

# The Effect of E-SERVQUAL on e-Loyalty for Apparel Online Shopping

## 在网上服装购物中电子E-SERVQUAL对电子忠诚度的影响

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### Abstract

With an exponential increase in electronic commerce (e-commerce), marketers are attempting to gain a competitive advantage by emphasizing service quality and post interaction service aspects, which leads to customer satisfaction or behavioral consequence. Particularly for apparel, service quality is one of the key determinants in encouraging customer e-loyalty, and hence the success of apparel retailing in the context of electronic commerce. Therefore, this study explores e-service quality (E-SERVQUAL) factors and their unique effects on e-loyalty for apparel online shopping based on Parasuraman et al.'s (2005) framework. Specific objectives of this study are to identify underlying dimension of E-SERVQUAL, and analyze a structural model for examining the effect of E-SERVQUAL on e-loyalty for online apparel shopping.

For the theoretical framework of service quality in the context of online shopping, literatures on traditional and electronic service quality factors were comparatively reviewed, and two aspects of core and recovery services were identified. This study hypothesized that E-SERVQUAL has an effect on e-loyalty; customer satisfaction has a positive effect on e-service loyalty for apparel online shopping; and customer satisfaction mediates in the effect of E-SERVQUAL on e-loyalty for apparel online shopping.

A self-administered questionnaire was developed based on literatures. A total of 252 usable questionnaires were obtained from online consumers who had purchase experience with online shopping for apparel products and reside in standard metropolitan areas, in the United States. Factor analysis (e.g., exploratory, confirmatory) was conducted to assess the validity and reliability and the structural equation model including measurement and structural models was estimated via LISREL 8.8 program.

Findings showed that the E-SERVQUAL of shopping websites for apparel consisted of five factors: Compensation, Fulfillment, Efficiency, System Availability, and Responsiveness. This supports Parasuraman (2005)'s E-S-QUAL encompassing two aspects of core service (e.g., fulfillment,

efficiency, system availability) and recovery related service (e.g., compensation, responsiveness) in the context of apparel shopping online.

In the structural equation model, there are five exogenous latent variables for e-SERVQUAL factors; and two endogenous latent variables (e.g., customer satisfaction, e-loyalty). For the measurement model, the factor loadings for each respective construct were statistically significant and were greater than .60 and internal consistency reliabilities ranged from .85 to .88. In the estimated structural model of the e-SERVEQUAL factors, the system availability was found to have direct and positive effect on e-loyalty, whereas efficiency had a negative effect on e-loyalty for apparel online shopping. However, fulfillment was not a significant predictor for explaining consequences of E-SERVQUAL for apparel online shopping. This finding implies that perceived service quality of system available was likely to increase customer satisfaction for apparel online shopping. However, it was not supported that e-loyalty was determined by service quality, because service quality has an indirect effect on e-loyalty (i.e., repurchase intention) by mediating effect of value or satisfaction in the context of online shopping for apparel. In addition, both compensation and responsiveness were found to have a significant impact on customer satisfaction, which influenced e-loyalty for apparel online shopping. Thus, there was significant indirect effect of compensation and responsiveness on e-loyalty. This suggests that the recovery-specific service factors play an important role in maximizing customer satisfaction levels and then maintaining customer loyalty to the online shopping site for apparel.

The findings have both managerial and research implications. Fashion marketers can establish long-term relationship with their customers based on continuously measuring customer perceptions for recovery-related service quality, such as quick responses to problem and returns, and compensation for customers' problem after their purchases. In order to maintain e-loyalty, recovery services play an important role in the first choice websites for consumers to purchase clothing. Given that online consumers may shop anywhere, a marketing strategy for improving competitive advantages is to provide better service quality, maximize satisfaction, and turn to creating customers' e-loyalty for apparel online shopping. From a researcher's perspective, there are some limitations of this research that should be considered when interpreting its findings. For future research, findings provide a basis for the further study of this important topic along both theoretical and empirical dimensions. Based on the findings, more comprehensive models for predicting E-SERVQUAL's consequences can be developed and tested. For global fashion marketing, this study can expand

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\*\* This work was supported by the research grant of the Chungbuk National University in 2008

to a cross-cultural approach into e-service quality for apparel by including multinational samples.

