THE EFFECT OF RELATIONSHIP QUALITY ON CITIZEN SATISFACTION WITH ELECTRONIC GOVERNMENT SERVICES

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Each country's government works hard to avail its services online more effectively. One solution must be to adopt the customer relationship management (CRM) concept in the process. This study recognized the relationship quality from CRM as an additional major dimension of service quality for e-government online services and examined its role in achieving individual efficiency and citizen satisfaction. By analyzing data from 245 South Koreans who evaluated their e-government service experiences, the study developed a scale to measure the three dimensions of relationship quality (needs fulfillment, interactive communications, and segmented services) and found the dimensions to have a significant impact on individual efficiency and citizen satisfaction.

INTRODUCTION

Expansion of Internet and information technologies brought about a change of the government service paradigm, making the government provide services online. Electronic government services are expanding across countries. Furthermore, countries apply to public sectors (King 2007) customer relationship management (CRM) by which administrative organizations and governments discover citizen needs, accordingly address them in their services, utilize two-way communications through a satisfaction survey and a policy proposal and participation, segment the citizens by their needs and topics, and offer customized information and services. There has been an effort to measure the quality of e-government services (e.g., Chung, Sheu and Chien 2007; Cullen and Caroline 2000; Gupta and Debashish 2003). However, existing scales of offline and online service qualities do not address appropriately the core concept of the CRM on which many e-government services are based. Specifically, while emphasizing system quality, information content quality, and traditional service quality, they do not recognize relationship quality as a dimension of the service quality. Therefore, the purpose of this research is to introduce relationship quality as a new dimension of the quality of e-government services and to identify its sub-dimensions empirically, examining their effect on citizen satisfaction. The findings will enable e-government service providers to measure the quality of online services and maximize citizen satisfaction.

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BACKGROUND

The Electronic Government

The electronic government refers to a service-oriented government that, capitalizing on computer and Internet technologies, processes its tasks online, works online with its branch offices to increase the efficiency and transparency of the operation, digitalizes its services, and provides them to citizens online in any place and at any time so that the access to, and use of, the services can become easy. The e -government tries to respond efficiently to citizen needs and increase citizen participation in policy decision-making, whereas the offline government services have a limited access and demand more efforts and time for citizens to acquire services. In contrast, the e-government eliminates inefficiency of both the government

and citizens in terms of time, expenses, and efforts involved to acquire and process information. In summary, it provides all citizens with time, spatial, and economic convenience. The types of e-government services include public information services, civil petition services, local and cultural services, welfare services, and policy participation services.

Online Service Quality

Service refers to an intangible experience in which a customer participates as a co-producer. Its quality is subjectively perceived, and it is difficult to measure before the service is consumed as production and consumption take place simultaneously. Parasuraman, Zeithaml, and Berry's (1985 and 1988) SERVQUAL (consisting of five dimensions of responsiveness, assurance, reliability, empathy, and tangibles) has been popularly used to measure the quality of offline services. As many services are offered online, the scale was directly applied to measuring the online service quality, but it was found inappropriate because online services show clear differences from offline services. Accordingly, researchers identified core dimensions of online service quality and developed new scales that measure them properly. For example, DeLone and McLean, who in 1992 suggested system quality and information content quality as two dimensions of successful information systems, added service quality in 2003 as the systems were extended online. Negash et al. (2003) also identified information quality, systems quality, and service quality as dimensions of effective Internet-based customer systems. Parasuraman et al. (2005) developed E-S-QUAL (consisting of efficiency, fulfillment, system availability, and privacy) and E-RecS-QUAL (consisting of responsiveness, compensation, and contact) as a measure of online service quality. In summary, online service quality and its scales have been actively examined, but the exact dimensions demand further consensus.

