AN EXPLORATORY STUDY ABOUT SATISFACTION MEASURES IN AN ELECTRONIC ERA: GAP SCORES VS. SATISFACTION-ONLY MEASURES?

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ABSTRACT

This study examined the nature of the relationships between customer e-service attributes and overall satisfaction. In particular, gap scores versus satisfaction-only measures were utilized to determine better predictor of overall satisfaction. Results identified that satisfaction-only measures explained significantly larger proportions of the variance in overall satisfaction (62.1% vs. 48.2%). Furthermore, satisfaction-only measures were significantly better indicators on overall satisfaction using Fisher's Z-score.

INTRODUCTION

Building a compelling e-experience by providing good electronic service quality (e-SQ) to e-shoppers has been one of the most important keys for e-commerce (Weber, 1999; Zeithaml, Parasuranman & Malhotra, 2000). Merely presenting a Website or posting low prices is no longer a viable strategy in the service-oriented electronic environment. Rather, delivering quality service effectively through Websites has become critical determinants of success or failure of businesses in the age of e-commerce (Zeithaml et al, 2000).

Several researchers assert that gap scores (expectancy-disconfirmation model) accurately encapsulate customers' evaluation of service quality, and can be used as a proxy of customer satisfaction (Absher, Howat, Crilley & Milne, 1996; Oh, 2001). The gap model focuses on consumers' perception about service experience across a range of indicators analyzing mathematical differences between perceived quality and importance/expectation (Parasuraman, Zeithaml & Berry, 1985, 1988; Zeithaml, Parasuraman & Berry, 1985; Zeithaml, Berry & Parasuraman, 1988). However, there is little agreement among researchers about whether customer satisfaction results from the degree of service quality provided, as satisfaction of selected attributes also directly contributes to customers' overall satisfaction (Burns, Graefe & Absher, 2003).

Moreover, there is a paucity of research with respect to service quality in the e-commerce environment. The definition of service quality in electronic e-commerce has evolved around multimedia-based technology (Sullivan & Walstrom, 2001). Customers have increasingly expressed their need for more product images on Websites (Burke, 1996), as they make online purchases without visiting service outlets or interacting with service employees (Meuter, Ostrom, Roundtree & Bitner, 2000). Recently, Kim (2004) developed the Electronic Visual Service Quality (e-VISQUAL) construct through a series of in-depth interviews about visual images posted on lodging websites. e-VISQUAL was defined as the extent to which a visual image (i.e., video clip) facilities booking and delivery of hotel's services and amenities on their Website (Kim, 2004). Perpetuating this line of inquiry, the objective of this research were to reevaluate the ongoing debate about consumer satisfaction (gap scores and satisfaction only measures) within the context of electronic service, with a special emphasis on Internet visual images. More specifically, e-VISQUAL was adapted to evaluate customers' perception about the quality of visuals in hotel websites. Three hypotheses were formulated and empirically tested:

H1: Satisfaction-only scores of individual E-VISQUAL items are related to the overall satisfaction score;
H2: Gap scores of individual E-VISQUAL items are related to the overall satisfaction score;
H3: Satisfaction-only measure is stronger predictor of overall satisfaction than gap score.

METHOD

Data were collected among students at a large state university in the U.S. southeast region (N=180). An additional sample (N=200) was collected from travelers in the airport within the same region. Respondents were asked to rate their perceptions of importance and satisfaction to 27 items (6 domains) within the e-VISQUAL construct (see Table 1), as well as overall satisfaction after viewing two video clips on websites of certain hotels. The importance items were measured on a 5-point Likert scale, that ranged from strongly unimportant (1) to strongly important (5); and satisfaction items were measured on a range from strongly disagree (1) to strongly agree (5). The overall satisfaction question was operationalized by a single item on a 5-point Likert scale that ranged from not at all satisfied (1) to extremely satisfied (5).

FINDINGS

Separate analyses were conducted using two dominant measures of customer satisfaction-only and gap scores (differences between importance and satisfaction). Gap scores of importance and satisfaction indicate whether a customer's expectations or desires were met or exceeded. Respondents' importance, satisfaction, and gap scores of the e-VISQUAL construct are illustrated in Table 2. Overall, results identify that numerous gap scores differ slightly from the differences between the means of satisfaction and importance.