**Keywords:** Apparel, Service Quality, Satisfaction, Loyalty, Online shopping

## 摘要

随着电子商务指数式增长(电子商务),营销人员正试图获得通过强调服务质量和服务方面的相互作用而导致客户满意度或行为后果的竞争优势。特别是对于服装,服务质量是鼓励客户电子忠诚的关键因素之一,并增加电子商务中服装零售的成功。因此,本研究探讨电子服务质量(电子SERVQUAL)的因素和根据Parasuraman等人(2005)的研究框架对网上服装购物的电子忠诚度的独特影响。这项研究的具体目标是确定的基本层面的E - SERVQUAL,分析有关在网上服装购物中电子SERVQUAL对点在忠诚度的影响的结构模型。

对于服务质量,在网上购物方面的理论框架,我们比较分析了有关传统和电子服务质量的因素的文献并确定了核心的两个方面和恢复服务。这项研究的假设是电子SERVQUAL对电子忠诚度的影响。客户满意度对电子服装网上购物服务的忠诚度有积极影响和客户满意度在电子SERVQUAL对服装网上购物电子忠诚度影响中的中介作用。

根据文献我们制成了一份自填式的问卷。我们在美国从居住在大城市的有在网上购买服装产品的在线消费者中获得了252份有用的问卷。通过因子分析(例如,探索,验证)评估了有效性和可靠性,结构方程模型,包括测量和结构模型,通过线性结构8.8程序评估了包括测量和结构模型的结构方程模型。

结果显示,网上购物网站的电子SERVQUAL的五个因素:赔偿,执行,效率,系统可用性和反应能力。这支持在网上服装购物方面Parasuraman(2005)的E-S-QUAL包括两个方面的核心服务(如满足,效率,系统可用性)和恢复相关的服务(例如,补偿,回应)。

在结构方程模型中,有5个电子SERVQUAL因素的外生潜变量,两个内生潜变量(例如客户满意度,电子忠诚度)。对于测量模型,各代表概念的因子载荷有显著的统计学意义,比0.60大,内部一致性信从0.85至0.88不等。在估计电子SERVEQUAL因素的结构模型,系统的可用性对电子忠诚的直接和积极的作用,而效率对网上服装购物的电子忠诚度有负面影响。然而,满足不是解释网上服装购物的电子SERVQUAL结果的重要指标。这一发现意味着,可被理解为系统提供服务的质量可能会增加对服装网上购物的客户满意度。然而,电子忠诚取决于服务质量没有被支持,因为在网上服装购买中,通过价值或满意度的中介作用,服务质量对电子忠诚度(例如再购买意图)有间接影响。此外,获得赔偿和回应被发现对客户满意度有显著影响,会影响网上服装购买的电子忠诚度。因此,获得赔偿和回应对电子忠诚度有显著的间接影响。这表明,恢复特定的服务因素在客户满意度最大化方面的重要作用,以及维护客户对网上服装购物网站的忠诚度方面的重要作用。

研究结果在管理和研究方面都有启示。时装营销者可以在建立与客户的长期关系的基础上,不断测量顾客感知与恢复服务有关的服务质量等问题,例如对问题和返回的迅速反应,客户购买之后的问题赔偿。为了保持电子忠诚,在消费者购买服装中恢复服务对消费者第一次选择网站起到重要作用。由于网上购物的消费者可以在任何地方购物,提高竞争优势的营销策略是为消费者提供更好的服务质量,最大限度地满意,并把创造

客户网上服装购买的电子忠诚度。从研究的角度来看,解释这些结果时,本研究的一些局限需要被考虑。对于未来的研究,调查结果为这一重要主题理论和实证方面的进一步的研究提供了依据。根据研究结果,更全面的模型预测电子SERVQUAL的结果可以被开发和测试。对全球时装市场,这项研究可以扩展使用多国样本的跨文化的方法来研究服装的电子服务质量。

**关键词:** 服装, 服务质量, 满意, 忠诚, 网上购物

## I. Introduction

With an exponential increase in electronic commerce (e-commerce), marketers are attempting to gain a competitive advantage by e-retailing to interact with customers. Consumers interact with the seller in the virtual space with a technical interface rather than interacting with employees in a physical space (Wolfenbarger & Gilly, 2003). Particularly, service quality is increasingly recognized as an important aspect of electronic commerce because consumers may have different experiences in online and offline environments even for the same product category (Santos, 2003). Therefore, many companies are focusing on customer relationship management (e-CRM), tipping the balance of power in favor of consumers through interactive features such as personalization, customized content, and virtual communities (Lee-Kelly, 2003; Harries & Goode, 2004; Wolfenbarger & Gilly, 2003).

Still, this e-market environment poses special challenges, motivating e-tailors to perhaps radically revise their marketing strategies to secure more targeted customers. One challenge is the abandonment of shopping carts before purchase transactions are completed, resulting in significant lost sales. As for apparel, a feel and touch product, few consumers prefer to buy it online (Ott, 2005). Moreover, apparel is the common type of merchandise abandoned by shoppers, followed by computer goods and entertainment item such as books, CDs, and video (Gallanis, 2000). Therefore, fashion marketers need to pay special attention to "e-service quality" with a specific aim to provide better service, create customer satisfaction, and retain existing customers, rather than capturing new customers.

