1</td>
<td>2.199</td>
<td>3.204</td>
</tr>
<tr>
<td>Trust * Satisfaction</td>
<td>16.918</td>
<td>1</td>
<td>16.918</td>
<td>24.653**</td>
</tr>
<tr>
<td>Value * Satisfaction</td>
<td>1.670</td>
<td>1</td>
<td>1.670</td>
<td>2.433</td>
</tr>
<tr>
<td>Error</td>
<td>122.156</td>
<td>178</td>
<td>0.686</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>846.000</td>
<td>184</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R-squared = 0.49** (adjusted R-squared = 0.48**)

Note: *p < 0.05, **p < 0.01.

5 Discussion and concluding thoughts

The goal of this investigation was to examine the conditions under which e-government attitudes influence e-government use. The results show that Kuwaiti citizens express a medium level of satisfaction with the studied portal, and the pattern of the relationship between e-government attitudes, visit frequency, and the number of completed transactions differs according to citizens’ education and gender as well as their perceived e-government trustworthiness and value.

Overall, of those citizens who visited or transacted with the Kuwaiti e-government portal, approximately 49% are satisfied. The largest part of the satisfied group is the ‘slightly satisfied’ segment, which represents approximately 54% of the satisfied respondents. These results may indicate that the e-government gateway may not be performing as expected. One explanation for this finding may be attributed to cultural reasons. The Arabic culture is characterised by relatively high uncertainty avoidance (Hofstede, 1983), which may mean that Kuwaitis may be uneasy about the change introduced by their e-government. In this study, the author advanced other possible reasons for this result, including the role of demographic variables and relationship quality characteristics in the e-government supply-demand equation.
The analyses also reveal that citizens’ satisfaction with e-government services is positively related to visit frequency and the number of transactions with e-government, and the pattern of these relationships differ across gender and education subgroups. More specifically, the findings reveal that females show a greater tendency than males to use the portal when their satisfaction increases. More educated citizens are more inclined to visit the portal frequently than are less educated citizens when their satisfaction decreases, and there is no significant interaction between satisfaction and age in the transaction and visit models. The significant role of gender is consistent with the findings of previous research (e.g., Choudrie and Dwivedi, 2005) but contradicts findings about the group that is most responsive to e-government services. Unlike past research, the current study shows that females exhibit higher e-government satisfaction and acceptance than males. This is may be due to socio-cultural factors. Some Kuwaiti females may feel that they face social hurdles (such as being unable to go to traditional public offices in person without an accompanying guardian) that force them to appreciate e-government services more than males do. In a similar vein, consistent with the results of past research (e.g., Gauld et al., 2010), this paper found that education plays an important role in citizens’ e-government adoption decisions. Education is an essential vehicle through which citizens gain adequate internet experience and the necessary skills to fully appreciate and exploit various e-government services. Age has not been found to moderate the link between e-government attitudes and use, a result that contradicts the findings of Fu et al. (2004). One possible explanation for this finding may be found in the composition of the sample, which consists primarily of citizens who are internet/e-government savvy.

Similarly, a different pattern of relationships exists among the outcome variables according to the different e-government value and trustworthiness groups. It is interesting to note that trust in e-government plays a stronger role in moderating the relationship between citizens’ attitudes toward e-government and the number of transactions they complete via the portal, whereas e-government value plays a stronger role in moderating the relationship between citizens’ attitudes and their frequency of visiting the gateway. The question remains: why? The answer may rest in the nature of e-government transactions. Most of these transactions involve risks, and the penalties for not successfully completing these transactions on time may be serious (Schaupp et al., 2010). E-government trustworthiness has been suggested to minimise citizens’ perceived risk and hence to increase use intentions (Warkentin et al., 2002). Consequently, for citizens to show satisfaction and transact with an e-government portal, they must trust it first. In contrast, visiting an e-government website does not entail any of the aforesaid uncertainties or penalties; hence, such an action only requires citizens to perceive the website as valuable to react favourably toward it. In all cases, trust in and the value of e-government have been shown to influence the link between citizens’ satisfaction with and use of e-government in different yet complementary ways. This view enhances our understanding of the relationship between citizens’ attitudes toward e-government and use and, as such, offers an important contribution to e-government acceptance theory.

The findings of this study present several practical implications for decision makers. Because the results show that a favourable e-government attitude is conducive to usage behaviours and that the satisfaction level is relatively low, decision makers responsible for the Kuwaiti e-government website should exert greater effort to understand the factors that lead to satisfaction. For example, officials responsible for the e-government website can develop free training programmes targeted at various demographic groups (age,
gender, and education) to increase the awareness of the Kuwaiti public about e-government services and skills and to establish internet skills and knowledge as an integral part of the country’s educational system. Furthermore, the fact that two-thirds of the sample either had not heard about the portal or had unfavourable attitudes may indicate that more publicity efforts for the e-government website may be needed. For a more complete view of the problem, Kuwaiti decision makers may need to exert greater efforts to understand the possible determinants of citizens’ satisfaction with e-government. Why is satisfaction relatively low? Is it because of the website’s poor aesthetic qualities, content, or technical performance? Or is it because of other factors?

This investigation highlighted the fact that citizens’ satisfaction with and use of e-government services is significantly affected by their trust in the e-government portal. This finding indicates that the e-government portal should be designed with trust-based cues in mind, and these trust elements must evolve to meet citizens’ expectations if we want to encourage them to transact with these portals. Additionally, this paper highlighted the importance of perceived value for enhancing the relationship between satisfaction and visit frequency. Therefore, it would be logical to enhance the content of the e-government portal to increase its potential benefit to users.

This investigation has a few limitations that represent opportunities for further research. The data used in this article are based on a sample of Kuwaiti citizens who have interacted with the Kuwaiti e-government. Hence, the findings provided by this investigation may not be fully representative of all Kuwaiti citizens who currently use e-government services because the sample was not randomly selected. Readers should be cautious not to overgeneralise the findings of the current investigation to all Kuwaiti users of e-government services. Another limitation of this study pertains to the nature of the moderators used, which included demographic and quality relationship factors. In the future, there may be a need to examine the role of other variables that may moderate the relationship between e-government attitudes and behaviour, such as website quality features, website type, and participants’ nationality (natives versus expats). For example, it would be fruitful to explore how informational versus transactional e-government websites affect the link between attitudes and use. Moreover, this study operationalised attitudes toward e-government, trust, and value in overall terms using a single-item measure for each. Future attempts should examine different aspects of e-government attitudes, trust, and value using appropriate multi-dimensional measures. For instance, it is may be worthwhile to understand how different types of trust (e.g., trust in e-government, trust in government, and trust in the internet) differently affect e-government attitudes and use. Finally, it would be interesting to identify the various political, economic, cultural, social, and technical factors that influence the maturity (Layne and Lee, 2001) of e-government portals in a particular country.

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References