A series of multiple regressions was conducted to test the first hypothesis (H1) and the second hypothesis (H2). For H1, the first regression model tested the impact of the satisfaction-only scores on overall satisfaction. The only statistically significant predictor

TABLE 1. Domains and Items of E-VISQUAL

User interface
UIN1 Video clip is easy to understand
UIN2 Video clip is simple to use
UIN3 Video clip is easy to find
UIN4 Video clip is updated
UIN5 Video clip works correctly
UIN6 Video clip shows up quickly
UIN7 Video clip provides relevant information on the hotel and its surrounding area
UIN8 Video clip provides exact information on the hotel
UIN9 Video clip provides visual information on the hotel
Aesthetics
AES1 Background music in video clip
AES2 Choice of narrator in video clip
AES3 Narrator in video clip
AES4 Choice of music in video clip
AES5 Options for narrators
Customization / Personalization
CPN1 Options to view amenities that interest you
CPN2 Options to view services that interest you
CPN3 Options to watch various activities
CPN4 Video clip is customized to meet your needs
Assurance / Trust
ATT1 Hotel's amenities shown in video clip match my perception of the brand
ATT2 Hotel's amenities shown in video clip reflect the reputation of the brand
ATT3 Hotel's amenities shown in video clip match my past experiences
ATT4 Brand name of a hotel appears on video clip
Virtual Human Interaction
VHI1 Video clip shows interactions between customers and staff members
VHI2 Video clip shows guest activities available at the hotel
VHI3 Video clip shows services provided by employees in the hotel
Flexibility
FLE1 Choice of information
FLE2 Choice of download modes

in the first model was satisfaction with ATT4 (brand name of a hotel appears on video clip) (B = .373, p = .005), although most of the satisfaction items were significantly correlated with overall satisfaction at the 0.05 level. This model accounted for about 62.1% of the variance in overall satisfaction. After eliminating the non-significant items, the model explained 25.1% of the variance in overall satisfaction (F = 58.02). The results are presented in Table 3.

TABLE 2. Means for Item Importance, Satisfaction and Gap Scores*

Dimension	Item	Mean Importance	Mean Satisfaction	Gap Score
User Interaction	UIN1	4.65	4.35	-.27
	UIN2	4.65	4.35	-.28
	UIN3	4.49	4.02	-.40
	UIN4	4.48	4.05	-.42
	UIN5	4.79	4.17	-.68
	UIN6	4.46	4.26	-.21
	UIN7	4.60	4.12	-.47
	UIN8	4.41	3.85	-.57
	UIN9	4.69	4.14	-.42
Aesthetics	AES1	3.70	3.33	-.35
	AES2	3.62	3.54	-.17
	AES3	3.71	3.44	-.25
	AES4	3.53	3.44	-.12
	AES5	3.00	3.24	.12
Customization / Personalization	CPN1	4.32	3.52	-.74
	CPN2	4.31	3.43	-.83
	CPN3	3.95	3.26	-.65
	CPN4	4.01	3.60	-.40
Assurance / Trust	ATT1	4.31	3.99	-.23
	ATT2	4.35	4.00	-.26
	ATT3	4.14	3.87	-.05
	ATT4	4.57	4.06	-.44
Virtual Human Interaction	VHI1	3.80	3.08	-.75
	VHI2	4.28	3.73	-.44
	VHI3	3.96	3.30	-.52
Flexibility	FLE1	4.60	4.14	-.42
	FLE2	4.10	3.86	-.25

* Importance items were measured on a 5-point scale, ranging from strongly unimportant (1) to strongly important (5); Satisfaction items were measured on a 5-point scale, ranging from as strongly disagree (1) to strongly agree (5).

For H2, the second regression model assessed the impact of the gap scores on overall satisfaction. 15 out of 27 items were correlated with overall satisfaction at the 0.05 level of significance. Similar to the first regression model, only the gap of ATT4 (brand name of a hotel appears on video clip) was a significant predictor on overall satisfaction in the second model (B = .277, p = .048). This model explained about 48.2% of the variances in overall satisfaction. After removing the non-significant items, the single significant gap score accounted for 16.1% of the variance in overall satisfaction (F = 33.136). The results are also presented in Table 3.

Finally, for H3, Fisher's Z test was performed to examine significant differences between the satisfaction-only scores and the gap scores. As noted from Table 4, satisfaction-only scores were always significantly better than the gap scores in predicting overall satisfaction, except for ATT2 (Hotel's amenities shown in video clips reflect the reputation of the brand) and VHI3 (Video clip shows services provided by employees in the hotel) which were not statistically significant.

