ASSESSING E- GOVERNMENT SERVICE QUALITY MODEL AND AN APPLICATION: AN EXAMPLE OF MUNICIPALITY OF NAZILLI

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—Abstract —

The most important impulsion to improve e-governments' services is to desire to furnish better services to the citizens. To present paramount service quality, primarily, it is necessary to understand how the citizens perceived and appraised e-governments' services by the governances. This is only came up with defining what the e-government service quality is and identifying and measuring its underlie facets correctly. In this study, by using e-government service quality model (e-GovQual) developed by Papadomichelaki and Mentzas (2012), it is labouring to measure e-government service quality supplied by Nazilli Municipality that tries to inform local citizens and presents electronic services. The factors which determined after analyzing the data collected with survey method, will throw a new light on future studies about e-municipality service quality evaluations.

Key Words: *e-government, service quality, e-municipality*
JEL Classification: M15, L86, M31

1. INTRODUCTION

Effect of information technologies can be felt in every aspect of our contemporary life; and even some aspects totally depend on it. Internet comes at the beginning of these technologies. Concept of "work-place" have changed by internet technologies and allowed people to make their duties from everywhere. At the same time the significance of the temporal, spatial and language differences reduced and administrative activities get easier because of the communication speed.(Yüksel, 2004:33). Internet makes significant contributions to administrative public organizations, reduction of bureaucratic processes, enhancing internal and external communication of organizations, employee monitoring, and to maintenance of efficiency of organizational decisions.

Using connected to a central computer system spreads and tendency of public organizations to provide their services through electronic communication tools increases with using intensifies in internet technological developments (Baştan & Gökbunar, 2004:71). This was resulted in emerging a new concept in public works. This concept which is called electronic government or abbreviated "e-government". Define benefits of e-government services with using electronic tools and communication network (Naralan, 2008:28).

Local administrations are frontier government bodies that have to communicate with citizens face to face in Turkey within the administrative structure. Citizens are expecting services from municipalities such as water supply, liquid and solid waste, natural gas, construction processes, taxes and etc. (Geymen & Yomralıoğlu, 2003:21). When it comes to this point, internet can be considered among the most effective means that can be used between citizen and local government. In terms of application of information technologies, municipalities are ahead of the central government in Turkey. Many services such as marriage, construction permit, and fee collections can be provided over internet by municipalities (Geymen & Karaş, 2006:2).

This study investigates applications of the e-government in local administrations which have been more crucial lately; and tries to measure service quality of citizen-government interaction which takes place in electronic environment. Relevant data was collected through inquiry. The quality aspects of the e-government services were determined through GovQual model suggested by Papadomichelaki and Mentzas (2012).

2. E-GOVERNMENT CONCEPT AND ITS APPLICATION IN LOCAL ADMINISTRATIONS

Development of e-government has a complex structure in terms of both political and technical. Owing to technological advancements experienced in the ends of 1990s, it was possible to provide service over internet and countries started modernization process to develop their position in providing government services over internet. Enhancement of the e-government is intricate in both political and technical dimensions. Quality of the e-government relies on several factors such as government information policy, number of users, their education levels and motivations. However, most governments have been acting very slow or even unprepared for these transformations (Devadoss, Pan & Huang, 2002:243).

In the narrowest sense, e-government represents application of information and communication technologies during production and provision of public services. In other words, it can be defined as performing works in an electronic environment (Şahin & Örselli, 2003:344). In more extensive sense, e-government can be defined as conducting duties and services of both government and citizens toward each other within electronic communication and process environments securely and uninterruptedly (Arifoğlu et al., 2002:12).

The e-government applications aims to cost occurred due to the relationships among government and citizen, private sector and all government bodies; and to minimize problems among them. Although e-government applications have certain benefits such as convenient access to information and clearness in government processes, there is negative

aspect of them such that they require high investments. Some of them were exhibited in Table 1 below:

When we take a look at e-government applications, there can be four distinct models as government-to-citizen, government-to-business, government-to-suppliers, and government-to-public organizations (Kayalı & Yereli, 2002). As a result of the e-government model, the efficiency will be increased by providing services to more citizens at the same quality; excessive employment and maintenance costs will be lowered in government organizations.

Table 1 Effects of e-Government

Positive Qualifications / Contributions	**Negative Issues / Problems**
♣ Enhancing internal productivity in public works and Cost saving ♣ Creating new services ♣ Easy access to information ♣ Taking place within the global information networks ♣ Information share among organizations ♣ Online access to the public services ♣ Individual efficiency ♣ Transparency in government	♣ Not convenient for handicaps ♣ Excessive information burden ♣ Uncertainty in terms of privacy, secrecy and protection of public information ♣ Inequalities in terms of accessing information

Resource: Bengshir, 2000:55

Integrity of government and citizens can be accomplished over e-government application. The e-government application will bring about an environment in which several concepts such as being client-oriented and competition will be mentioned more frequently by adding new terminologies in the public sector. The e-government applications will be

helpful in the stages of policy construction for the good for society, inquiry of public view, and creation of open and accountable government body. The governments starting enterprises which are targeting to enhance citizens' trust toward public administration by conducting incentive works that are capable of providing different access alternatives, can be more successful (Demirel, 2006:112).

