The Electronic Service Quality Model: The Moderating Effect of Customer Self-Efficacy

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ABSTRACT

The research in the area has largely ignored the moderating effects of the customer trait, self-efficacy, on the electronic service quality model. This study examines the degree to which electronic service quality dimensions influence overall service quality, which in turn affects customer satisfaction and loyalty. On the basis of self-efficacy theory, this paper argues that outcome quality is the most important predictor of overall quality, whereas environment quality is the least important predictor of overall quality, particularly when self-efficacy is high. Additionally, the paper demonstrates that self-efficacy strengthens the link between customer satisfaction and both repurchase intention and word of mouth. Data collected from 162 participants provide support for most of these hypotheses. © 2008 Wiley Periodicals, Inc.

INTRODUCTION

As a relatively new phenomenon, electronic service is increasingly becoming a common service mode. In 2004, approximately two hundred million people engaged in electronic service on the Internet, with worldwide retail sales approaching $70 billion. Furthermore, Internet retail sales are expected to grow

at 30% annually in the near future (Holzwarth, Janiszewski, & Neumann, 2006). Like any traditional services, quality seems to play a vital role in the success of electronic services. Furthermore, researchers have argued that electronic service quality may be the most important determinant of long-term success (Fassnacht & Koese, 2006). Consequently, both business and academic researchers have begun to conceptualize and measure electronic service quality (Zeithaml, Parasuraman, & Malhotra, 2002) in an attempt to understand how customers perceive and evaluate electronic services.

Accordingly, there is a wealth of research on the conceptualization of electronic service quality. Although the effects of electronic service quality are well understood, much less is known about the moderating effects of customer traits. An investigation of this issue is important, because not all customers have identical personal characteristics, and such differences determine, at least in part, the perception of electronic service quality and related behaviors. Furthermore, electronic service managers might benefit from this analysis, because they can consider how to design electronic service so that it appeals to different customers, and they can also consider to which type of customers to promote such service quality dimensions (Dabholkar & Bagozzi, 2002; Lin, Shih, & Sher, 2007). Thus, these findings can be used for the purpose of resource allocation in electronic service quality management (e.g., by linking customer trait scores to sociodemographics).

This article explores the moderating effect of self-efficacy, which means the belief that one has the ability and resources to perform or provide electronic services successfully (Perea y Monsuwé, Dellaert, & de Ruyter, 2004). This is because, unlike traditional services, electronic services require customers to have self-efficacy themselves in order to use them (McKee, Simmers, & Licata, 2006). For example, online customers need to learn how to navigate the Web and search for relevant information. In contrast, this is not an important issue in traditional services, because offline customers learn how to purchase at an early stage and it is essentially a "natural" skill (Hsu & Chiu, 2004). Thus, understanding the moderating role of self-efficacy in electronic services constitutes an important research issue.

However, other customer traits such as self-esteem, self-monitoring, self-awareness, locus of control, and so on are not related directly to the electronic service context. For example, self-esteem, self-monitoring, and self-awareness constructs are usually conceptualized as social phenomena, whereas electronic services deal with people-technology interactions, which implies that such customer traits may be less relevant (Parasuraman, Zeithaml, & Malhotra, 2005). Along a similar vein, locus of control is not related to the present study, because most electronic services require customers to participate in service delivery, and thus be self-serving. For this reason, an extensive body of research on information systems and the Internet has investigated mainly the role of customer self-efficacy in electronic services. For example, Hsu & Chiu (2004) demonstrate empirically that self-efficacy is a potentially important factor for explaining the customer decisions in electronic services. Thus, self-efficacy is a logical factor to consider in exploring moderating effects.

THEORY AND HYPOTHESES

Electronic Service Quality Model

In recent years, there has been an increased focus on electronic service quality (ESQ). Researchers have repeatedly argued that ESQ greatly influences customer

satisfaction and loyalty and has a positive impact on desired attitudinal, behavioral, and financial outcomes (Fassnacht & Koese, 2006). Therefore, electronic service managers need a good understanding of how customers perceive and evaluate ESQ in order to deliver superior service quality. As a result, both business and academic researchers have paid attention to conceptualizing, measuring, and predicting ESQ.

