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EVALUATING USER SATISFACTION IN AN E-GOVERNMENT INITIATIVE: RESULTS OF STRUCTURAL EQUATION MODELING AND FOCUS GROUP DISCUSSIONS

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ABSTRACT

A major domain of e-government research has been the examination of information delivery to citizens. These services involve communications and transactions between government, at various levels, and citizens. The rise of these services has led to a concurrent need to develop models of citizen satisfaction with e-governmental services. This research aims to contribute to this need by devising such a model—*EGOVSAT*—and using it to evaluate citizen satisfaction. This model includes various performance and emotional measures. To explore its applicability, the model is applied to online Advanced Transportation Information Systems (ATIS), a form of government-to-citizen online service delivery. This paper presents results of a statistical analysis of an online survey conducted to evaluate ATIS initiatives in Los Angeles (n = 155) and Minneapolis/St. Paul (n = 246). Using structural equation modeling, a highly statistically significant goodness-of-fit was found for the EGOVSAT model, which included 11 measures capturing three constructs (*utility, efficiency, customization*) as affecting four emotional dimensions (*confidence, pleasantness, frustration, satisfaction*). These quantitative results were then supplemented with qualitative findings from three focus groups that were conducted with survey participants. The overall results suggest that there is value in utilizing a robust measure of citizen satisfaction, such as measured by *EGOVSAT*.

Keywords: E-Government, Citizen-centric delivery, Satisfaction, Structural Equation Modeling.

INTRODUCTION

Electronic Government (E-Government) refers to the delivery of government-related information and services online through the Internet or other digital means [42]. Public agencies, utilizing this facility, provide a range of services to various stakeholders [39]. A major service domain involves the effective delivery of information to citizens (i.e. government-to-citizen services). The continued rise of Internet connectivity has led to concurrent increase in use of these services. For example, a survey conducted by Norris and Moon [26] indicates that nearly 90% of U.S. local governments with populations of 10,000 or more had official web sites through which they delivered various services. Further, Pew Internet reports

that 77% of Internet users, or 97 million adult U.S. citizens, participate in some form of e-government [17]. These reports indicate that there is an apparent realization as to the importance of e-government initiatives – by citizens and by government agencies at various levels.

The issue then becomes the extent to which citizens are satisfied with their electronic encounters with government. At a prima facie level, West [42] notes that one valuable characteristic of such initiatives is that they allow citizens to seek public services at their own convenience and not just when the government office is open. As such, citizens are increasingly expecting government units to perform like commercial entities [33]. That is, citizens want their electronic encounters to be more akin to a commercial transaction (e.g. Amazon.com). Traunmuller and Wimmer [38] note that although citizen-centric interactive websites have been produced, there are also heightened expectations in terms of the quality of e-government transactions. Consequently, online e-government initiatives need to be user-centric or citizen-centric in nature [30, 37, 43]. For this reason, there is a need to identify theoretical constructs and measures that can be used to evaluate citizen experiences using e-government information services. Such detailed evaluations can provide insights for better delivery of e-governmental services.

This study attempts to contribute to understanding of about citizen interactions with e-governmental services. A general model of e-government satisfaction—EGOVSAT—was devised and then applied in the domain of Advanced Travel Information Systems (ATIS), a form of government-to-citizen information service. ATIS provides (1) real-time transportation network information (e.g. traffic congestion, transit status) and (2) traveler information such as route guidance or destination information, provided over advanced technologies [22, 47]. An online survey comprised of questions related to the EGOVSAT model was designed. Users from two different cities – Los Angeles (LA) and Minneapolis/St. Paul (MN) were asked to evaluate ATIS websites provided by respective metropolitan authorities. Their responses were quantitatively analyzed to validate the EGOVSAT model. Subsequently, groups of users from these cities were invited for detailed focus group discussions.

The following section draws from literature on customer and user satisfaction and presents a satisfaction model formulated for citizen-centric evaluation. Subsequently, the methodology of the study including the process of data collection is described. Thereafter, demographics of users from different cities and multivariate analysis based on the model are presented. The final section details the findings of focus group discussions that were conducted in two cities.