Many researchers and practitioners in the marketing area have attempted to identify dimensions of e-service quality by adopting from the traditional service quality. In general, unique e-service quality characteristics have included website design/content, trustworthiness, responsiveness, communications, customization, fulfillment or reliability, customer service, and ease of use (Yang & Fang, 2004; Lee & Lin, 2005; Sohn & Tadisina, 2008; Santos, 2003; Lee & Hong, 2006; Heim & Field, 2007; Parasuraman et al., 2005; Zeithmal et al., 2002; Ribbink, van Riel, Liljander, & Streukens, 2004; Cai & Jun, 2003). In the context of internet shopping, service quality emphasizes the importance of post interaction service aspects, which leads to customer satisfaction or behavioral consequence, such as loyalty and repurchase intention (Lee & Jeffrey, 2004; Ribbink et al., 2004; Yang & Fang, 2004; Huang, 2008;

Reichheld & Scheffer, 2000; Parasuraman et al., 2005; Zeithaml et al., 1996). Particularly for experiential products (e.g., apparel), service quality is a more significant variable for determining satisfaction and repurchase intentions, rather than perceived risk of internet shopping (Lee & Hong, 2006). This implies that service quality is one of the key determinants in encouraging customer e-loyalty, and hence the success of apparel retailing in the context of electronic commerce. Nevertheless, relatively few have yet examined and developed studies on understanding the multifaceted e-service quality concept with respect to apparel products.

This study attempts to identify the dimensions of e-service quality for apparel online shopping using a modified version of the Parasuraman's (2005) E-S-QUAL model. From a consumer perspective, the objectives of this study are to (1) identify underlying dimension of E-SERVQUAL, and (2) analyze a structural model for examining the effect of E-SERVQUAL on e-loyalty for online apparel shopping. It is hoped that such a focus will provide insight for fashion marketers and researchers seeking to diagnose the service quality and identify the potential success applications for service marketing in the apparel internet marketplace.

## II. Literature Review

### 2.1. Service Quality in Online Shopping Website

E-service quality is defined as "the extent to which a web site facilitates efficient and effective shopping, purchasing, and delivery" (Parasuraman et al., 2002, p.217). While traditional SERVQUAL focuses on customers' global assessment (as opposed to transaction-specific) from a comparison of actual service performance (Parasuraman, Berry, & Zeithaml, 1998, 1991), e-service quality (E-SQ) is conceptualized as the interaction with a website including experiences during their interaction with the website as well as post interaction services (Parasuraman et al., 2005).

E-S-QUAL assessed customers' perceived performance of a website quality including experiences during their interactions with the site and post-interaction service aspects. With respect to perceptual attributes related dimensions, E-S-QUAL tends to differ from the traditional SERVQUAL dimension, such as reliability, responsiveness, assurance, empathy, and tangibles. Personal service (i.e., empathy dimension) of SERVQUAL is not critical in the transaction aspects of online service (Zeithaml et al., 2002). More recently, the common factors of service quality between traditional and online commerce were identified as reliability, responsiveness (i.e., speed of delivery), and empathy (i.e., customized communication), (Sohn & Tadisina, 2008). An overall perception of Web site businesses is that e-service quality is a multifaceted construct which is more reliant on Internet-specific attributes on their actual Website (Parasuraman et al., 2005; Zeithaml et al., 2002;

Montoya-Weiss, Voss & Grewal, 2003; Wolfinbarger & Gilly, 2003). Thus, tangibles (e.g., physical facilities) should not be important to electronic transaction. Unlike the traditional service quality, most studies applied e-service quality to the Internet-based information system and service recovery management for online shopping.

Table 1. Traditional SERVQUAL vs. E-SERVQUAL

	Traditional SERVQUAL	Electronic SERVQUAL
Concept	Quality of all non-Internet-based customer interaction and experience with companies	Quality of customer's experiences during their interaction with the site.
Assessment	Customers' global assessment (as opposed to transaction-specific) from a comparison of actual service performance	Customers' perceived performance of a website quality including experiences during their interactions with the site and post-interaction service aspects.
Dimensions	Reliability, Responsiveness, Assurance, Empathy, Tangibles	Efficiency, Fulfillment, System availability, Privacy, Responsiveness, Compensation, Contact
Consequences	Perceived value Satisfaction Customer loyalty Behavioral intentions Market share and profitability	Customer Satisfaction Purchase intention Customer loyalty

Source: Parasuraman et al. (2005)

In the online shopping context, Zeithaml et al. (2002) identified criteria customers use in evaluating e-SQ, including information availability and content, ease of use or usability, privacy/security, graphic style, and fulfillment. According to Keating, Rugimbana, and Quazi (2003), service quality in online shopping was determined by physical aspects of web design, reliability, personal interaction, transaction service ("speed delivery", "quick turn-around") and policy. Wolfinbarger and Gilly (2003) also identified four underlying dimensions of perceived e-service quality: website design, fulfillment/reliability, privacy/security and customer service. Additionally, website design characteristics affect customer evaluations of online service quality (Montoya-Weiss, Voss & Grewal, 2003).