This study adopts a broad definition of ESQ: "the degree to which an electronic service is able to effectively and efficiently fulfill relevant customer needs" (Fassnacht & Koese, 2006, p. 25). Efforts to understand and measure ESQ have been undertaken by various researchers, because the traditional service quality scale does not embrace the unique facets of electronic service. Although there is not yet consensus on the dimensions, numerous studies have proposed different ESQ dimensions and scales (Parasuraman, Zeithaml, & Malhotra, 2005). Lociacono, Watson, and Goodhue (2000) developed WebQUAL, composed of 12 dimensions (informational fit to task, interaction, trust, response time, design, intuitiveness, visual appeal, innovativeness, flow-emotional appeal, integrated communication, business processes, and substitutability). Yoo and Donthu (2001) developed SITEQUAL, including 9 items distributed over 4 dimensions (ease of use, design, processing speed, and security). Barnes and Vidgen (2002) developed WEBQUAL 4.0, composed of 22 items on 3 dimensions (usability, information quality, and interaction quality). Wolfinbarger and Gilly (2003) developed eTailQ, which has 4 dimensions: Web site design, reliability/fulfillment, privacy/security, and customer service. Parasuraman, Zeithaml, and Malhotra (2005) developed E-S-QUAL, composed of 22 items on 4 dimensions (efficiency, system availability, fulfillment, and privacy). Bauer, Falk, and Hammerschmidt (2006) developed qTransQual, composed of 25 items on 5 dimensions (functionality/design, enjoyment, process, reliability, and responsiveness).

Recently, several researchers have suggested that ESQ be viewed as higher-order constructs that have various subdimensions (Fassnacht & Koese, 2006). Accordingly, Collier and Bienstock (2006) developed E-Service Quality, composed of 11 subdimensions treated as first-order factors and 3 second-order factors (process dimension, outcome dimension, and recovery dimension). More recently, Fassnacht and Koese (2006) developed a hierarchical quality model for electronic services, which includes 3 dimensions (environment quality, delivery quality, and outcome quality) and 9 subdimensions. They applied Brady and Cronin's (2001) hierarchical service quality model to electronic services.

The present study adopted Fassnacht and Koese's (2006) ESQ model. The choice of this model is based on the following considerations. First, it is a more theory-based model, adopted from the Brady and Cronin (2001) framework. Second, it is applicable to a broad range of electronic service offerings, rather than to one specific area. Further, it deals with outcome facets of ESQ that have so far been ignored (Fassnacht & Koese, 2006). Finally, it establishes a more rigorous conceptualization of ESQ by adopting hierarchical second-order constructs.

According to Fassnacht and Koese's (2006) ESQ model, environment quality refers to the appearance of a user interface, composed of graphic quality and clarity of layout. Delivery quality refers to the customer–Web site interaction during service delivery. The authors assign four subdimensions: attractiveness of selection, information quality, ease of use, and technical quality. Outcome quality refers to what the customer is "left with" after service delivery. It is represented by reliability, functional benefit, and emotional benefit.

This present study expects that customers evaluate all the dimensions of ESQ. An evaluation of these dimensions would contribute to customers' overall perception of ESQ and ultimately have an impact on customer satisfaction. Consistent with extant theories, the research posits customer satisfaction as an antecedent of repurchase intention and word of mouth (Collier & Bienstock, 2006; Ladhari, 2007; Parasuraman Zeithaml, & Malhotra, 2005). The present study proposes that repurchase intention affects word-of-mouth communication (Yi, Kim, & Kim, 1996).

Self-Efficacy Theory

Self-efficacy was first introduced as a core concept in social cognition theory. It refers to "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has, but with judgments of what one can do with whatever skills one possesses" (Bandura, 1986, p. 391). Self-efficacy regulates human behavior by motivating effort and a persistent desire to complete tasks, so that it enables one to surmount difficulties in the face of challenge and failure. In the electronic service context, self-efficacy refers to judgments customers make concerning their ability to do what is required to successfully perform the electronic service process. Because electronic services require a basic knowledge of computers and Internet use, such as finding information or troubleshooting search problems, self-efficacy is a relevant construct in the ESQ study (Perea y Monsuwé, Dellaert, & de Ruyter, 2004).