RESEARCH MODEL

As citizens increasingly interact with online digital governmental services, there are widespread expectations for effective service delivery from such initiatives. At a general level, West [42] has noted that for e-government to progress there needs to be a successful movement from citizens from viewing e-government as a set of websites (or "billboards") to viewing e-government as an effective suite of transactions. Within the realm of empirical assessment, there have been several evaluations that apply citizen-centered features to systems evaluation. Wang, et. al. [40] propose a model for evaluating the performance of a web-enabled e-government system with a citizen centric approach, focusing on both the process and the outcome of the interaction. Carter and Belanger [7] present results of their study on citizen adoption of e-government initiatives based on an approach supported by the Technology Acceptance Model (TAM) [9]. Reddick [32] analyzes the demand side of e-government, which relates to the citizen-centered aspect of interacting with e-government systems.

The satisfaction model, presented in Figure 1, formulated by this study considers these varied perspectives and presents a causal construct comprised of features that promote confidence, trust, openness and citizen-centric delivery in utilizing online government initiatives. Moreover, this model considers the emotional response of the users to be a dependent factor on performance features of digital government service delivery. Although this model has been devised for testing in the domain of ATIS, it has been designed to evaluate other government-to-citizen web-based initiatives as well.

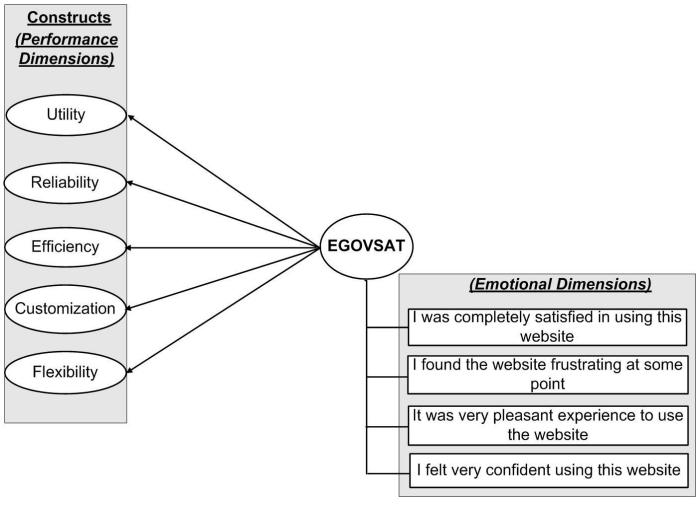

Figure 1: EGOVSAT Model

The *EGOVSAT* model has been formulated with the aim of providing a scale by which government-to-citizen web-based initiatives can be evaluated - in terms of satisfaction derived by citizens [16]. To begin with the Emotional Dimensions, while satisfaction has been identified as a single summary concept, it is comprised of certain affective responses with varying intensity. Giese and Cote [12] identified alternative terms that were offered by various consumers in their research. These alternative terms may indicate multiple variations of emotional response that comprise the larger emotional construct. Westbrook and Oliver [44] confirmed such variations while identifying the dimensionality of emotion space in satisfaction. Emotional composition of satisfaction, in this study, has been extended to include not just "Satisfaction", but also "Frustration", "Pleasantness" and "Confidence".

Moving to the Performance Dimensions, research studies have considered a variety of measures in evaluating performance of a web-based system. Doll and Torkzadeh [10], in developing the End-User Computing Satisfaction (EUCS) instrument, identified content, format and timeliness of the information delivered and the ease of use facilitated by a system. Effectiveness of information delivered by a system has been measured through the User Information Satisfaction (UIS) model [19]. Brooke [5] formulated a usability index – System Usability Scale (SUS). Extensions of similar measures have been recommended for web-based initiatives and services. Zeithaml, et al. [45] identified the importance of responsiveness and ease of navigation in utilizing a service offered through websites. Loiacono, et al. [24] have included usability measures in devising a quality instrument for websites – Webqual. Similar aspects, or extensions thereof, have been used in other studies [11, 25, 46]. These contributions have been formulated as "Utility" construct in this study, which examines whether the website is usable or not.

The "Reliability" construct examines whether the website functions appropriately in terms of technology as well as accuracy of the content [11, 25, 41, 45, 46]. While the importance of usable and reliable information is largely acknowledged, it is also pertinent that the information can be accessed efficiently with minimal effort by the end-user. The "Efficiency" construct examines the accessibility and organization of the features and information available in the website [11, 18, 46].