In general, Parasuraman, Zeithaml, and Malhotra (2005) developed two different E-S-QUAL scales. The basic E-S-QUAL scale consisted of four dimensions:

- Efficiency: The ease and speed of accessing and using the site;
- Fulfillment: the extent to which the site's promises about order delivery and item availability are fulfilled;
- System availability: The correct technical functioning of the site;
- Privacy: The degree to which the site is safe and protects customer information.

The second scale, E-RecS-QUAL is salient only to customers who had non-routine encounters with the sites is composed of three dimensions:

- Responsiveness: Effective handling of problems and returns through the site;

- Compensation: The degree to which the site compensates customers for problem;
- Contact: The availability of assistance through telephone or online representatives.

For apparel online shopping, consumers perceived the importance of online service, such as good customer service, ease of credit for guaranteed or defective merchandise, easy payment options, ease of navigation, and incentive service to purchase intentions (Kim et al., 2003). Accordingly, previous studies on service quality have also focused on product and Internet specific attributes by adopting Parasuraman et al (1991)'s SERVQUAL scale. For instance, Ryou (2002) suggested that perceived service quality of Internet apparel shopping mall consisted of reliability, advantage, responsibility, product assortment, tangibles and rapidness which were affected by clothing consumption value. More recently, Lee and Hong (2006) identified service quality factors of site reliability, site reactivity, order assurance, order easy and site organization. The studies did not include aspects of fulfillment or recovery related services and dealt with transaction-related attributes rather than service quality.

Studying E-SERVQUAL for apparel requires scale development that extends beyond merely adopting online transaction service attributes. Therefore, this study adopted Parasuraman et al's (2005) dimensions for exploring E-SERVQUAL in the online shopping for apparel. Thus, the following hypothesis was developed.

Hypothesis 1. E-SERVQUAL will be multidimensional including core service and recovery-related service for apparel online shopping.

## 2.2. Consequences of E-SERVQUAL

Service quality is often emphasized in order for e-marketers to increase loyalty, market share, and profitability. Service quality is widely accepted as a key determinant of online retailers' customer retention and/or loyalty (Reichheld & Schefter, 2000; Reibstein, 2002; Santos, 2003). Customer loyalty to a traditional brick-and-mortar store format might differ from non-store retailing in various ways. That is, a consumer who chooses an e-retailer over a traditional retailer may attach more importance to transaction specific service quality.

As a behavioral intention, e-loyalty refers to a customer's favorable attitude toward the e-retailer that results in repurchase behavior at the particular site (Srinivasan et al., 2002). Several studies conveyed that service quality was strongly related to loyalty or intentions to repurchases in the Internet context (Reichheld & Schefter, 2000; Srinivasan, Anderson, & Ponnayolu, 2002; Wolfinbarger & Gilly, 2003; Zeithaml et al., 2002). For instance, Park & Choi (2001) found that service factors such as interactivity, contents and community were important to web stickiness (i.e., navigation activities and continuous frequent visits), leading to loyalty of

the web brand. Specifically, Hanrahan (1999) suggested that the customer service and on-time delivery were highly related to likelihood to repurchase from the same website. In particular, service related to website functionality such as adequate information and ease of usability was likely to increase loyalty or intentions to repurchase (Wolfinbarger & Gilly, 2003; Zeithaml et al., 2002). Santos (2003) discussed the importance of active e-service quality dimension including reliability, efficiency, support, communication, security and incentive to maintain customer retention. For apparel, Ryou (2002) found that, of e-service quality factors, advantage from incentive program was solely related to the shopping intent of the internet apparel shopping mall. However, Lee & Hong (2006) suggested that service quality factors such as site responsiveness, order assurance, ease of order, and site organization had an effect on repurchase intention of fashion products (e.g., underwear, women's pants, and casual wear). Thus, the following hypothesis was developed.

Hypothesis 2. Customer's perceived E-SERVQUAL will positively affect e-loyalty for apparel online shopping.