According to social cognition theory, individuals who have more confidence in their abilities tend to exert more effort to perform a particular behavior, persist longer in order to overcome obstacles, and set more challenging goals than those who have less confidence in their abilities (McKee, Simmers, & Licata, 2006). People with high self-efficacy choose to perform more challenging tasks and they stick to them. Because self-efficacy is originally developed through social learning processes, it leads to more productive goal setting. Thus, self-efficacy perceptions affect the chosen goal level (Gist, 1987). More importantly, because self-efficacy judgments are positively related to outcome expectations, the stronger individuals' self-efficacy beliefs are, the more likely they are to achieve the desired outcome (Perea y Monsuwé, Dellaert, & de Ruyter, 2004). Outcome expectations pertain to the perception of possible consequences of one's actions (e.g., engaging in electronic service) (Bandura, 1986), which refers to the positive or negative consequences of specific actions. According to social cognitive theory, strong self-efficacy is related to perceiving more positive outcomes and fewer negative outcomes (Luszczynska, Scholz, & Schwarzer, 2005). In sum, outcome ESQ is a strong predictor of overall ESQ for high self-efficacy customers.

Furthermore, customers with greater self-efficacy can be expected to have more confidence in their ability to use electronic service, and thus *delivery ESQ* will not be as important to them as to customers with less confidence in their own abilities (Dabholkar & Bagozzi, 2002). When customers use electronic service, they encounter various delivery aspects. For example, they need information to select from available options or carry out transactions (Fassnacht & Koese, 2006). Because customers with greater self-efficacy are expected to handle such matters quite easily, they have less difficulty with *delivery ESQ* aspects. By contrast, it is not always possible for customers to get the best outcome they

expect, because they set more challenging goals than those who have less confidence in their abilities do. Therefore, they will try hard to achieve the desired outcome and are very sensitive to *outcome ESQ*. For this reason, for customers with high self-efficacy, the outcome ESQ will be the most important factor in determining overall ESQ.

However, this present study argues that environment ESQ is the least important factor in determining overall ESQ for high self-efficacy customers. Because environment ESQ deals with the graphical element and design structure of user interface, this ESQ dimension is not related directly to the self-efficacy concept that deals with customer psychological traits. As a result, customers with a high level of self-efficacy are less sensitive to environment ESQ than any other ESQ dimension. Thus, the following hypotheses are proposed:

H1a: The effect of outcome ESQ on overall ESQ is stronger than the effect of environment ESQ on overall ESQ for high self-efficacy customers.

H1b: The effect of outcome ESQ on overall ESQ is stronger than the effect of delivery ESQ on overall ESQ for high self-efficacy customers.

H1c: The effect of delivery ESQ on overall ESQ is stronger than the effect of environment ESQ on overall ESQ for high self-efficacy customers.

The study proposes that all ESQ dimensions have similar effects on overall ESQ for low self-efficacy customers. There is, so far, little theoretical backing for the concept that low self-efficacy moderates the relative importance of the ESQ dimensions. Unlike high self-efficacy customers, low self-efficacy customers have less confidence in their abilities, and thus do not try to achieve the desired outcome. Customers with less self-efficacy can perceive delivery ESQ to be quite challenging. Environment ESQ is also just as important to them as any other ESQ component. Customers are uncertain and less comfortable shopping on the Internet, so they need simple procedures that require little knowledge and move them through the electronic service process by means of environment ESQ (e.g., user-friendly interfaces and clear layout) (Perea y Monsuwé, Dellaert, & de Ruyter, 2004). These arguments lead to the following hypotheses:

H2a: There is no difference between the effect of outcome ESQ on overall ESQ and the effect of environment ESQ on overall ESQ for low self-efficacy customers.

H2b: There is no difference between the effect of outcome ESQ on overall ESQ and the effect of delivery ESQ on overall ESQ for low self-efficacy customers.

H2c: There is no difference between the effect of delivery ESQ on overall ESQ and the effect of environment ESQ on overall ESQ for low self-efficacy customers.

Self-efficacy is the belief that one has the capability to perform a particular behavior. Previous research has found that self-efficacy exerts a positive influence on decisions about what behaviors to undertake and the effort exerted and persistence in attempting those behaviors (McKee, Simmers, & Licata, 2006).

According to social cognition theory, people are self-organizing, self-reflective, and self-regulative in that they make judgments about themselves on the basis of their own behavior (Luszczynska, Scholz, & Schwarzer, 2005). Thus, customers with high self-efficacy are confident and more comfortable spreading positive word of mouth and engaging in repurchase when they are highly satisfied with overall ESQ.