Changes caused by the information society are gradually making metropolitan life more convenient. However, keeping up with the new developments and assisting the citizens to take advantage of these conveniences are responsibilities of the local administrations. First of all, e-government applications provide opportunities to conduct investment and service works along with wise planning studies; and to control and pursuit of municipalities that believe in its benefits and that can spare required financial resources for the investments and municipalities that is growing with an uncontrollable pace.

Especially, along with the technologic advancements after 90s, an establishment in which the citizens, the main beneficiaries of municipal services, are no longer required to visit government buildings is coming to reality fast. In general, e-municipality applications are limited as online processes such as providing application forms, participation opportunities to municipality web sites, electronic process and available interaction. Nevertheless, these online applications and their benefits represent only single dimension of e-municipality. E-municipality is not a mechanical system that was composed of several keypads. Indeed, all definitions, principles and expectations those are valid for the e-government are valid for local administration organizations which is local extension of the e-government at the same time (Şahin, 2007:165).

E-municipality can be defined as modern municipality understanding which constitutes foundation of serving humanity and transparency by using latest technology in a world which has been altered by the technological developments with a great pace. E-municipality creates an important environment for participation of citizens into the

management, for provision of transparency and accountability (Henden & Henden, 2005;57).

Internet applications of local administrations will be meaningful as much as administrations capture citizens' attention, participation and provide their usage. A mandatory requirement to make citizens eager to use virtual information services is to provide a useful content which create value added on local and national levels through their web sites. Success of the e-municipality services and community's usage level of this service are directly related with each other. Citizens who are satisfied about e-municipality services will eventually use more frequently these services; thus this will contribute development of e-municipality services.

3. RESEARCH DESIGN & METHODOLOGY

This study aims to determine dimensions constituting e-municipality service quality. To that end, required data was collected through face-to-face interviews with settlers located within the borders of Nazilli County of Aydın City. To determine which dimensions of e-municipality are effective, several questions were asked to the citizens using the web site of Nazilli Municipality. All data collected from 280 respondents were analyzed by means of SPSS statistical package software; and effective dimensions on e-municipality service quality were tried to be determined.

The questions that were asked to the respondents were prepared based on e-government service quality evaluation scale suggested by Papadomichelaki and Mentzas (2012). The questionarre consists of 27 questions: six of them were regarding demographic characteristics and twenty one of them were Likert type. In the Likert type scaling, respondents were selecting one of the five Likert scales between "strongly disagree" and "strongly agree". The "strongly disagree" expression scores "1"; "strongly agree" scores "5".

3.1. Characteristics of the Research Sampling

When we evaluate statistics regarding respondents' gender distribution, it was seen that proportions of male and female citizens are almost same. While 145 out of 280 citizens were male, 135 of them were females. In terms of respondents' age distribution, it can be seen that 60% of the sampling group were 35 and younger. If we evaluate occupational segments, 58% of the respondents were official workers. This result can be accepted normal, since majority of the settlers in Nazilli County are working in government organizations.

The 52% of respondents stated that they use internet for 1 to 10 hours per week. Lastly 72% of respondents stated that they visit the web site of the Nazilli Municipality for service at least once a month.

3.2. Exploratory Factor Analysis

The inquiry used in the study includes 21 Likert types of questions. Before starting exploratory factor analysis, the questions were tested based on their reliability. Cronbach Alpha Coefficient must be calculated to measure reliability in attitude and personal approach tests like Likert scale (Tavşancıl, 2010, 28). For this scale, the Cronbach Alpha coefficient was calculated as 0.95. This result which is greater than 0.80 shows that our scale has high reliability (Kayış, 2006, 405).

The investigation type which is used to obtain information about measured factors by means of a specific gauge in cases when the researcher does not have any information about number of measured factors or when the researcher tries to obtain information about the nature of factors measured with the gauge instead of proving a hypothesis is called "Exploratory Factor Analysis" (Tavşancıl, 2010, 46). Before the factor analysis, appropriateness of the sampling must be controlled.

For the implementation of the factor analysis, it is suggested that ten observations are required for each variable as a general rule (Velicer and Fava, 1998, 232). On the other

hand, Stevens (2002, 395) reported that five observations must be performed for each variable. Hence, it can be said that our study fulfilled the minimal requirements by making 280 observations, since our minimum requirement for observation was 100; and 10 observations were needed per each variable.

In terms of size of the sampling, another measure which investigates adequacy of the data structure for the factor analysis is the Kaiser-Meyer-Olkin (KMO) statistics (Çokluk et.al, 2010, 207). To be able to say that number of observation is sufficient for the factor analysis, KMO statistic must be at least 0.50 (Field, 2009, 647). Since the KMO statistic was calculated as 0.95 based on 280 observations scores, it can be said that our scale is appropriate for factor analysis.