Customer Relationship Management

Customer relationship management (CRM) is a business method that utilizes customer knowledge to serve customers efficiently and effectively. Specifically, it gathers and analyzes customer data; provides services that fit characteristics of individual customers; enhances the life-span value of customers; and plans, supports, and evaluates relevant organizational activities so that profitability of the organization increases (Horn, Feinberg and Salvendy 2005; Roh, Ahn and Han 2005). Accordingly, it is customer-oriented, paying more attention to relationship management with customers, pursuing long-term profits through relationships with customers, maintaining and expanding transactions with customers throughout their life span by using their databases, and integrating customer service processes at the corporate level. When CRM is applied to public sectors, it is called public customer relationship management (PCRM) or citizen relationship management. It is noteworthy that PCRM requires different dimensions of service quality reflecting the administrative concepts although, like commercial CRM, it works to maintain life-span relationships with customers and to provide customized services. For example, commercial CRM carefully selects and targets certain segments of the market rather than the entire market to maximize the firm's profitability whereas, as its customers are citizens, PCRM should take care of every citizen with fairness and equality. Therefore, we define PCRM as systems that plan, implement, evaluate, and control the government's services and maximize citizen satisfaction by discovering the needs of citizens, who are the objects of the government's services, communicating continuously with them, and providing information and services that meet citizens' needs.

The e-Government and PCRM

The e-government's internal objective is organizational efficiency whereas its external

objective is customer orientation, which requires providing information and services customers want and need. Therefore, commercial CRM, especially when it identifies and targets certain segments of the market, may contradict the very nature of the e-government, which works for the entire population of citizens through enhanced and equal services. In public sector services, none of citizens should be differentiated or ignored; they should be guaranteed the right to receive equal services. Firms differentiate services by providing different prices and quality, but public sectors, particularly the e-government, should avoid such types of differentiation. On the other hand, going online by itself works as differentiation for e-government because it enables the government to provide services that are too inefficient or expensive when offered offline and to provide a new channel by which the government can interact with citizens. E-government sites segment their services by various classifications. For example, the U.S. e-government web site uses segmentation variables such as service topics, demographics (citizens, foreigners, corporations, and government employees), and citizen types (children, parents, seniors, the disabled, and citizens living overseas). E-government segmentation focuses on efficient categorization of the services to help citizens access the services as quickly as possible.

Little research has investigated e-government services from a PCRM perspective. Therefore, in this research, we tried to integrate previous research on online service quality, CRM, and e-government services. Specifically, we added relationship quality as a new dimension to the service quality of e-government, identified sub-dimensions of relationship quality, and examined the role of the relationship quality dimensions. In the context of e-government services, we define relationship quality as quality of managing relationship with citizens, the very consumers of the e-government services, by understanding and meeting citizens' needs, keeping interactive communications with citizens, and segmenting the services in various ways for convenience in order to enhance citizen satisfaction and efficiency.

Research Framework

Literature suggests the service quality of the e-government consists of the following four dimensions: system quality, information quality, service quality, and relationship quality (e.g., Barnes and Vidgen 2001; Cox and Dale 2001; DeLone et al. 2003; Gounaris et al. 2003; Horn, Feinberg and Salevendy 2005; Kang and James 2004; Li, Tan and Xie 2002; Liu et al. 2001; Madu and Madu 2002; Negash et al. 2003; and Yang, Jun and Peterson 2004; Yang, Peterson and Cai 2003; Yoo and Donthu 2009). System quality refers to hardware-oriented quality such as tangibles, convenience, and accessibility. Information quality refers to the user-perceived value of the output the system produces, such as accuracy, recency, and usefulness. Service quality consists of responsiveness, reliability, empathy, and assurance. Relationship quality, which is the focal dimension of this study, consists of needs fulfillment, interactive communications, and segmented services, as shown in Figure 1. *Needs fulfillment* addresses the PCRM concept that calls for understanding of customer behaviors; discovers the characteristics and needs of the target market, analyzing the needs in advance; and meets the needs. *Interactive communications* reflects the PCRM concept that demands exercising ongoing communications with citizens and keeping two-way communications channels with citizens. *Segmented services* responds to the PCRM concept that requests developing services based on an individual customer's characteristics, segmenting the services for citizens who are classified in a variety of ways, and providing individualized services that meet the individual's needs.

The research framework recognizes four dimensions of the service quality of the e-government but will investigate the effect of the relationship quality because that aspect has not been researched well. In the framework, the three dimensions of relationship quality (needs fulfillment, interactive communications, and

segmented services) function as independent variables whereas individual efficiency and satisfaction of citizens who use the e-government services work as dependent variables. Individual efficiency refers to the ratio of efforts to outcome, that is, efficiency that an individual citizen perceives based on the time, effort, and expense savings because she or he does not have to go to the local government office but can get the same service online. This efficiency would affect citizen satisfaction positively.