Further, the elaboration-likelihood model (ELM) predicts that self-efficacy may moderate the relationship between customer satisfaction and both repurchase intention and word of mouth. According to ELM, when a person's level of perceived ability is high, the central route is more likely to be used, so that attitude exerts a stronger influence on behavior (Rodgers, Negash, & Suk, 2005). Because self-efficacy is strongly related to ability (Bandura, 1986), it is expected that when customers have high self-efficacy, customer satisfaction is judged via the central route, and thus customer satisfaction is more closely related to repurchase intention and word of mouth.[1]

These considerations imply that customers who have high self-efficacy should be more likely to perform related behavior in the future. In this case, repurchase intention and word of mouth should increase, compared to those with low self-efficacy. Thus, the following hypotheses are proposed:

H3: The relationship between customer satisfaction and repurchase intention is stronger for customers with high self-efficacy than for customers with low self-efficacy.

H4: The relationship between customer satisfaction and word of mouth is stronger for customers with high self-efficacy than for customers with low self-efficacy.

Figure 1 represents an overview of the hypotheses related to moderating effects.

Method

Sample and Procedure. Participants in the study are MBA and undergraduate students majoring in business administration at a major university. The selection of subjects was deemed appropriate, because most electronic service users are university students and the vast majority of adult Internet users have a university education. Participation was on a voluntary basis, and a total of 162 self-administered questionnaires were distributed in classes. Surveys were collected immediately on completion. Participants were asked to recall a recently used online service provider and refer to that provider in giving their answers. Retrospective experience sampling was used to collect a wide variety of experiences with electronic service organizations (Bauer, Falk, & Hammerschmidt, 2006). The sample was comprised of 64% males and 36% females. In terms of age, 89.4% were under 30, 7.5% were between 30 and 39, and 3.1% were 40 or above.

Instrumentation. The research derived measures for key constructs from existing scales or studies in the literature and adapted them to the context of

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[1] According to the elaboration likelihood model, ability is one of the necessary conditions (besides motivation and opportunity) for central processing. A high ability increases the chance of central processing only if motivation and opportunity are also high. This study therefore assumes that these two factors are high enough. The authors are grateful to an anonymous reviewer for the suggestion on this issue.
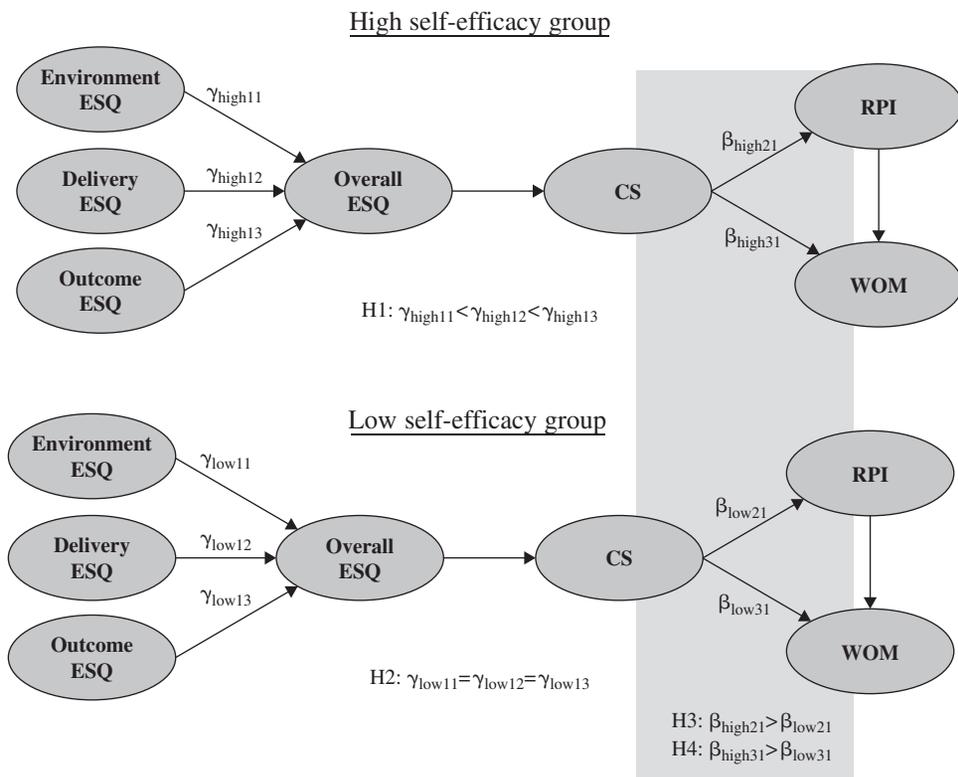
High self-efficacy group