In addition to these aspects, it is important that the website facilitates the provision of dynamic information; provides various options for accessing the information; and offers the ability to customize the information contained in the website. "Personalization" construct refers to the ability of an Internet website or service to be shaped or reshaped so as to better meet the individual needs or wants of a user [28]. Performance constructs, "Flexibility" and "Customization", are also devised to evaluate these operational aspects of digital delivery. These influences focus on determinative performance measures that should be included so that a website is designed to be user-centric, and in this case, citizen-centric.

Based on these measures and overall construct, 39 survey questions were identified. Of this total, 35 of them were based on 5 performance constructs and 4 were identified as constituents of the overall satisfaction measure. These questions were presented as 5-point Likert-scale questions [23], designed to collect responses with varying degrees of agreement or disagreement. Due to space constraints, an exhaustive list of on-line survey questions has not been provided. The questions are provided in Abhichandani et al. [1].

DATA COLLECTION

An online survey was designed comprised of questions related to 1) the *EGOVSAT* model; 2) demographics; and 3) past user experience with technologies. The survey was designed to inquire about user experiences with the ATIS websites based on performance and emotional dimensions as well as to understand the characteristics of users utilizing these websites. The survey was conducted in two cities – Los Angeles (LA) and Minneapolis / St. Paul (MN). In both cities, websites provided by metropolitan transportation authorities were evaluated. For the city of Los Angeles, an online trip planner provided by Los Angeles County Metropolitan Transportation Authority (http://www.mta.net) was utilized. For the Minneapolis/St. Paul area, the MetroTransit website (http://www.metrotransit.org) was evaluated. The survey protocol was designed to collect reactions of respondents immediately following their use of the website for trip planning purposes. The respondents, in addition, were randomly provided with certain scenarios so that the trip planning would be performed in "realistic" situations. For research purposes, certain control was exercised in presenting these scenarios. Details of the survey protocol are available in Abhichandani et.al [1].

The sample for the survey respondents was gathered in various ways. Initially, a databank provided by a commercial organization was utilized[1]. Subsequently, a

[1] Resources Systems Group, Inc. based in Vermont provided their databank for both the locations. For Los Angeles, CA, all the respondents were arranged through

URL for the online survey was provided through the MetroTransit website (http://www.metrotransit.org). These avenues resulted in – LA (n=155) and MN (n=246). Although the data collection was conducted using different avenues, a common online survey was presented. Detailed findings from this survey follow.

STATISTICAL RESULTS

Background data collected in the study can be divided into three different groups – demographics, public transportation usage, and experience with Information Technologies. Demographic data included information such as "Age", "Gender", "Level of Education", "Employment Status", "Household Income" and "Ethnicity". Respondents were asked about their patterns of public transportation usage such as their "Frequency of using public transportation", "Primary purpose of using public transportation", "Frequency of planning a trip on the website", and "Access to personal vehicle". Further, data regarding experiences using various information technology devices was collected. Respondents were asked about their experience in using "Computers", "Internet", and their "Accessibility to various devices".

The average age of a MN respondent was markedly lower compared to a LA respondent. About 50% of MN respondents were under 35 years of age. This was far higher compared to LA respondents wherein only 30% of respondents were below 35 years of age. A larger part of LA respondents (approximately 72%) were within the age group of 25-54 years old. Further, 20% of LA respondents were above 55 years as compared to 7.3% in the case of MN respondents. Nearly 58% of MN respondents were female. The gender distribution for LA was more equitable compared to MN. Most of the respondents in both cities were "White/Caucasian"; 72.3%. in LA and 85% in MN. A significant difference was noted in the contribution of "Asian/Pacific Islander" and "Hispanic/Latino" responses. In case of LA, nearly 18% of respondents belonged to these ethnic groups compared to 2% for MN. In both cities, more than 30% of respondents had a Bachelor's degree. Nearly 21% of MN respondents were "Student – Working or Not Working". This percentage was much lower (6%) in LA. However, in both cities, the majority of respondents were either "Employed Full-Time or Part-Time" – 70% in case of LA and 66% in case of MN. The average household income for respondents from MN was lower compared to LA. About 70% of MN respondents had household incomes of less than $75,000 compared to 52% of LA respondents. Further, 40% of LA respondents had household incomes of more than $75,000 compared to 20% of MN respondents.