HYPOTHESES DEVELOPMENT

The purpose of this research is to examine the effect of relationship quality (one component of the e-government service quality) on individual efficiency and citizen satisfaction. In particular, needs fulfillment, interactive communications, and segmented services are investigated as three dimensions of relationship quality.

Needs Fulfillment

Needs fulfillment refers to eliminating or significantly reducing a consumer's current deprived condition. Needs fulfillment in this study is defined as the effort to discover, understand, and satisfy citizen needs. When using the e-government services, a citizen expects to save time and cost as a result of the convenience of the process compared to getting the services by visiting the offline government offices in person or contacting them over the phone. Fulfilling such needs will in fact result in the reduction of the citizen's time, and monetary, physical, mental, and emotional costs, which are directly linked to the increase of the individual efficiency by which the citizen puts less effort and gets the same outcome. Therefore, needs fulfillment increases individual efficiency.

Citizen satisfaction is a reaction that a customer shows to the extent to which his or her needs and expectations are met by the service offerings; it requires service offerings that meet or exceed citizen expectations and handle their complaints effectively. This task will be accomplished only when citizens' needs are first understood. Needs discovery and fulfillment will produce citizen-oriented or centered services and result in citizen satisfaction. Therefore,

H_1: Needs fulfillment will increase individual efficiency positively.

H_2: Needs fulfillment will increase citizen satisfaction positively.

Interactive Communications

Communications take place when people exchange and react to their will, information, emotions, attitudes, and beliefs with each other through language or other mechanisms and share a meaning. Communications, when interactive, dynamically promote message transfer, reception, interpretation, and reaction. Such interactive communications smoothly disseminate customer petitions, suggestions, and inquiry to proper personnel and offer customers a chance to participate in the product development and trust the service providers. Santos (2003) suggested that communications in e-services consist of online (e.g., email and online chatting) and traditional communication methods (e.g., phone, fax, and mail) and that a high-quality web site should be a channel to a variety of communication methods. Yang et al. (2003) argued that interactive communications are essential in providing shopping convenience to customers. Hunt, *Arnett* and Madhavaram (2006) recognized interactive communications as a factor of relationship marketing. CRM emphasizes ongoing and interactive communications. Interestingly enough, a web site is an instrument by which interactive communications takes place. The e-government web site achieves interactive communications through online forums, communities, satisfaction surveys, suggestion boxes, and policy-making participation sections. Consequently, the e-government can understand citizen needs, reflect their voices in the policy and the services, and enhance an individual citizen's efficiency.

Prompt responses to customers enhance customer satisfaction (Hofstede, Steenkamp and

Wedel 1999; McKinney, Yoon and Zahedi 2002). Internet telecommunication technologies enabled the e-government to provide citizens prompt and effective services through interactive communications. The e-government utilizes interactive communications to nurture direct democracy, acquire and address citizen opinions, and promote her policies, whose activities consequently build trust between the government and citizens.

H_3: Interactive communications will increase individual efficiency positively.

H_4: Interactive communications will increase citizen satisfaction positively.

Segmented Services

Market segmentation is meant to identify groups in the market who share common desires and characteristics and to optimize marketing efforts by customizing the services and products to the identified needs. The primary purpose of segmentation is to enhance investment efficiency by focusing on the most favorable segment markets, which are very likely to be more satisfied with the firm's products than any other segments because there is a match between their needs and the products. CRM is a method that finds types of purchase patterns from an accumulated amount of transactions with customers and use the patterns to maximize the profitability. However, the e-government adopts CRM mainly to segment citizens by their demographic variables and customize content topics to each major group of customers such as parents, children, youths, the disabled, seniors, and aliens. When the services are categorized properly for citizen needs, it is obvious that citizens will be able to enjoy efficiency by saving time and effort in terms of service search and acquisition (Pieterson, Ebbers and van Dijk 2007). The e-government's segmented services evolve more sophisticated as CRM is a citizen-centered method to develop individualized and customized services. As a result, citizens find themselves more satisfied. Therefore,

H_5: Segmented services will increase individual efficiency positively.

