The Impact of E-Retail Environment Characteristics on E-Satisfaction and Purchase Intent

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ABSTRACT

The purpose of this research is to determine the key dimensions of e-retail environment characteristics which affect consumer e-satisfaction and purchase intent and to examine the mediating role of e-satisfaction and the moderating effects of consumers' previous e-shopping experience on the relationship between e-retail environment characteristics and consumer responses. The study focused on young adults ranging in age from 18 to 25. The results showed that convenience, customization, security/privacy, web appearance and entertainment value were the key characteristics of e-retail environment impacting e-satisfaction. E-satisfaction fully mediated the effects of e-retail environment characteristics on online purchase intent. Prior e-shopping experience was found to moderate the relationships among the key dimensions of e-retail environment, e-satisfaction, and e-purchase intent. The findings of this study add to the existing literature on e-service quality by focusing on e-retail environment characteristics beyond products and prices, and further by providing e-retailers with practical implications as to how they can improve their website environments for successful e-retailing business.

Keywords: E-Purchase Intent, E-Retailing, E-Satisfaction, E-Service Quality, E-Shopping

INTRODUCTION

E-service quality is related to how e-retailers facilitate efficient and effective shopping, purchasing, and delivery of products and services (Zeithaml et al., 2002). Unlike shoppers in offline stores who can have direct interactions with service representatives, the quality of the e-shopping experience relies heavily on service attributes available on websites. If e-shoppers are not satisfied with the service attributes provided on an e-retail site, they can easily switch to another site by simply clicking the mouse. Enhancing e-service quality would be essential to satisfy e-shoppers and to be successful in e-retail businesses (Chang et al., 2009).
As previous e-service quality related studies stressed (e.g., Zeithaml et al., 2002), high e-service quality goes beyond providing high quality products and/or competitive prices. In e-retailing where consumers can find the same product on a vast number of websites offering a wide range of prices, e-service quality of the e-retail website is expected to play a more important role in positively impacting consumer responses than even products and prices. For this reason, the present study focuses on e-service quality that influences e-service experience per se, irrespective of products and prices. While e-service quality has received much scholarly attention, most extant e-service research has not examined e-service quality from the contextual perspective. Kim et al. (2007) developed a scale containing five e-retail buying environment characteristics which are customer-centered service attributes not related to price or product information by reviewing extant literature on e-service quality research. In comparison to other existing e-service quality scales, the main benefit of Kim et al.’s (2007) scale is that the service attributes within the five e-retail buying environment characteristics were identified by a content analysis of the top 96 e-retail apparel sites ranked by Internet Retailer (2005). Thus, the service attributes identified are drawn from industry practices and hence more relevant e-service scales for evaluating e-service quality of apparel e-retail sites (Kim et al., 2007). However, one of the limitations of this scale is that the attributes identified in relation to the five e-retail buying environment characteristics were not evaluated from the consumers’ perspective. Customer perceptions of e-service quality are one of the important determinants of e-business success (Bai et al., 2008; Liu et al., 2000; Yang et al., 2004). Therefore, expanding upon Kim et al.’s (2007) research, the present study is focused on the consumer perspective of e-retail buying environment characteristics which affect consumer satisfaction and purchase intent. By focusing on the contextual aspect of e-service quality, this study addresses important research questions such as: (1) What are the key dimensions of e-retail environment characteristics which affect e-satisfaction and purchase intent? (2) Does e-satisfaction mediate the effects of e-retail environment characteristics on purchase intent? (3) Does consumers’ previous experience with e-shopping moderate the relationships among e-retail environment characteristics, e-satisfaction, and purchase intent? The findings of the study provide practical information for e-retailers for use in improving their website environment to increase e-satisfaction with the e-shopping experience and ultimately increase purchase intent.

The organization of this paper consists of four major sections. The first section contains the background and theoretical support for the research model. We describe the research methodology including data collection procedure and survey instruments. We then discuss the results. Finally, the conclusions, managerial implications, and suggestions for further research are discussed.