Environment ESQ → γ_{high11}
Delivery ESQ → γ_{high12}
Outcome ESQ → γ_{high13}
Overall ESQ → CS
CS → β_{high21} → RPI
CS → β_{high31} → WOM

H1: $\gamma_{high11} < \gamma_{high12} < \gamma_{high13}$

Low self-efficacy group

Environment ESQ → γ_{low11}
Delivery ESQ → γ_{low12}
Outcome ESQ → γ_{low13}
Overall ESQ → CS
CS → β_{low21} → RPI
CS → β_{low31} → WOM

H2: $\gamma_{low11} = \gamma_{low12} = \gamma_{low13}$

H3: $\beta_{high21} > \beta_{low21}$
H4: $\beta_{high31} > \beta_{low31}$

Figure 1. Hypotheses related to moderating effects.

the present study. All constructs were measured with multiple items using 7-point Likert scales ranging from 1 = *strongly disagree* to 7 = *strongly agree.*

Electronic service quality questions were from Fassnacht and Koese (2006). Environment quality was measured by six items that assessed two elements: graphic quality and clarity of layout. These items depicted how well the elements of the user interface were represented visually and the degree to which the design structure of the user interface helped users to find their way.

Delivery quality was measured by twelve items that captured four dimensions: attractiveness of selection, information quality, ease of use, and technical quality. These items included questions on the range of offerings, appeal to customers, information accuracy, functionality of the user interface, and the integrity of data processing.

Outcome quality was measured by six items that assessed three dimensions: reliability, functional benefit, and emotional benefit. These items assessed the extent to which the provider kept its service promise, the extent to which the service fulfilled its purpose, and the degree to which using the service aroused positive feelings.

Overall service quality was measured by a two-item scale. Items included: "The quality of this XYZ services is generally excellent" and "Overall, I consider this XYZ services to be superior." Customer satisfaction was adapted from Oliver (1997) and measured by two items. These were "I was satisfied with the service this XYZ provided," and "My choice to use this XYZ was a wise one."

Repurchase intention was measured by two items, which were "I would like to visit this XYZ in the future," and "I intend to use this XYZ in the future." Word of

mouth was also measured by two items. These were "I encourage friends and relatives to do business with XYZ," and "I say positive things about this XYZ to other people." These scales were developed by Zeithaml, Berry, and Parasuraman (1996).

Self-efficacy was measured using the three-item scale developed by Pavlou and Fygenson (2006), which was based on the work of Bandura (1986). These were "I feel confident getting information about this product (or service) from this website," "I feel confident purchasing this product (or service) from this website," and "I feel confident navigating this website without getting lost in cyberspace."

Partial Least Squares Analysis. The present study estimated the model paths by using Chin's (2005) PLS-Graph 3.0 program. PLS was chosen for several reasons. First, this estimation procedure accommodates both reflective and formative measures. Electronic service quality was measured on the basis of formative indicators. Second, PLS makes minimal demands on sample size, so that it is especially appropriate for testing multigroup structural models with relatively small sample sizes. Furthermore, there is precedence for the use of PLS in marketing (Fornell & Cha, 1994; Hennig-Thurau, Houston, & Walsh, 2006; Wold, 1982).

For the purpose of analysis, the study posited environmental ESQ (electronic service quality), delivery ESQ, and outcome ESQ constructs as molar second-order factors. A molar model represents a second-order construct that is formed from the first-order factors. It therefore assumes that the first-order factors are causes of the second-order factors. In this study, it can be argued that a molar model would be reasonable, because a change in one ESQ dimension does not necessarily imply changes in the others (Calvo-Mora, Leal, & Roldan, 2005; Chin & Gopal, 1995). For example, increasing environmental ESQ does not imply an increase in outcome ESQ.