H_6: Segmented services will increase citizen satisfaction positively.

Individual Efficiency and Citizen Satisfaction

Efficiency refers to the ratio of output to input. Input factors that compute individual efficiency of the e-government services include time, efforts, and expenses a citizen invests to get the services, whereas output factors include convenience, the amount of time saving, the services delivered, and any additional rewards that the citizen enjoys. The e-government services provide services online; these services significantly reduce time and space constraints that offline services have imposed. Based on equity theory, Oliver and DeSarbo (1998) predict that a citizen would be satisfied only when she or he perceives the output to be fair when compared with the amount of input invested. Citizen satisfaction is a very important performance indicator of the e-government as it affects vitality of the service usage. This satisfaction takes place to the extent to which individual efficiency is achieved. Therefore,

H_7: Individual efficiency will increase citizen satisfaction positively.

METHODOLOGY

Sample

South Korea was selected for this study because it has developed an exemplary e-government services and the Internet is used by citizens of all ages. The sample was randomly selected from citizens of South Korea who experienced the e-government services. The demographic characteristics of the sample were quite similar to those of the user population of the services. Through a self-administered survey, 300 citizens participated in the study, but 27 were deleted due to no e-government experiences, and 28 were deleted due to no responses to some questions. As a result, a sample of 245 was obtained. Table 1 reports their demographic characteristics and e-government experiences.

TABLE 1
Sample Characteristics

Variables	Values	Percent
Gender	Male	68.6%
	Female	32.3%
Age	30 or younger	25.7%
	31 to 40	41.6%
	41 to 50	21.6%
	51 or older	10.0%
Education level	High school diploma	4.9%
	Some college	10.2%
	College graduate	51.4%
	Graduate degree	33.5%
Occupations	Corporate workers	54.7%
	Government workers	18.0%
	Students	9.8%
	Professionals	9.0%
	Others	8.7%
e-Government Service used	Policy information	11.9%
	Laws and statistics	12.7%
	Culture and welfare	13.8%
	Citizen petitions	23.3%
	Consulting	9.4%
	Policy participation	9.6%
	Daily life services	5.4%

n = 245.

Measures

We generated a pool of item candidates for the research constructs based on relevant literature and interviews with industrial experts and citizens. Then we ran a pilot study and selected items that achieved satisfactory factor patterns and reliability and used them in the main study. The final items and their characteristics are reported in Table 2. Each item was measured on a seven-point scale anchored by Strong Agree (7) to Strong Disagree (1). Based on LISREL 8.8, we evaluated the appropriateness of the five scales, that is, three dimensions of relationship quality (needs fulfillment, interactive communications, and segmented services) as independent variables and individual efficiency and citizen satisfaction as dependent variables. The factor loading of each item on its corresponding factor ranged from 0.69 (t-value = 11.31) to 0.90 (t-value = 17.62). Reliability of the scales ranged from 0.71 to 0.91, and average variance extracted ranged from 0.45 to 0.77, which demonstrated satisfactory convergent and discriminant validity (Anderson and Gerbing 1988; Fornell and Larker 1981). The three-dimensional relationship quality achieved the following excellent goodness of fit indexes: $\chi^2_{(24)} = 52.62$; RMSEA = 0.07; NNFI = 0.98; CFI =

0.99; IFI = 0.99; RMR = 0.05; standardized RMR = 0.04; GFI = 0.95; and AGFI = 0.91.