To test the appropriateness of the correlation matrix (R-matrix) in terms of factor analysis, Bartlett's sphericity test is applied. The purpose of Bartlett's sphericity test is to test whether the elements which stay out of the diagonal of the R matrix is equal to zero, or not. For the data set used in our analysis, as a result of the Barlett's sphericity test, the test statistic was calculated as $\chi^2_{0.05,253}$ = 2982.996. Since its level of significance is $p<0.05$, it can be said that R matrix is appropriate for factor analysis.

Based on the KMO and Barlett test results, the sampling employed for this research was found appropriate for factor analysis. In the factor analysis, varimax rotation was used as a rotation method; and principal component analysis was used as a factor extraction method. According to the obtained results of the first factor analysis application, since the difference between the weights of the two factors of the questions of 15, 7 and 6 were less than 0.10, these questions were dismissed from the analysis, and the factor analysis was repeated. Based on the analysis result, questions were characterized under three separate dimensions. The results concerning which question are listed under which dimension; and names of these dimensions were exhibited in the Table 2 below:

Table 2 Factors Name and Factors Loadings

Variables (Questions) / Factors	Reliability	Efficiency	Citizen Support
8-Users can securely sign up at the Nazilli Municipality web site.	0.56	0.41	
9-For identity confirmation, only required information is asked.	0.62		
10-The data that I entered into the Nazilli Municipality are being stored in a secure environment.	0.59		0.43
11-Data within the Nazilli Municipality e-government web site are just being used in the that web site.	0.69		
12-Required application forms can be downloaded from the Nazilli Municipality web site conveniently	0.67		
13-Whenever I need, I can find the Nazilli Municipality web site accessible.	0.70		
14-In web site of the Nazilli Municipality, I can obtain the service that I demanded at the first trial.	0.64	0.31	
16-Web sites of the Nazilli Municipality can be loaded very fast.	0.67	0.30	
17-Their web site can be viewed well with all sorts of web browsers.	0.65		
2-The web site of the Nazilli Municipality has a simple design and can easily be comprehended.		0.80	
3-There is an efficient search engine inside of the Nazilli Municipality web site.		0.76	

4-Map of the Nazilli Municipality web site is well-organized.	0.33	0.73	
5-Nazilli Municipality web site is functionally specialized to meet user needs.		0.73	
1-Information supplied by the Nazilli Municipality web site is sufficiently detailed.	0.35	0.66	
18-When I experience problem with the web site, technical stuff of the municipality presents sincere attention.	0.38		0.74
19-Municipality technical stuff can response my problems with the municipality web site in a short time.			0.83
20-Municipality technical stuff is equipped with appropriate hardware to respond citizens problems with the web site.			0.80
21-Municipality technical stuff is successful to assure citizens about the system.	0.33	0.37	0.65

According to the information presented in the Table 2, the first, second and third factors were determined as Reliability, Efficiency and Citizen Support respectively. The reliability factor relates with the trust felt by the citizen toward e-government services taken from the Nazilli Municipality web site. This factor is the measure that the web site service is always accessible momentarily in terms of technical and functional without depending on time and place. The reliability factor which represents convenient access into the web site without making any modification by the citizens consists of nine items. Capability of the system that makes it operable in every sorts of operating system increases accessibility of the system as well. Availability of the system will increase by performing non-erroneous processes that will be given through 7/24 access and high loading/downloading rates. The efficiency factor is regarding the quality of the

information provided by the web site. If the web site contains the information needed by citizens, this represents the scale of citizens' convenient access to those information. This factor consists of five items. Another factor that is called as the Citizen Support represents the capability of the municipality to respond help calls of citizens regarding web site usage. This factor consists of four items.

4. CONCLUSION

Recent advancements in computer and communication technologies affect public works and activities in terms of cost, time, quality and service delivery dimensions continuously. Government organizations needed to redefine their structures and relationships; and thus, they started to use information technologies intensely in their all activities to manage information. E-government service is one of the prominent activities of those mentioned. E-government services have just begun to be implemented in Turkey; and these services are being operated transparently 7/24-base. To be able maintain these systems as operable; citizens' satisfaction levels must be increased high levels. Individuals who are satisfied from services of those systems will eventually tend to use the system again.

In this study, service quality dimensions of the e-government services offered through the Nazilli Municipality's web site were tried to be elucidated. As a result of the study, three dimensions which constituting service quality was described as reliability, efficiency and citizen support. If municipalities that desire enhancing the quality of e-government services pay attention to these three factors, it will be helpful for them to achieve successful results from their efforts. The service quality as a result of the effects of these three factors will have positive affect on users' perceived quality levels. As long as following characteristics can be part of e-government web sites of municipalities, they can make difference in e-municipality services: high data security regarding e-government services; convenient user interface, a satisfactory and instant technical support for users. Finally, comprehensible, accessible, and interactive e-government services can be more attractive for citizens to apply these services.

The most important shortcoming in this study is that the inquiry was applied only for the web site of the Nazilli Municipality. Beyond this, it is always possible to face these sorts of limitations. To overcome this issue for the future researches, required data must be collected by including other municipalities; in addition inter-cultural comparisons can be made so that results of this study can be extended. These efforts would be helpful to generalization of the results of this research for wider community.

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