Literature Review and Conceptual Development

E-Retailing

Forrester predicted that US e-retail sales would likely hit $172.9 billion in 2010, which would represent an increase of 11% over 2009 and that e-retail sales would influence 53% of US retail sales by 2014 (Internet Retailer, 2010). With state-of-the-art technology such as Wi-Fi and mobile devices, consumers can now access the Internet easily anytime from any place. The ease of Internet access that technology provides to consumers is influencing consumers’ shopping patterns and enabling large number of consumers to shop online. Thus, to satisfy e-shoppers and to increase revisit to the site, retailers need to understand the factors that influence consumers’ perceptions of e-service quality.

de Ruyter et al. (2001) defined e-service as “an interactive, content-centered and Internet-based customer service, driven by the customer and integrated with related organizational customer support processes and technologies with
the goal of strengthening the customer-service provider relationship” (p. 185). To be successful in the highly competitive e-retailing environment, it is important to build and maintain customer relationships (Archer & Gabauer, 2000). Superior e-services lead to effective customer relationship management and facilitate an increase in the volume of transactions (Singh, 2002).

**Servicescape and E-Servicescape**

Servicescape developed by Bitner (1992) provides a useful and unique theoretical grounding for the importance of e-retail contextual characteristics on consumer behaviors. Servicescape consists of a complex mix of environment features such as ambient condition, space/function and signs/symbols. Bitner proposed that objective environment factors in the servicescape influence perceived servicescapes, which subsequently impact both customers’ and employees’ cognitive, emotional, and physiological responses to the environment.

Furthermore, the internal responses were posited to influence human behaviors in terms of approach and avoidance behaviors and social interactions between customers and employees in the servicescape. Extending the Stimulus-Organism-Response (S-O-R) model developed by Mehrabian and Russell (1974), Bitner’s conceptualization of servicescapes incorporates both customers and employees in the environment, integrating cognitive and physiological responses beyond emotional responses and also incorporates social interactions between customers and employees. Additionally, Bitner recognized different requirements for the servicescape depending on the types of service organizations. Numerous studies also provide empirical support for the importance of environment factors on consumer behaviors (see Turley & Milliman, 2000).

The concept of servicescape and the S-O-R model have been used to explain the effects of e-atmospherics on consumer behaviors in e-retailing (Eroglu et al., 2003; Kim et al., 2009; Richard, 2005). Similar to how the physical environment influences human behavior in the servicescape, the website as the technological environment influences consumer behavior in e-retailing. In fact, the technological environment of the website has the capability to interact with the customer via personalization, and hence the expectation of the customer is much greater than that of the physical non-interactive environment. The e-retail website represents an elaborate environment in which the website not only needs to be efficient for navigation, but also provide enough interactivity and pleasantness of the shopping environment to increase e-satisfaction. Considering that approach/avoidance behaviors are largely determined by individual internal responses to the environment, the role of the website environment is crucial in evoking positive internal responses from the shopper.

Extant research on website environment provides empirical support for the significant role of the website design or e-atmospherics on shopper behaviors. Applying the concept of service management to an e-retailing context, service researchers argue that the website is a service entity where consumers and e-retail organizations interact in a real-time circumstance (Bitner, 2001; Hopkins et al., 2009). Taking a servicescape approach (Bitner, 1992), Hopkins et al. (2009) conceptualized a website service setting as e-servicescape that can be managed by e-retailers to evoke desired consumer responses.

Hopkins et al. developed a conceptual model of e-servicescape incorporating the three dimensions of servicescape suggested by Bitner (1992) and the three website dimensions by Chen and Wells (1999); ambient condition (entertainment/aesthetics), space/function (organization) and signs/symbols (informativeness). Their findings provide empirical support for the e-servicescape dimensions and their effect on consumer responses in terms of attitude toward the site, service provider evaluation, and purchase intentions. Other studies looked at how contextual factors of the websites influence consumer responses also, yet their operationalizations of
website contexts or e-servicescape dimensions vary to a great extent across studies (e.g., Eroglu et al., 2003 and Richard, 2005).