Result

We ran structural equation modeling by LISREL 8.8 to test the hypotheses. The structural model assumed that each of the three relationship quality dimensions would cause both individual efficiency and citizen satisfaction and that individual efficiency would cause citizen satisfaction. Table 3 was the covariance matrix of the measure items produced for hypothesis testing, and Table 4 shows the result of the analysis. Goodness of fit indexes of the structural model were overall adequate: $\chi^2_{(80)}$ = 197.70; RMSEA = 0.08; NNFI = 0.96; CFI = 0.97; IFI = 0.97; RMR = 0.09; Standardized RMR = 0.08; GFI = 0.90; and GFI = 0.85. H1 (the path from needs fulfillment to individual efficiency), H4 (interactive communications to citizen satisfaction), and H5 (segmented services to individual efficiency) were not supported as their estimates were not significant at a 0.10 significance level. However, H2 (needs fulfillment to citizen satisfaction) was supported at a 0.05 level (γ_{21} = 0.13); H3 (interactive communications to individual efficiency) was supported at a 0.01 level (γ_{12} = 0.31); H6 (segmented services to citizen satisfaction) was supported at a 0.10 level (γ_{23} = 0.13); and H7 (individual satisfaction to citizen satisfaction) was supported at 0.0001 level (β_{21} = 0.81). In summary, both needs fulfillment and segmented services affect citizen satisfaction; interactive communications affect individual efficiency; and individual efficiency affects citizen satisfaction. When the model is modified with the supported paths only, it shows the diagram, estimates, and fit indexes as reported in Figure 1, which are quite equivalent to the result of the original model. According to the result, the two dependent variables can be predicted as follows:

- Individual efficiency = 0.36 x (Interactive communications) + error, R^2 = 0.13
- Citizen satisfaction = 0.81 x (Individual efficiency) + 0.29 x (Needs fulfillment) + 0.11 x (Segmented services) + error, R^2 = 0.80

Interactive communications have no significant direct effect on citizen satisfaction, but their indirect effect through individual efficiency is significant (0.36 x 0.81 = 0.29) at a 0.0001 level. Therefore, it can be concluded that all three dimensions of relationship quality are important determinants of citizen satisfaction. This confirms that relationship quality serves well the purpose of CRM in public sectors, demanding that the e-government should focus on, and work hard to improve, relationship quality to maximize citizen satisfaction and individual efficiency through citizen-oriented services and trust between the government and citizens.

CONCLUSION AND IMPLICATIONS

Each country's government works hard to avail its services online more effectively. One solution must be to adopt the CRM concept in the process. This study recognized relationship quality from CRM as an additional major dimension of service quality of the e-government online services and examined its role in achieving individual efficiency and citizen satisfaction. By analyzing data from 245 South Koreans who evaluated their e-government service experiences, the study developed a scale to measure the three dimensions of relationship quality (needs fulfillment, interactive communications, and segmented services) and found the dimensions to have a significant impact on individual efficiency and citizen satisfaction. Specifically, needs fulfillment and segmented services affect citizen satisfaction directly whereas interactive communications do so indirectly through individual efficiency.

Research Implications

Researchers need to further the study by examining the following important issues. First, not all hypotheses were supported. Future research needs to examine the reasons behind it. In particular, it will be meaningful to