Based on the procedure recommended by Chin and Gopal (1995), latent variable scores were computed for the eight subdimensions of ESQ. As a result, the first-order factors were treated as formative indicators of the molar second-order factors. On the other hand, the study posited overall service quality, customer satisfaction, repurchase intention, and word of mouth as reflective measurements, because they represent reflections or manifestations of a construct.

In the first step, the reliability and validity of the measurement scale was assessed by means of confirmatory factor analysis. Next, the moderating influence of self-efficacy was assessed. The sample was conducted with a median split based on the values of the moderator. Multiple group analysis was performed to compare the two subsamples (low versus high values for self-efficacy). The significance of the difference between path coefficients was examined by performing an unpaired t test, which was based on estimates and standard errors generated by bootstrapping.

In order to test for path significance, bootstrapping with 500 resamples was used. PLS does not generate an overall goodness of fit index for the research model, because it does not attempt to minimize residual item covariance or make any distributional assumptions. Thus, the R^2 values and structural paths were examined instead (Chin, 1998).

Results

Correlations and descriptive statistics are provided in Table 1. The study attempted to achieve content validity by ensuring consistency between the measurement

Table 1. Correlations Matrix and Descriptive Statistics ($n = 162$).

	M	SD	1	2	3	4	5	6	7	8
1. Environment ESQ	4.61	1.02	—							
2. Delivery ESQ	5.18	.86	.47	—						
3. Outcome ESQ	5.26	.86	.38	.65	—					
4. Overall ESQ	5.17	1.06	.50	.61	.71	**.96**				
5. Customer satisfaction	5.26	.98	.42	.54	.69	.78	**.96**			
6. Repurchase intention	5.46	1.03	.31	.42	.63	.53	.60	**.95**		
7. Word of mouth	4.67	1.27	.38	.38	.52	.60	.64	.67	**.97**	
8. Self-efficacy	4.97	1.29	.07	.31	.25	.23	.30	.28	.29	**.94**

Note: Numbers shown in bold denote the square root of the average variance extracted (for reflective constructs only).

items and the extant literature. This was done by interviewing practitioners and pilot testing the instrument.

The measurement issues were analyzed separately for each formative or reflective item. In the case of formative measures, traditional assessments of individual item reliability and validity are inappropriate and irrelevant, because observed correlations among these indicators are not meaningful (Diamantopoulos & Winklhofer, 2001). Instead, a collinearity test using a variance inflation factor from SPSS was performed, because high collinearity among formative measures would produce unstable estimates and make it difficult to separate the specific effect of individual indicators on the construct (Mathieson, Peacock, & Chin, 2001). A check for multicollinearity revealed that the variance inflation factors for all constructs are acceptable (i.e., between 1.290 and 1.913) (Hair et al., 2006).

In the case of reflective measures, reliabilities and average variance extracted were examined (Fornell & Larcker, 1981). The reliabilities of reflective measures exceeded the recommended 0.7. The average variance extracted for each measure was greater than the recommended 0.5, suggesting convergent validity (Bagozzi & Yi, 1988). As shown in Table 1, the square root of the average variance extracted exceeds all corresponding correlations, which indicates discriminant validity (Fornell & Larcker, 1981).

Table 2 lists the beta coefficients and *t*-values for the total sample and two subsamples, along with the R^2 for each endogenous construct. The models demonstrate good explanatory power, because the R^2 values for the endogenous constructs range from .37 to .74 (Chin, 1998).

This study tested hypotheses on differences in the strengths of multiple paths (H1, H2) by comparing the path magnitudes calculated by PLS. The path from outcome ESQ to overall ESQ was compared with the path from environment ESQ to overall ESQ in the high self-efficacy group. This showed that the path from outcome ESQ to overall ESQ was greater than that from environment ESQ to overall ESQ (difference = .35, $t(998) = 3.54$, $p < .05$). Hence, Hypothesis 1a was supported.

Comparing the path from outcome ESQ to overall ESQ and the path from delivery ESQ to overall ESQ in the high self-efficacy group, the path from outcome ESQ to overall ESQ was greater than that from delivery ESQ to overall ESQ (difference = .32, $t(998) = 3.59$, $p < .05$). Hence, Hypothesis 1b was supported.