Nearly 50% of MN respondents utilized public transportation "5 or more times a week". This is in extreme contrast with LA respondents, wherein only 6.5% respondents utilized public transportation for as many times in a week. Over 80% of LA respondents used public transportation "3 times a month" or less. In the case of MN, 65.5% of respondents utilized public transportation "2 times a week" or more. Approximately 62% of MN respondents utilized public transportation for "Work" and "School" purposes. Interestingly, 41% of LA respondents used public transportation for "Recreation", "Vacation" or "Visiting Family or Friends". On a similar note, 27% of LA respondents used public transportation for "Other" purposes. These purposes were mostly emergent in nature - such as "Car not available" and "if my car is in the shop".

MN respondents had more experience using computers than LA respondents. 72% of MN respondents had more than 10 years of experience using computers compared to 59% of LA respondents. Similarly, MN respondents indicated a marginally higher experience in Internet usage than LA respondents. Nearly 85% of MN respondents had Internet usage experience of 6-15 years compared to 77% of LA respondents. In both cities, the majority of respondents had "Regular cell phones" at their disposal. However, a marginally higher number of MN respondents indicated access to "Portable computer with wireless communications" – 63% for MN compared to 39% for LA respondents.

Turning to the online system, 44% of MN respondents planned their trip using MetroTransit website (http://www.metrotransit.org) at least "Once a Week" or more. This was in sharp contrast to LA respondents, where 72% planned their trip using the Metropolitan Transportation Authority website (http://ww.mta.net) "Less than once a month". Further, 86.5% of LA respondents had access to a personal vehicle "Always" or "Most of the Time" compared to 57.3% of MN respondents. It seemed certain that MN respondents utilized the public transportation more than the LA respondents as nearly 43% of MN respondents had access to personal vehicle "Sometimes", "Rarely" or "Never" compared to 13.6% in the case of LA.

Model Evaluation

The model presented in Figure 1 was evaluated using confirmatory factor analysis (CFA) [6]. SPSS v12.0 was used to calculate item reliability and Cronbach alpha

this databank. For Minneapolis, MN, 54 responses were collected using this databank.

[27] for various constructs. Average Variance Extracted (AVE) and construct reliability were calculated based on standardized regression weights and measurement errors [14]. Table 1 illustrates the parameter and reliability estimates obtained for LA and MN.

The overall model was evaluated using AMOS v6.0 statistical software using Maximum Likelihood Estimation (MLE) as the variables were found to be multivariate normal and the sample size was moderate [14]. Initially, to filter out the variables that failed to explain the cohesiveness of a construct, corrected item-to-total correlations and Cronbach alphas were examined per construct. Variables with low corrected item-to-total correlations (i.e. < 0.50) and pair-wise correlations (i.e. < 0.50) were removed. Constructs with Cronbach alpha less than 0.70 were removed from further analysis. Subsequently, additional analyses involved examining squared multiple correlation (R^2), regression weights (i.e. factor loadings for observed variable and structural coefficient for constructs), AVE and construct reliability. R^2 indicates the amount of variance explained, predicted or accounted for by a set of variables [36].

Various recommendations have been proposed for fit-indices illustrated in Table 2. One of the preliminary fit indices is the value obtained by dividing Chi-Square with degrees of freedom (CMIN/df). Although there is no clear-cut guideline about what value of CMIN/df is acceptable, a frequent suggestion is that this ratio should be less than 3 [20]. In both cases, values of less than 3 were obtained. Other indices have been recommended, as they are less sensitive to sample sizes, such as GFI and AGFI. Both of the indexes range from 0 to 1 with values close to 1 being indicative of good fit. However, no absolute threshold levels for acceptability have been established [14]. Based on the values obtained in this study, it can be concluded that the model fits the sample data in moderation. PGFI is indicative of parsimony in the model. Values greater than 0.5 are indicative of better parsimony. NFI and CFI have been proposed to be the practical criterion of choice. CFI values of 0.95 and greater for a model have been generally considered as an indication of a well-fitting model [3]. Similar values (>= 0.95) have been obtained in these analyses. Values of 0.05 or less have been proposed for error approximation and residuals [6]. Values close to 0.05 have been obtained in this study. Alternative analyses included combining the two locations and evaluating the model. Comparatively, a higher level of indices was obtained. This analysis yielded the following results: GFI - 0.93, AGFI - 0.90,NFI – 0.94, CFI – 0.95, RMSEA – 0.06, RMR – 0.05.