Table 2
Item Measures and Reliability Values

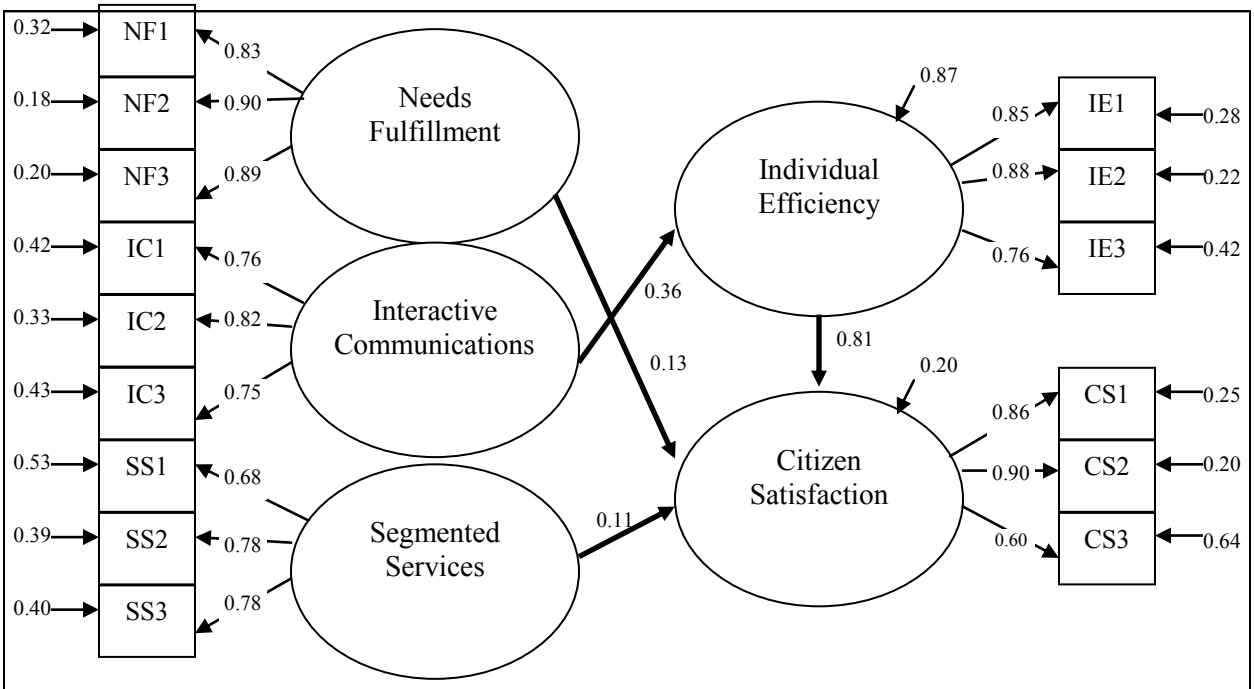
Constructs and Items (Reliability alpha and Average Variance Extracted)	Mean	Loading	T-value
Relationship Quality			
Needs Fulfillment (Reliability = 0.91 and AVE = 0.77)	4.66		
NF1. The site has strong attitudes to understand citizen needs.	4.76	0.82	15.87
NF2. The site shows efforts to identify citizen needs.	4.60	0.90	17.62
NF3. The site intends to meet citizen needs actively.	4.63	0.90	17.58
Interactive Communications (Reliability = 0.71 and AVE = 0.45)	4.61		
IC1. The site runs a discussion board and community actively.	4.36	0.76	13.16
IC2. The site surveys citizen satisfaction and listens to citizens' voices.	4.64	0.82	14.44
IC3. The site allows citizens to participate online in policy ideation.	4.83	0.76	12.97
Segmented Services (Reliability = 0.79 and AVE = 0.56)	4.47		
SS1. The services are classified by citizen types and major topics.	4.44	0.69	11.31
SS2. The site shows the status of the requested service.	4.65	0.78	13.18
SS3. The site provides individualized services.	4.32	0.78	13.15
Individual efficiency (Reliability = 0.87 and AVE = 0.69)	5.72		
IE1. I saved efforts in receiving the services.	5.89	0.85	13.13
IE2. I saved time in receiving the services.	5.64	0.88	14.57
IE3. I saved expenses in receiving the services.	5.64	0.76	12.98
Citizen satisfaction (Reliability = 0.84 and AVE = 0.64)	5.40		
CS1. I will continue to use the site.	5.76	0.86	11.24
CS2. I will recommend others to use the site.	5.45	0.90	13.25

Table 3
Covariance Matrix of Measures

	IE1	IE2	IE3	CS1	CS2	CS3	BF1	BF2	BF3	IC1	IC2	IC3	SS1	SS2	SS3
IE1	0.95														
IE2	0.72	0.99													
IE3	0.67	0.74	1.16												
CS1	0.66	0.69	0.63	1.08											
CS2	0.73	0.74	0.67	0.91	1.21										
CS3	0.42	0.48	0.50	0.47	0.56	0.99									
NF1	0.17	0.24	0.22	0.31	0.37	0.50	1.09								
NF2	0.24	0.24	0.28	0.38	0.39	0.54	0.83	1.09							
NF3	0.18	0.22	0.32	0.29	0.35	0.50	0.82	0.91	1.17						
IC1	0.23	0.27	0.22	0.30	0.40	0.49	0.56	0.63	0.71	1.24					
IC2	0.26	0.35	0.29	0.32	0.38	0.49	0.48	0.56	0.59	0.77	1.27				
IC3	0.18	0.26	0.30	0.28	0.35	0.47	0.41	0.49	0.59	0.68	0.83	1.26			
SS1	0.06	0.17	0.22	0.16	0.26	0.46	0.58	0.55	0.65	0.51	0.51	0.54	1.34		
SS2	0.17	0.25	0.31	0.37	0.37	0.61	0.56	0.56	0.67	0.57	0.55	0.58	0.72	1.47	
SS3	0.16	0.22	0.27	0.30	0.34	0.56	0.50	0.52	0.61	0.60	0.69	0.55	0.74	0.94	1.52

n = 245.