This study takes an e-servicescape approach as an extension of the S-O-R model to explain how the contextual characteristics of e-retail websites (S) influence consumer responses in terms of e-satisfaction (O) and purchase intent (R) and also how e-satisfaction (O) mediates the relationship between e-retail website contexts (S) and purchase intent (R). After reviewing the existing literature on servicescape, e-servicescape, and online service quality, the five dimensions of e-retail buying contexts suggested by Kim et al. (2007) were deemed most relevant for the purpose of this study based on its comprehensiveness and relevance to online apparel retailing. The five dimensions are discussed in the next section.

E-Service Quality

Numerous research studies have identified essential dimensions of e-service quality. For example, Yoo and Donthu (2001) developed SITEQUAL which includes four dimensions: ease of use, aesthetic design, processing speed, and security. Wolfinbarger and Gily (2003) developed eTailQ which comprises four dimensions: website design, reliability, privacy/security, and customer service. Parasuraman et al. (2005) proposed e-SQ which includes 4 dimensions of E-S-QUAL (efficiency, system availability, fulfillment, and privacy) and 3 dimensions of E-Rec-QUAL (responsiveness, compensation, and contact).

While these various e-service quality scales have been applied to a variety of service contexts, they were not designed to measure e-service quality in an e-retailing context and thus lack certain e-service dimensions relevant specifically to e-retailers (e.g., customization for gift wrapping service, e-gift card). Similar to a traditional physical store, in e-retailing a website shopping environment in which products are sold is likely to play a critical role through the enhanced atmospherics, such as background music and attractive graphics. Thus for this study, we adopted e-service quality scales that focused on e-retail contextual characteristics. Based on a comprehensive review of e-service quality research, Kim et al. (2007) identified five key dimensions of e-retail environment not directly related to price and product information but related to e-service quality: 1) convenience, 2) customization, 3) information, 4) communication and 5) website aesthetics. This scale was further empirically tested by Kim et al. (2009), receiving strong empirical support for the importance of e-retail environment characteristics on e-satisfaction and e-loyalty. Given its focus on the e-retailing shopping environment and empirical support in the follow-up study, the scale developed by Kim et al. (2007, 2009) deemed most relevant to the focus of this study.

Convenience

A well-organized, easy-to-follow website is essential to attract both new and experienced e-shoppers (Yang et al., 2004). Convenience related service attributes help customers search information with ease and minimal effort (Kim et al., 2007). Szymanski and Hise (2000) indicated that convenience is a dominant factor which affects consumer e-satisfaction. In a similar vein, Ribbink et al. (2004) pointed out that ease of use is an important element in e-service quality, especially for a new user, and it directly affects e-satisfaction. Berry et al. (2002) indicated that consumers’ perceptions of service convenience affect consumers’ overall evaluation of e-service and their satisfaction with the service. Srinivasan et al. (2002) found a positive relationship between convenience and satisfaction, which in turn affects intent to repurchase and/or recommend. Therefore, the following hypothesis is advanced:

H1. Convenience will have a direct positive effect on e-satisfaction.

Customization

One advantage of an online store compared to an offline store is that an online site can be per-
sonalized based on consumers’ needs (Ribbink et al., 2004). Derived from customers’ shopping habits, preferences, and needs, e-retailers can provide individualized attention to customers (Swaid & Wigand, 2007). “You may also like” suggestions based on a customer’s selected items and/or previous purchases, wish list, email to a friend, multiple ordering options, and gift wrapping choices would be examples of customization related attributes. Customized service attributes recognize the individualized needs of customers and allow customers to personally tailor their choice of products, services and shopping (Kim et al., 2007). Thus, the customized attributes allow customers to shop and complete transactions more efficiently. Singh (2002) indicated that customized web pages are beneficial not only to customers but also to e-retailers since the information can be employed to improve customer service. The influence of customization on e-satisfaction has been the focus of many studies (e.g., Lee & Lin, 2005). According to Swaid and Wigand (2007), it is important to provide customized service to improve customer satisfaction. Thus, the following hypothesis is proposed:

\[ H2. \text{Customization will have a direct positive effect on e-satisfaction.} \]