With ongoing attempts to understand the relationship between service quality and loyalty in an online shopping context, service quality increased customer satisfaction (Harris & Goodie, 2004; Lee & Lin, 2005; Noh & Seo, 2009; Szymanski & Hise, 2000). Customer satisfaction is the degree to how well customers are satisfied/ dissatisfied and pleased/displeased with their online shopping experience. It (customer satisfaction) is probably the best indicator of their intentions to return to the site again if they are to make another purchase in the category (Reibstein, 2002; Szymanski & Hise, 2000). Customer satisfaction is significantly influenced by the perception of service quality through convenience, product information, sight design, reliability or fulfillment, and security (Szymanski et al., 2000; Zeithaml, Parasuraman & Malhotra, 2002). According to Reibstein (2002), service quality, such as customer support service and on-time delivery, appeared to be the main areas for potential improvement because both dimensions represented the areas of greatest dissatisfaction. In addition, overall service quality had a strong positive effect on customer satisfaction with online bookstores (Lee & Lin, 2005).

In general, customer satisfaction plays an important role as mediator in the relationship between service quality and loyalty (Kim & Shin, 2001; Ko et al., 2009; Kim et al., 2000; Park & Park, 2005). From this view, e-service quality is likely to increase overall satisfaction through online shopping attributes associated with information content, navigation structure, and graphic style (Montoya-Weiss, Voss, & Grewal, 2003). Specifically, service quality of website design, reliability, responsiveness and trust was significantly related to customer satisfaction, leading to purchase intentions (Lee & Lin, 2005). In Park and Park's (2005) study, e-store reputation, customer service, safety and security, and product quality significantly increased satisfaction which leads to loyalty toward the e-store.

Also, increased customer satisfaction by e-service quality is the best indicator of their intention to revisit to the website if they are to make another purchase (Reibstein, 2002).

In the context of apparel online shopping, service quality of shopping site had a positive effect on satisfaction with the site (Hong, 2003; Park, Kang, & Choi, 2009). Specifically, customer satisfaction was determined by service quality of reliability, variety, convenience, and accuracy, and significantly affected loyalty at the internet shopping malls for fashion products. Particularly for consumers with high involvement of clothing, perceived service quality played an important role in increasing their satisfaction, which eventually maintained loyalty to the internet shopping mall (Jun et al., 2008; Park et al., 2009). Based on the literature, it is reasonable to assume that e-service quality is likely to increase customer satisfaction, and thus customer satisfaction mediates in the effect of E-SERVQUAL on e-loyalty for apparel online shopping.

Hypothesis 3. Customer satisfaction has a positive effect on e-service loyalty for apparel online shopping (3a); and customer satisfaction mediates in the effect of E-SERVQUAL on e-loyalty for apparel online shopping (3b)

### III. Methods

**Measures.** A self-administered questionnaire with multi-item scales was developed based on existing scales in the literatures (Parasuraman et al., 2005; Srinivasan et al.'s, 2002; Szymanski & Hise, 2000; Zeithaml et al., 2002). The questionnaire consisted of three main constructs: E-SERVQUAL (30 items), customer satisfaction (3 items), and e-loyalty (7 items) for apparel online shopping. Respondents' who had purchased apparel products online were asked to list two shopping websites for apparel with which they were most familiar, and evaluate their first website. The first most familiar website for apparel shopping listed 64 websites: Apparel brand (e.g., Victoria Secret, American Eagle, Gap etc.), Portal site (e.g., Yahoo.com, eBay.com), Department store (e.g., Neman Marcus, Nord Strom, Folleys), and Discount store (e.g., Target, Walmart, etc.) websites. E-SERVQUAL (30 items), customer satisfaction (3 items), and e-loyalty (7 items) were measured using a 5-point rating scale (1 = very unlikely, 5 = very likely). In addition, respondent demographic characteristics (e.g., age, gender, marital status, education level, annual income, and ethnicity) were included for descriptive purpose.

**Sample and data collection.** A total of 252 usable questionnaires were obtained from online consumers who can access to the Internet at home and resided in standard metropolitan areas in the United States. All respondents had purchase experience with online shopping for apparel products (e.g., clothing, accessories, and jewelry). Respondents represented more female (79.8%) than male (20.2%). Average age of the respondents was 23.7 years old, ranging from 18 to 54 years. Majority of respondents was single (81.4%) and Caucasian

(72.5%). For education level, 34.4 percent of the sample had high school or less. More than half of respondents (58.2%) had less than US\$30,000 annual household income.

**Data Analysis.** Factor analysis using principal component analysis with varimax rotation was conducted to identify underlying dimensions of e-Service quality, e-satisfaction, and e-loyalty for apparel online shopping. Cronbach's alphas were calculated for the scale items to ensure they exhibit satisfactory levels of internal consistency. For hypotheses testing, a regression analysis was used to estimate the effects of E-SERVQUAL on customer e-satisfaction, and e-loyalty for apparel online shopping.