Table 1: Parameter and Reliability Estimates (LA: n=155 with p = 0.001, MN: n=246 with p < 0.001)[a]

OBSERVED VARIABLES			CONSTRUCTS			
Item	**Factor Loading**	**Reliability[c]**	**Construct**	**Structural Coefficient**	**R^2**	**Reliability[d]**
	0.84[b]	0.74		0.95[b]	0.91	0.88
Util1	*0.74*	*0.65*	Utility	*0.98*	*0.96*	*0.85*
	0.66 (9.57)	0.63				0.62
Util2	*0.63 (10.99)*	*0.59*				*0.55*
	0.80 (13.23)	0.72				0.89
Util3	*0.74 (13.60)*	*0.68*				*0.86*
	0.80 (13.55)	0.78				
Util4	*0.75 (13.92)*	*0.70*				
	0.83 (14.25)	0.75				
Util5	*0.84 (16.81)*	*0.75*				
	0.84[b]	0.67		0.95 (13.33)	0.90	0.83
Eff1	*0.81*	*0.69*	Efficiency	*0.96 (14.85)*	*0.93*	*0.80*
	0.76 (10.63)	0.69				0.61
Eff2	*0.68 (11.28)*	*0.61*				*0.59*
	0.75 (10.56)	0.69				0.82
Eff3	*0.82 (14.42)*	*0.68*				*0.81*
	0.85[b]	0.74		0.42 (4.94)	0.18	0.84
Cust1	*0.91*	*0.69*	Customization	*0.46 (5.91)*	*0.17*	*0.83*
	0.90 (11.28)	0.80				0.67
Cust2	*0.83 (13.24)*	*0.80*				*0.59*
	0.69 (9.11)	0.62				0.86
Cust3	*0.52 (10.51)*	*0.58*				*0.81*
	0.86[b]	0.81				0.91
Satis1	*0.77*	*0.68*	EGOVSAT			*0.85*
	0.84 (15.15)	0.79				0.66
Satis2	*0.82 (15.96)*	*0.69*				*0.70*
	-0.77 (-12.4)	0.73				0.84
Satis3	*-0.65 (-11.37)*	*0.63*				*0.86*
	0.91 (18.3)	0.86				
Satis4	*0.81 (15.64)*	*0.77*				

a - Figures in italics and shaded cells are for MN, non-italics and unshaded cells are for LA. ( ) - indicates the t-values
b - Parameter fixed to 1 to set the scale of construct
c - Corrected item-to-total correlations for individual items
d - Construct reliability is presented as Cronbach alpha, average variance extracted and construct reliability, respectively

Table 2: Fit Indices, Errors and Residuals for LA and MN

Fit-Indices	LA	MN
Probability Level (p)	< 0.001	< 0.001
CMIN (Minimal Discrepancy) or χ^2 (Chi-Square)	134.42	197.46
Degrees of Freedom (df)	88	88
CMIN/df	1.53	2.24
Goodness-of-Fit Index (GFI)	0.90	0.91
Adjusted Goodness-of-Fit Index (AGFI)	0.87	0.87
Parsimonous Goodness-of-Fit Index (PGFI)	0.66	0.66
Normed Fit Index (NFI)	0.92	0.92
Comparative Fit Index (CFI)	0.97	0.95
Root Mean Squared Error of Approximation (RMSEA)	0.05	0.07
Root Mean Square Residual (RMR)	0.06	0.05

The detailed statistical analysis described above was used to formulate the model in Figure 2, which includes 15 statistically significant questions from the original model/instrument. Questions related to the "Reliability" and "Flexibility" constructs were discarded, as they were not found to be statistically significant. While highly significant ($p<0.001$; AGFI = 0.87), the results should be considered promising due to the fact that data was only available from two modest samples.