Table 3. Results of Multiple Regression of Item Satisfaction Scores Versus Gap Scores with Overall Satisfaction

Dimension	Item	Satisfaction scores		Gap scores	
		r	*Beta*	*r*	*Beta*
User Interaction	UIN1	.341**	.039	.177	.081
	UIN2	.277**	.158	.112	.190
	UIN3	.249*	.002	.110	-.139
	UIN4	.299**	.008	.237*	.078
	UIN5	.331**	.099	.211*	.54
	UIN6	.127	-.145	.067	-.059
	UIN7	.268*	.156	.155	.205
	UIN8	.310**	-.142	.294**	-.298
	UIN9	.358**	.051	.258*	.231
Aesthetics	AES1	.317**	.021	.207*	-.137
	AES2	.583***	.085	.365***	-.010
	AES3	.459***	.215	.293**	.261
	AES4	.511***	-.144	.376***	.169
	AES5	.293*	-.007	.233	.073
Customization / Personalization	CPN1	.095	.123	.014	.121
	CPN2	.152	-.162	.044	.056
	CPN3	.235*	.061	.134	-.053
	CPN4	.421***	.209	.215*	.069
Assurance / Trust	ATT1	.433***	-.040	.375***	-.144
	ATT2	.397***	.062	.441***	.117
	ATT3	.498***	.014	.390**	.110
	ATT4	.547***	.373**	.480***	.277*
Virtual Human Interaction	VHI1	.034	.011	-.051	.191
	VHI2	.177	-.076	.069	.001
	VHI3	.216*	.190	.276*	-.034
Flexibility	FLE1	.374***	.072	.321**	-.194
	FLE2	.310**	.025	.202	.059
		F = 3.4		F = 1.824	
		R^2 = .621***		R^2 = .482*	

*p < .05; **p < .01; ***p < .001

DISCUSSION

This study examined the nature of the relationships between customer e-service attributes and overall satisfaction. Alternate methods of measuring customer satisfaction was compared using satisfaction-only scores and gap scores to determine better predictors of overall satisfaction. This study identified that satisfaction-only measures explained significantly larger proportions of the variances in overall satisfaction (62.1% vs. 48.2%). In addition, the satisfaction-only measures were significantly better indicators on overall satisfaction using Fisher's Z-score.

These results can provide tourism marketers with a better understanding of customers' evaluation of visual images on their websites. Results can assist managers with respect to time and resource allocation at it pertains to customers' satisfaction. In particular, the result could have implications to businesses that utilize Web-based channels for sales and marketing. Previous contradictory findings may be due to the ambiguity that occurs when customers indicate their perceptions of expectations, as they may not discern the difference between a desired level and an existing level of service.

TABLE 4. Tests of Differences Between Correlations of Overall Satisfaction with Attribute Satisfaction Scores and Gap Scores Using the Fisher's Z-Transformation

Dimension	Item	Z_1*	Z_2*	Fisher's Z score	P value
User Interaction	UIN1	.355	.179	2.421	.015
	UIN2	.284	.112	2.361	.018
	UIN3	.254	.110	1.976	.048
	UIN4	.308	.242	.918	.359
	UIN5	.344	.214	1.781	.075
	UIN6	.128	.067	.832	.405
	UIN7	.275	.156	1.626	.104
	UIN8	.321	.303	.242	.809
	UIN9	.375	.264	1.519	.129
Aesthetics	AES1	.328	.210	1.624	.104
	AES2	.667	.383	3.904	< .001
	AES3	.496	.302	2.666	.008
	AES4	.564	.395	2.316	.021
	AES5	.302	.237	.885	.376
Customization / Personalization	CPN1	.095	.014	1.116	.264
	CPN2	.153	.044	1.499	.134
	CPN3	.239	.135	1.437	.151
	CPN4	.449	.218	3.165	.002
Assurance / Trust	ATT1	.464	.394	.952	.341
	ATT2	.420	.473	.733	.464
	ATT3	.547	.412	1.851	.064
	ATT4	.614	.523	1.251	.211
Virtual Human Interaction	VHI1	.034	-.051	1.168	.243
	VHI2	.179	.069	1.507	.132
	VHI3	.219	.283	.877	.380
Flexibility	FLE1	.393	.333	.828	.408
	FLE2	.321	.205	1.589	.112

* Z_1 is the converted correlation between overall satisfaction and satisfaction with the individual items, and Z_2 is the corresponding converted correlation for the gap scores.

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