**Information**

The information dimension is related to trust, security, and privacy concerns. Trust is an important factor for building and maintaining long-term relationships (Ribbink et al., 2004). In the context of e-shopping, Ribbink et al. (2004) defined trust as “the degree of confidence customers have in online exchange or in the online exchange channel” (p. 447). Previous research has shown trust as a key element of consumer satisfaction (e.g., Lin, 2007). Numerous studies have emphasized the importance of security and privacy in relation to e-shopping (e.g., Caruana & Ewing, 2006; Parasuraman et al., 2005). According to Branscum and Tanaka (2000), privacy has a significant influence on consumers’ evaluations of websites as well as their satisfaction with e-retailers. Szymanski and Hise (2000) found that positive perceptions of financial security have a positive effect on e-satisfaction levels. Consequently, the following hypothesis is developed:

\[ H3. \text{Information that enhances customer trust will have a direct positive effect on e-satisfaction.} \]

**Communication**

According to Yoo et al. (2010), effective communication with customers is the key to successful business. Since consumers cannot talk face to face with sales associates as in a physical store, communication is one of the most important characteristics of the Internet (Chiu et al., 2005). For example, using communication tools such as live help, consumers can speak to a live person to obtain assistance. Bulletin boards and chats also enhance interactive communication (Yoo et al., 2010). Lin (2007) indicated that providing real-time online communication will enhance consumers’ long-term satisfaction. Hence, the following hypothesis is generated:

\[ H4. \text{Communication will have a direct positive effect on e-satisfaction.} \]

**Website Aesthetics**

Website aesthetics is an important element in the evaluation of Internet shopping environments (Gounaris et al., 2005). According to Montoya-Weiss et al. (2003), aesthetically pleasing website design influences perception of e-service quality. Eroglu et al. (2003) suggested that website aesthetics, such as background color, logos, and music, could affect consumers’ internal state of affect and cognition which in turn influence consumers’ responses such as purchase intent. Playful features such as animation and video attract and retain custom-
ers (Nusair & Kandampully, 2008). Thus, the following hypothesis is formulated:

\[ H5. \] Website aesthetics will have a direct positive effect on e-satisfaction.

**Mediating Effect of E-Satisfaction in Relation to Purchase Intent**

Anderson and Srinivasan (2003) defined e-satisfaction as “the contentment of the customer with respect to his or her prior purchasing experience with a given e-commerce firm” (p. 125). In this study, we adopted Anderson and Srinivasan’s definition of e-satisfaction. The mediating effect of e-satisfaction in relation to e-service quality has been examined in many research studies (e.g., Yen & Lu, 2008). According to previous research, satisfying customers is more efficient than advertising in print or any mass media channel because satisfied customers can be a source of positive word-of-mouth (Bhattacherjee, 2001). Compared to unsatisfied consumers, satisfied consumers are more likely to have greater repurchase intent and to recommend products and/or services to their acquaintances (Yang & Peterson, 2004).

Customers’ behaviors can be predicted by their intent (Bai et al., 2008). Purchase intent has been used to predict actual purchase behavior (Ajzen & Fishbein, 1980). The cost of retaining existing customers is less expensive than the cost of attracting new customers (e.g., Singh et al., 2001). Therefore, purchase intent is a very important variable for marketers (Maxham, 2001). According to Singh et al. (2001), effective (reliable) services are crucial to encourage customers to shop online. Moreover, reliable e-service communicates quality to the customer resulting in customer satisfaction. The relationship between consumer satisfaction and purchase intent has been examined by previous researchers (e.g., Kim, 2005; Kim & Lennon, 2006). The enhancement of service quality is a determinant of satisfaction, which has an effect on purchase intent (Bloemer et al., 1998). Thus, it is plausible to expect that:

\[ H6. \] E-satisfaction will mediate the relationship between e-retail environment characteristics and purchase intent.