## IV. Results and Discussions

### 4.1. Dimensions of E-SERVQUAL in Apparel Online Shopping

The initial 30 items of e-service quality was factor analyzed and nine items were deleted due to factor loading below .60. Five factors whose eigenvalues were above 1.0 accounted for 70.85% of total variance. Factor loadings ranged from .60 to .86. Also, Cronbach's alpha coefficients ranged from .85 to .88, which were deemed to be reliable.

As shown in Table 1, E-SERVQUAL consisted of five factors: Compensation, Fulfillment, Efficiency, System Availability, and Responsiveness. Factor 1, Compensation, included 5 items reflecting the degree to which the site compensates customers for problems. Factor 2, Fulfillment, contained 5 items related to the extent to which the website's promises about order delivery and item availability. Factor 3, Efficiency, included four items, is related to the ease and speed of accessing and transaction in the website. Factor 4, System availability, included 4 items, is associated with the technological function of the website. Factor 5, Responsiveness, included 3 items, is associated with to the effective handling of returns through the website. For descriptive analysis, the mean of system availability was the highest ( $M = 4.38$ ), followed by efficiency ( $M = 4.34$ ), fulfillment ( $M = 4.20$ ), responsiveness ( $M = 4.12$ ), and compensation ( $M = 3.67$ ). It is indicated that online apparel consumers were likely to more highly perceive the e-service quality relevant to effective and efficient shopping than the recovery service quality.

Consumers' perceived E-SERVQUAL is multidimensional encompassing transaction-specific services (i.e., fulfillment, efficiency, system available) and recovery-related service (i.e., compensation and responsiveness) in the context of apparel online shopping. Therefore, Hypothesis 1 was supported. This is consistent with previous findings (Lee & Hong, 2006; Ryou, 2002), supporting a multifaceted construct of electronic service quality (Parasuraman et al., 2005; Zeithaml et al., 2002; Wolfinbarger & Gilly, 2003) in the context of online shopping for apparel product. Although online retailers might be able to

deliver superior e-service during routine transactions with little human contact, excelling in recovery service might require the human contacts for solving customers’ problem, which enhances overall service quality on actual website and across competing websites.

Table 2. Factor Analysis of E-SERVQUAL for apparel online shopping

Factors and items	Factor loadings	Eigenvalue	% of Variance	Mean (SD)
<b>Compensation</b> ( $\alpha = .86$ )		3.24	15.43	3.67
Compensates me for problems it creates.	.86		(15.43)	(0.87)
Compensates me when what I order doesn't arrive on time.	.79			
Tells me what to do if my transaction is not processed.	.71			
Takes care of problems promptly.	.70			
Picks up items I want to return from my home or business	.68			
<b>Fulfillment</b> ( $\alpha = .87$ )		3.23	15.41	4.20
Delivers orders when promised.	.77		(30.84)	(0.67)
Quickly delivers what I order.	.74			
Has in stock the items the company claims to have.	.72			
Makes items available for delivery within a suitable time frame.	.69			
Makes accurate promises about delivery of products.	.68			
<b>Efficiency</b> ( $\alpha = .86$ )		3.01	14.32	4.34
Makes it easy to get anywhere on the sites.	.83		(45.16)	(0.64)
Makes it easy to find what I need.	.81			
Enables me to complete a transaction quickly.	.66			
Is well organized.	.62			
<b>System Availability</b> ( $\alpha = .85$ )		2.73	13.01	4.38
Does not crash.	.82		(58.17)	(0.64)
Launches and runs right away.	.75			
Pages at this site do not freeze after I enter my order information.	.74			
Is always available for business.	.60			
<b>Responsiveness</b> ( $\alpha = .88$ )		2.66	12.68	4.12
Handles products returns well.	.84		(70.85)	(0.87)
Offers a meaningful guarantee.	.80			
Provides me with convenient options for returning items.	.79			

## 4.2. Effects of E-SERVQUAL on e-Loyalty

Structural Equation Model Results. A single-stage analysis with simultaneous estimation of both measurement and structural models was selected because the model is theoretically based, and the constructs of E-SERVQUAL were preliminarily verified to be reliable and valid. In the structural equation modeling, causative relationships were hypothesized among five factors of E-SERVQUAL ( $\xi_1 - \xi_5$ ), customer satisfaction ( $\eta_1$ ), and e-loyalty ( $\eta_2$ ). As a result, the  $\chi^2$ value of 430.36 was significant ( $p < .001$ ). Other indexes were relatively acceptable (GFI=.85; CFI=.95; IFI=.95; RMSEA=.05) by exceeding marginal level (Hair et al., 1998). In the measurement model, the factor loadings for each respective construct were statistically significant and were greater than .60 (i.e., ranging from .61 to