Table 2. Results of the Hypotheses Testing.

	Overall ESQ	CS	RPI	WOM
Combined				
Environment ESQ	.19 (2.77)****			
Delivery ESQ	.21 (3.07)**			
Outcome ESQ	.54 (6.80)***			
Overall ESQ		.78 (17.96)***		
CS			.60 (10.35)***	.37 (5.29)***
RPI				.453 (6.51)***
Construct R^2	.63	.61	.37	.54
High self-efficacy				
Environment ESQ	.18 (1.95)*			
Delivery ESQ	.21 (2.18)*			
Outcome ESQ	.53 (5.16)***			
Overall ESQ		.79 (17.06)***		
CS			.70 (14.96)***	.30 (2.66)**
RPI				.48 (4.71)***
Construct R^2	.56	.63	.50	.52
Low self-efficacy				
Environment ESQ	.20 (2.28)*			
Delivery ESQ	.26 (2.53)**			
Outcome ESQ	.53 (4.90)***			
Overall ESQ		.75 (9.61)***		
CS			.46 (3.78)***	.43 (4.38)***
RPI				.44 (4.58)***
Construct R^2	.74	.56	.44	.55

Notes: $^*p < .05$. $^{**}p < .01$. $^{***}p < .001$ (one-tailed distribution). Parentheses are t-values. ESQ = electronic service quality; CS = customer satisfaction; RPI = repurchase intention; WOM = word of mouth.

Regarding the path from delivery ESQ to overall ESQ and the path from environment ESQ to overall ESQ in the high self-efficacy group, the unpaired t test revealed that there is no difference between the effect of delivery ESQ to overall ESQ and that of environment ESQ to overall ESQ (difference = .03, $t(998) = .25, p > .05$). Hence, Hypothesis 1c was not supported. There is a possible explanation for the lack of significant difference between these paths. Griffith (2005) found that a tunnel-structure online-site layout requires more mental energy for learning the navigational elements of the store, thereby hindering goal achievement and resulting in lower customer elaboration. Such Web sites make customers with high self-efficacy feel overloaded by the electronic service, which increases the importance of interpreting environment ESQ. Thus, environment ESQ might be as important as delivery ESQ, when Web sites provide complex, multiuser interfaces or layout.

Next, the estimates in the low self-efficacy group were compared. Hypothesis 2a suggests that the impact of outcome ESQ on overall ESQ will be similar to that of environment ESQ on overall ESQ in the low self-efficacy group. The unpaired t test revealed that there is no difference between the effect of outcome ESQ on overall ESQ and the effect of environment ESQ on overall ESQ (difference = .34, $t(998) = 1.54, p > .05$). Hence, Hypothesis 2a was supported.

Hypothesis 2b posits that the impact of outcome ESQ on overall ESQ will be similar to the impact of delivery ESQ on overall ESQ in the low self-efficacy group. The unpaired t test revealed that there is no difference between the effect of outcome ESQ on overall ESQ and the effect of delivery ESQ on overall ESQ (difference = .27, $t(998) = 1.29, p > .05$). Hence, Hypothesis 2b was supported.

According to Hypothesis 2c, the impact of delivery ESQ on overall ESQ will be similar to that of environment ESQ on overall ESQ in the low self-efficacy group. The unpaired t test revealed that there is no difference between the effect of delivery ESQ on overall ESQ and the effect of environment ESQ on overall ESQ (difference = .07, $t(998) = .54, p > .05$). Hence, Hypothesis 2c was supported.

For Hypothesis 3, the path coefficient from customer satisfaction to repurchase intention was compared between the high and low self-efficacy groups. The comparison between the two coefficients revealed that the path coefficient for the high self-efficacy group was significantly higher than the path coefficient for the low self-efficacy group (difference = .25, $t(160) = 2.17, p < .05$). Hence, Hypothesis 3 was supported.

Hypothesis 4 posits that the relationship between customer satisfaction and word of mouth is stronger for customers with high self-efficacy than for customers with low self-efficacy. The comparison between the two coefficients revealed that the path coefficient for the high self-efficacy group was not significantly stronger than the path coefficient for the low self-efficacy group (difference = $-.13$, $t(160) = -.84, p > .05$). Hence, Hypothesis 4 was not supported.