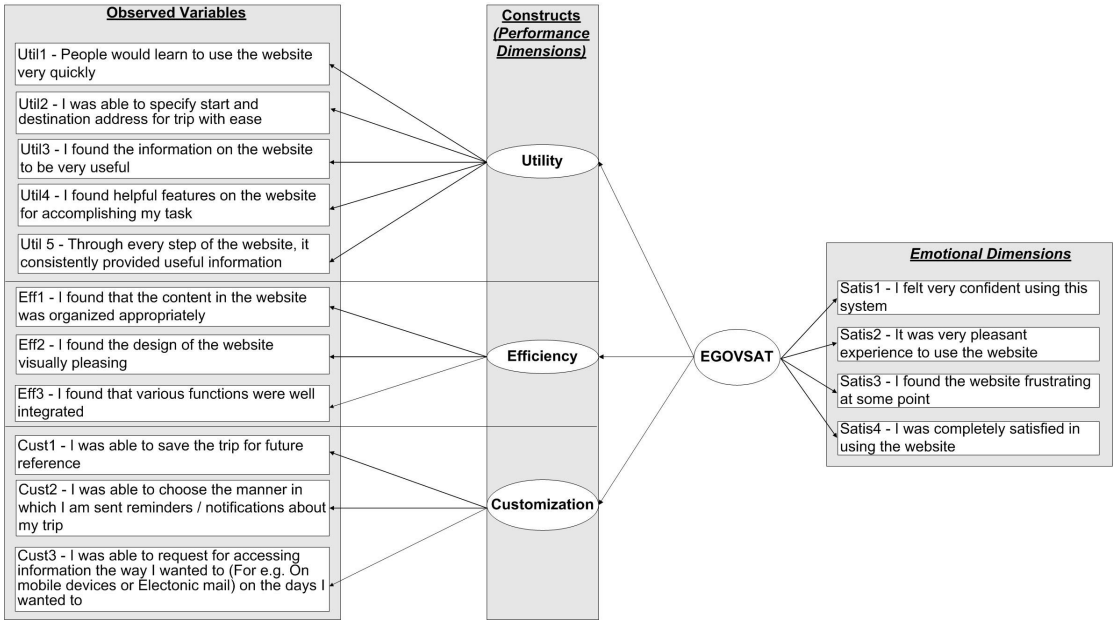

Figure 2: Questions and Constructs in Statistically-tested EGOVSAT Model

The results suggest that "Utility", "Efficiency", and "Customization" are important factors that influence emotional satisfaction. The "Utility" construct was very strong. Features related to "Efficient" access were also found to be determinants of overall satisfaction in using online public transportation informational services. These features included better organization and integration of content as well as visual presentation. The "Customization" construct was found to be a limited determinant of emotional measures. Referring to Table 1, experienced MN respondents expected consistent and useful information and well-integrated functions and features for saving their trips for future reference on the website. LA respondents, on the other hand, expected facilities to learn vari-

ous features, appropriate organization of content, and need for receiving constant reminders and notifications about their trip on the website. Among the dependent emotional measures, both LA respondents were most "Satisfied" with the website whereas MN respondents ranked the "Pleasant" experience in planning a trip higher than other features. Respondents in both of the cities were found to be fairly "Confident" in using the website. They were "Frustrated" to a very limited extent.

FOCUS GROUP DISCUSSIONS

Focus group discussions, originating from market research, have been widely used in various research studies to understand consumer thought and perception [21, 34]. Such discussions are often undertaken to examine reactions of users who make decisions in social or group contexts [4]. According to Patton [31], focus group interviews are essential in the evaluation process and can be applied in the stages of needs assessment; during the evaluation program; or even at the end of the program. In this study, focus group discussions were conducted to validate the findings from the data collected through online survey and to generalize the expectations of respondents towards e-governmental online initiatives.

Focus group participants were chosen from a group of survey respondents who had agreed to participate in the follow up study. Focus group participants were offered compensation in the form of in-store gift cards for their contributions. In Los Angeles, eight (8) respondents participated in these discussions and 22 participated in the Minneapolis discussions. During these discussions three broad areas of usability were covered – 1) General usability and subjective satisfaction of the ATIS websites, 2) The need for specific advanced features on these websites, and 3) Comparison of ATIS websites with other e-governmental initiatives.

General Usability

Participants found the website "really" useful, "simple to use" and "encyclopedic". However, participants noted that the information was appropriate for "shorter" and "point-to-point" trips. The planning information was found useful as it displayed landmarks for the route. The respondents viewed the website as quite accessible for first-time users with moderate computer and Internet experience. For first time users, the website provides assistance with getting acquainted with the area. Participants thought that the option of planning trips on the website was a good improvement over other informational services such as telephones[2]. They also felt that the online system was far better than the route maps that they collect from various transit stations or on board the bus. Extending this thought, they appreciated that the website was available 24 hours a day and that it was not dependent upon certain office hours. Further, a high-level of trust was identified with the website by various respondents. Regular users of transit service commented on the inability of the website to plan complex trips including inadequate and incomplete information for doing so. The information provided by the system was identified as "incomplete", "inefficient in providing decision-making capabilities" and "lacking in integrated services". Participants alluded to the lack of sophistication of detailed information such as "stop-wise listing" and "alternate routes". For advanced services such as "visual representation", "customization" and "integrated services", participants made comparisons to MapQuest. They noted that it could be helpful to plan a trip when visual representation of the destination is provided. Further, they noted that MapQuest services provide the option to change the metrics of their trip, which ATIS websites were incapable of accomplishing. In comparing the planning of trips, participants were keen to compare functionality with Mapquest and Yahoo! Maps. Consequently, these services implicitly set a benchmark for comparison.