Table 3. Measurement model result

Latent constructs and indicators	Factor loadings	t-value	Variance
<b>Compensation</b> ( $\xi_1$ )			.58
X1.Compensates me for problems it creates.	.81	-a	
X2.Compensates me when what I order doesn't arrive on time.	.75	10.22	
X3.Tells me what to do if my transaction is not processed.	.78	11.03	
X4.Takes care of problems promptly.	.86	11.97	
<b>Fulfillment</b> ( $\xi_2$ )			.57
X5. Delivers orders when promised.	.77	-	
X6. Quickly delivers what I order.	.79	11.05	
X7. Has in stock the items the company claims to have.	.61	8.21	
X8. Makes items available for.delivery within a suitable time frame.	.75	10.36	
X9. Makes accurate promises about delivery of products.	.84	11.81	
<b>Efficiency</b> ( $\xi_3$ )			.56
X10. Makes it easy to get anywhere on the sites.	.69	-	
X11. Makes it easy to find what I need.	.68	13.03	
X12. Enables me to complete a transaction quickly.	.84	9.67	
X13. Is well organized.	.80	9.41	
<b>System Availability</b> ( $\xi_4$ )			.61
X14. Does not crash.	.80	-	
X15. Launches and runs right away.	.78	11.48	
X16. Pages at this site do not freeze after I enter my order information.	.77	10.54	
X17. Is always available for business.	.79	11.01	
<b>Responsiveness</b> ( $\xi_5$ )			.73
X18. Handles products returns well.	.92	-	
X19. Offers a meaningful guarantee.	.82	14.79	
X20. Provides me with convenient options for returning items.	.81	14.02	
<b>Customer Satisfaction</b> ( $\eta_1$ )			
Y1. If I had it to do over again, I'd make my most recent online purchase for clothing at this website.	.84	-	
Y2. I am sure it was the right thing to make my most recent online purchases for clothing at this website.	.75	11.21	
Y3. My decision to purchase clothing from this website was a wise one.	.73	10.69	
Y4. I am happy I made my most recent online purchase clothing at this website.	.83	12.81	
<b>e-Loyalty</b> ( $\eta_2$ )			
Y5. I try to use this website whenever I need to buy clothing.	.79	-	
Y6. I like using this websites for purchasing my clothing.	.80	11.32	
Y7. To me, this website is the best apparel retail website to do shop for clothing.	.87	12.24	

.91,  $p < .001$ ) and internal consistency reliabilities ranged from .85 to .88. The structural model illustrated in Figure 1 included significant standardized path coefficients. The estimated model accounted for 22% of total variance in customer satisfaction and 68% of total variance in the e-loyalty for apparel online shopping. Thus, the hypothesized model was deemed to be a good fit for hypotheses testing.

Hypotheses Testing. With respect to the relationship between perceived E-SERVQUAL and e-loyalty, system availability has a significant and positive effect on e-loyalty ( $\gamma_{24} = .25$ ,  $t = 2.22$ ,  $p < .05$ ), whereas efficiency had a significant and negative effect on e-loyalty toward the apparel shopping website

( $\gamma_{23} = -.30$ ,  $t = -2.35$ ,  $p < .01$ ). Therefore, Hypothesis 2 was not supported. This finding implies that perceived service quality of system available was likely to increase customer satisfaction for apparel online shopping. However, it was not supported that e-loyalty was determined by service quality, because service quality has an indirect effect on e-loyalty (i.e., repurchase intention) by mediating effect of value or satisfaction (Jun et al., 2008; Lee & Hong, 2006; Ryou, 2002) in the context of online shopping for apparel.

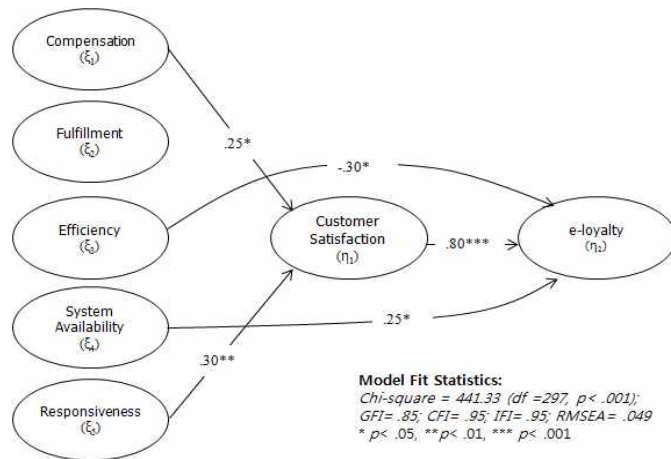


Fig. 1. Structural model of e-loyalty for online apparel shopping

For apparel online shopping, E-SERVQUAL factors were significantly related to customer satisfaction. Specifically, compensation had a significant and positive effect on customer satisfaction ( $\gamma_{11} = .25$ ,  $t = 2.23$ ,  $p < .05$ ). Also, responsiveness had a significant and positive effect on customer satisfaction ( $\gamma_{15} = .30$ ,  $t = 2.45$ ,  $p < .01$ ). However, the coefficients for fulfillment, efficiency, and system availability factors were not significantly related to customer satisfaction for online apparel shopping. Therefore, Hypothesis 3a was partially supported. This finding supports the notion that customer satisfaction was strongly associated with e-service quality, such as convenience, reliability or fulfillment and information contents (Montoya- Weiss, Voss, & Grewal, 2003; Szymanski et al., 2000; Zeithaml et al., 2002). Especially for apparel products, we found that compensation was a critical factor to increase customer satisfaction levels.