A possible explanation for this insignificance is that the hypothesized strengthening moderator effect might have been compensated for by other weakening moderator effects. For example, Hennig-Thurau et al., (2004) found that customer desire for social interaction, desire for economic incentives, concern for other customers, and the potential to enhance their own self-worth are the primary factors leading to word-of-mouth behavior. Thus, these uncontrolled extraneous variables might have attenuated the relationship between customer satisfaction and word of mouth.

CONCLUSION AND IMPLICATIONS

Theoretical Implications

The present study examined the moderating influence of customer self-efficacy in the electronic service quality model. The results support the view that customer self-efficacy is an important moderator of electronic service quality and customer loyalty. Previous ESQ research has largely neglected customer traits, despite their importance. Against this background, the study adopted a self-efficacy theory and attempted to explain how customers perceive and evaluate electronic service quality, depending on their individual level of self-efficacy. The research advances the theoretical knowledge in the area in several ways.

First, the present study contributes to bridging the gap between ESQ-related research and psychological customer-trait research. Whereas some research has examined how customer traits influence perceptions of customer satisfaction and loyalty (e.g., Dabholkar & Bagozzi, 2002), this approach has not been widely applied to ESQ.

Second, this study provides a theoretical explanation of why different dimensions of ESQ have varying effects on consequences by using the self-efficacy theory. Previous research found that not all service-quality dimensions have similar effects on customer perceptions. For example, Wolfinbarger and Gilly (2003) suggest that reliability and fulfillment are the strongest predictors of customer satisfaction and that Web-site functionality is the strongest predictor of customer loyalty. However, much less is known about why such different effects exist. Few investigations have examined this issue.

Third, the present research shows that customer self-efficacy systematically strengthens the relationship between customer satisfaction and repurchase intention. This shows that the links between customer satisfaction and loyalty are not equal for every customer. This result is interesting in the light of customer-satisfaction studies that are still restricted to main effects. The present study shows that the use of moderating variables may be beneficial, because this approach is likely to reveal the underlying structures of the causal relationships.

Managerial Implications

This study has several managerial implications. The value of customer self-efficacy in electronic service has been suggested in previous research (Dabholkar & Bagozzi, 2002; Luszczynska, Scholz, & Schwarzer, 2005; McKee, Simmers, & Licata, 2006). Any new information on self-efficacy is therefore valuable to marketing practitioners. The study provides managers with new insights into managing electronic service quality based on customer traits, such as self-efficacy.

In addition, a loyalty program could be enriched by linking customer trait scores to sociodemographics. This information could be used for target marketing to certain customer groups. Such marketing could fulfill specific customer needs, so that marketing budgets are spent more efficiently. More specifically, managers may want to promote practices that emphasize outcome quality if the target market is high self-efficacy customers. These findings could be useful for resource allocation in service-quality management programs. The resources should be used primarily to improve outcome quality.

However, within this context, managers need to pay equal attention to all three quality dimensions if the target market is low self-efficacy customers. Thus, emphasizing a specific quality dimension over other quality dimensions might be detrimental for managing electronic service quality. This means that if managers do not consider ways to increase all electronic service quality dimensions, they may not achieve their intended objectives in the electronic services.

This study also provides recommendations for developing a new customer-satisfaction program. Because customers with high self-efficacy are more likely to have repurchase intentions, managers are advised to focus on the satisfaction of high self-efficacy customers. In summary, these results provide managers with useful insights into monitoring and improving customer satisfaction, depending on the level of customer self-efficacy.

Limitations and Future Research

Although this research found consistent effects suggesting that customer self-efficacy has a moderating influence in determining electronic service quality-related outcomes, the study has some limitations. However, these limitations also provide avenues for future research. Self-efficacy was measured as a unidimensional construct. However, early research has demonstrated that self-efficacy might be a multidimensional construct with general and situation-specific components, for example, computer self-efficacy and internet self-efficacy (Hasan, 2006). Therefore, one potential area for future research is to measure self-efficacy with multidimensional items and analyze moderating effects in this context.

The study also presents a cross-sectional evaluation of electronic service quality, but a longitudinal study could enrich the findings and generate a deeper understanding of the dynamics of electronic service quality. Future research using experiments may detect more accurately the causality between electronic service quality, customer satisfaction, and customer loyalty.

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