Some of the respondents felt satisfied because the website supports *"impromptu"* usage. An advanced feature of impromptu usage is the use of mobile devices to plan a trip. Some of the respondents identified specific features that gave them satisfaction, such as maps in PDF or Portable Document Format, choice of route and schedule, and trip planning. Some respondents indicated certain peculiar workings of the trip planning website which led to a sense of frustration. One of these aspects was related to providing origin and destination addresses for the transit. Another peculiarity was failure of the website in identifying certain bus stops, which respondents knew to exist. Frustration during the discussions was also identified due to lack of certain advanced features needed for trip planning. A lack of integrated information services via the trip planning website was a major concern for all participants. They noted that integration of information services was important to present a comprehensive picture of the overall trip plan. It was found that the emotional indicators- "satisfaction" and "frustration" varied based on different usage patterns of the actual transit service users. These

[2] MetroTransit provides telephonic services wherein the operators assist callers by detailing various options that are available for taking public transit for their specific transit route.

indicators were varied in nature for "Heavy" or "Light" users.

It was observed that more real-time information about the services would be helpful. Regular users were interested in real-time information, such as the exact location and timing of the bus en route. For recreational commuters on the other hand, there was a greater requirement for supplemental information such as links to amenity maps. The website seemed an invaluable help to commuters that solely depend on public transit for all of their trips. The website provided such types of commuters an immediate sense of confidence.

Advanced Features

Participants desired certain specific features that could be included in the website, especially being able to customize. Customized features raised in the discussion included provision of different transfer times, waiting duration, walking distance, real-time information, and presence of shelters along the bus route. Further, the need for including various bike-related information was also identified by respondents. Certain responses also indicated a need for including road-specific information while the trip was being planned. A fair number of responses indicated a need for delivering information regarding the bus service as well as the geographic location around the bus service. The respondents indicated that the need for information about the geographic location is important especially in the case when transfers need to be made on another bus route or when the area is unfamiliar. To counter this lack of geographical information, respondents use other accompanying tools provided by private or public initiatives such as Yahoo! Maps, Mapquest, or Google Earth. Providing better mapping options or linkages was viewed as a potentially valuable addition.

Comparison with other e-Government initiatives

The respondents reported having experiences with various interactive digital government services such as Driver License Renewal, Public Library, Student Loan, Social Security Website, and Internal Revenue Service Website. Most of the respondents found the trip planner compared favorably to other online government services. Participants agreed that the website is a good use of taxpayer's money. They reiterated that due to the website they have made public transportation their first choice of travel. Participants contributed that the website provides them "on-demand" service in answering their questions regarding public transit. They felt a sense of confidence about the service being available all the time and the website providing important information related to the public transit. There was some degree of consensus among the participants that the website was better than other e-government websites. This trip planning facility was observed to be sophisticated and "easy to use" compared to other e-government information systems.

CONCLUSION

Government websites have been known to generate a considerable amount of Internet traffic [8]. And this suggests there is an overall realization as to the importance of e-government initiatives – by citizens and by government agencies at various levels. As these sets of interactions spread, expectations from online e-government initiatives increase. The need to address these expectations has been widely recognized as an essential step to improving relations between public agencies and citizens [13]. Ho [15] and Osborne and Gaebler [29] have recommended specific user-centric features to be implemented by agencies to promote the e-government paradigm. Similarly, concepts related to universal usability – universal access to information and communications - have been introduced to propel the effective dissemination of e-government applications [2, 35]. This study advances the notion of examining the applicability of a multi-dimensional model of citizen satisfaction. To address this need, the study has formulated a model to reflect certain specific performance and emotional attributes. The results suggest that utility, efficiency, and customization are important factors that influence emotional satisfaction. It is hoped that future research will extend the EGOVSAT model to other domains. The overall vision is that such a model will drive the creation and use of highly effective *and* satisfying online governmental services.

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