As expected, there was a significant relationship between customer satisfaction and e-loyalty ( $\beta_{21} = .80$ ,  $t = 8.58$ ,  $p < .001$ ), and thus, there was significant indirect effects of compensation ( $\gamma_{11} \times \beta_{21} = .19$ ,  $p < .05$ ) and responsiveness ( $\gamma_{15} \times \beta_{21} = .21$ ,  $p < .05$ ) on e-loyalty. Thus, Hypotheses 3b was supported, suggesting that customer satisfaction plays an important role in the effect of E-SERVQUAL on e-loyalty for online apparel shopping.

## V. Conclusions and Implications

This study provides insights into e-marketers for maintaining their customers and improving e-retail environment by providing underlying services. Findings lend support that the Internet

can create a variety of service quality for apparel online shoppers. For apparel online shopping, perceived service quality consisted of compensation, fulfillment, efficiency, system availability, and responsiveness. This supports Parasuraman's (2005) E-S-QUAL encompassing two aspects of core service (e.g., fulfillment, efficiency, system availability) and recovery related service (e.g., compensation, responsiveness) in the context of apparel shopping online. However, privacy and contacts factors of E-SERVQUAL developed in Parasuraman et al (2005) study were excluded due to relatively lower factor loadings in this study. This might be due to the reason that privacy is a more default option of online transaction over the websites, rather than consumers' connotation of intangible service from shopping sites. Contacts with assistance through telephone may also be another shopping effort to online apparel consumers. Therefore, the factors may need to refine and develop scales through qualitative approach focusing on apparel website.

Of the five factors of E-SERVQUAL considered, both compensation and responsiveness were found to have a significant impact on customer satisfaction, which influenced e-loyalty for apparel online shopping. This suggests that the recovery-specific service factors play an important role in maximizing customer satisfaction levels and then maintaining customer loyalty to the online shopping site for apparel. This finding implies that recovery-related E-SERVQUAL is more important antecedent for predicting its consequence for apparel online shopping.

In addition to recovery-related service, the system availability was found to have direct and positive effect on e-loyalty for apparel online shopping. However, efficiency had a negative effect on e-loyalty for apparel online shopping; suggest the ease and speed of accessing and using the site may make it easy for customers to switch to other websites for their browsing. Otherwise, fulfillment was not a significant predictor for explaining consequences of E-SERVQUAL for apparel.

The findings have both managerial and research implications. From a managerial perspective, fashion marketers can establish long-term relationship with their customers based on continuously measuring customer perceptions for recovery-related service quality, such as quick responses to problem and returns, and compensation for customers' problem after their purchases. In order to maintain e-loyalty, recovery services play an important role in the first choice websites for consumers to purchase clothing. Moreover, good quality of compensation and responsiveness for customer claims after online transaction can encourage consumers to recommend a website to another people, leading to customers' first visit to the website without perceived risks. In an economic aspect, fashion marketers also should facilitate technological system (e.g., not crashed website, always available for business) for online decision making, which leads to e-loyalty or intention to repurchase in the website. Given that online consumers may shop anywhere, a marketing strategy for improving competitive advantages is to provide better service quality, maximize satisfaction, and

turn to creating customers' e-loyalty for apparel online shoppings.

From a researcher's perspective, there are some limitations of this research that should be considered when interpreting its findings. Although e-service quality perception depends to a large extent on the characteristics of the product and types of e-retailer being marketed, this study does not control for such difference across product categories and retailers' types. For future research, findings provide a basis for the further study of this important topic along both theoretical and empirical dimensions. In previous researches, satisfaction may also impact e-loyalty (Reinartz & Kumar, 2000; Reinbstein, 2002), which leads to positive word-of-mouth behavior (Srinivasan et al., 2002). Based on the findings, more comprehensive models for predicting E-SERVQUAL's consequences can be developed and tested. For global fashion marketing, this study can expand to a cross-cultural approach into e-service quality for apparel by including multinational samples.

(Received: December 2, 2009)

(Revised: December 16, 2009)

(Accepted: December 23, 2009)

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