Figure 1
The Modified Structural Model [a]



Relationship	Parameter	Estimate	t-value	Conclusion
Needs fulfillment → Citizen satisfaction	γ21	0.13	2.00**	Supported
Interactive communications → Individual efficiency	γ12	0.36	5.05*****	Supported
Segmented services → Citizen satisfaction	γ23	0.11	1.59*	Supported
Individual satisfaction → Citizen satisfaction	β21	0.81	12.75*****	Supported

[a] Completely standardized estimates.
* p < 0.10; ** p < 0.05; *** p < 0.01; **** p < 0.001; and ***** p < 0.0001.

Table 4
Structural Model Estimates [a]

	Hypothesized Relationship	*Parameter*	*Estimate*	*t-value*	*Conclusion*
H_1	Needs fulfillment → Individual efficiency (+) [b]	γ11	0.09	0.83	Not supported
H_2	Needs fulfillment → Citizen satisfaction (+)	γ21	0.13	1.82**	Supported
H_3	Interactive communications → Individual efficiency (+)	γ12	0.32	2.42***	Supported
H_4	Interactive communications → Citizen satisfaction (+)	γ22	-0.02	-0.29	Not supported
H_5	Segmented services → Individual efficiency (+)	γ13	-0.03	-0.26	Not supported
H_6	Segmented services → Citizen satisfaction (+)	γ23	0.13	1.54*	Supported
H_7	Individual satisfaction → Citizen satisfaction (+)	β21	0.81	12.75*****	Supported

[a] Completely standardized estimates.
[b] Hypothesized direction of effect.
* p < 0.10; ** p < 0.05; *** p < 0.01; **** p < 0.001; and ***** p < 0.0001.

investigate why needs fulfillment and segmented services were linked to citizen satisfaction, but not to individual efficiency. One possible explanation might be attribution theory. Although e-government service users actually save time, cost, and efforts by needs fulfillment and segmented services, they might attribute the benefit to themselves and their own work. In contrast, when the e-government provides feedback or responds to users through interactive communications, users seem to perceive that their efforts are reduced thanks to the service provider. Further research is required in this area.

Second, future research needs to validate the findings across countries and examine how culture might influence the findings. This study examined only those who experienced the e-government services. In cross-cultural studies, matching samples should be used to avoid the impact of any other irrelevant factors.

Third, participants were asked to recall their memory on past experiences, but to have more valid and objective responses, future research needs to collect users' evaluations after forcing them to directly experience e-government services in a more controlled environment.

Fourth, future research needs to compare and contrast e-government services that have actively applied CRM and those that have not. This would clearly reveal the effect of CRM in e-government services on individual efficiency and citizen satisfaction.

Fifth, it would be very important to find the effect of relationship quality on the government's administrative efficiency. To conduct such a research, the concept and consequential metrics of administrative efficiency should be established because they are quite different from those of business or for-profit organizations.

Lastly, future research needs to investigate the relationship of relationship quality with other dimensions of service quality of e-government services.

Managerial and Public Policy Implications

There are several important implications to e-government service providers. First, relationship quality should be considered as an important antecedent of citizen satisfaction with the e-government services. It is a fruit of e-government's adoption of CRM concept. The effect of relationship quality clearly witnesses the value of CRM in the e-government.

Second, it was found that all three dimensions of relationship quality affect citizen satisfaction directly or indirectly. But their processes are different. Managers should focus more on needs fulfillment and segmented services to increase citizen satisfaction while they should do so on interactive communications to influence individual efficiency.

Third, an additional analysis showed that perceptions on relationship quality were quite different among different occupations of respondents and the types of services they usually used. For example, relationship quality was higher in policy information but lower in laws and statistics. Such different perceptions should be used to develop a better strategy to enhance quality of each type of service and serve citizens better.

Fourth, managers should develop action plans to increase relationship quality that influence citizen satisfaction with the e-government services. Specifically, they need to study by service type how to achieve needs fulfillment, interactive communications, and segmented services.

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