**Moderating Effect of Consumers’ Previous Experience with E-Shopping**

Individual differences affect consumer behavior and attitudes (Zhang & Prybutok, 2005). In the context of e-shopping, Gounaris et al. (2005) emphasized the importance of individual differences in the evaluation of e-service quality. Bruner and Kumar (2000) indicated a positive relationship between the level of consumers’ experience with the Internet and attitude towards the site. In spite of these indications, little empirical research has examined how individual differences such as Internet familiarity and degree of e-commerce use affect consumers’ perceptions of e-service quality (Gounaris et al., 2005).

A few prior studies investigated the moderating effect of individual differences in relation to e-service quality; several studies have suggested that a consumer’s online shopping experience might have an impact on consumers’ evaluations of e-service quality. Compared to non-Internet users, Internet users are less concerned about privacy (Ribbink et al., 2004). In Wolfinbarger and Gilly’s (2003) study, privacy/security has no effect on satisfaction. Yang et al.’s (2004) study indicates that security has no impact on consumers’ perceptions of overall service quality. These researchers speculate that the insignificance of security and privacy might be attributed to consumer prior use of online websites. Customer purchase activities, such as accumulated purchase process experience, affect overall consumer e-satisfaction and repurchase intent (Kim, 2005). Based on previous experience with e-shopping, individual consumers might evaluate the key determinants of e-service quality differently. Therefore, the following hypothesis is developed:

\[ H7. \] Consumers’ previous experience with e-shopping will moderate the effect of e-retail environment characteristics on e-satisfaction and purchase intent.
Research Model

Drawing from the above discussion, Figure 1 shows the research model and provides a summary of the variables and hypotheses guiding this study.

Methodology

Data Collection

The study focused on young adults ranging in age from 18 to 25. This age group was chosen for the study’s examination of e-retailing behavior because of that age group’s tendency toward frequent e-retail use. College students are the most digitally connected demographic group (eMarketer, 2008). Ninety percent of college students access the Internet each day (Gardyn, 2002). Their online expenditures exceed that of any other demographic group (Seock & Norton, 2008). Therefore, college student samples are considered as acceptable and appropriate group from which to gain data for use in this study.

With the permission of course instructors, invitation emails were sent to undergraduate students with the URL link to the survey. Students participated in the online survey voluntarily.

Procedure and Survey Instruments

A self-administered questionnaire comprised of four sections was used. In the first section, respondents were asked to provide the names of three online apparel retailers they visit most often. This study focused on apparel e-retailing because apparel is a major online purchase category. In fact, online apparel sales outpaced personal computers for the first time in 2007 and it continues to be one of the strongest sectors in e-retailing (Internet Retailer, 2007a). In 2009 apparel, accessories and footwear were the highest selling online product category, reaching $27 billion which represented an increase of 17% over 2008 (Internet Retailer, 2010). Given the importance of apparel sales in e-retailing and its popularity, apparel e-retailing was deemed to be a relevant context to evaluate consumer perspective of e-service quality.

In the second section of the questionnaire, respondents were asked to evaluate e-service attributes related to the five e-retail environment characteristics based on their actual purchase experience for the first website they listed in the precious section. Each attribute was measured on a seven-point Likert scale (1=strongly disagree, 7=strongly agree). The list of the e-service attributes includes:

- Convenience
- Customization
- Information
- Communication
- Website aesthetics

In the third section, respondents evaluated the e-service with a seven-point Likert scale (1=strongly disagree, 7=strongly agree). The list of the e-service attributes includes:

- E-satisfaction
- Purchase intent

Finally, the fourth section included previous experience with e-shopping, which was considered as a direct effect while direct experience with e-shopping was considered as a moderating effect.

The above figure illustrates the research model with the variables and hypotheses guiding this study. The model shows the relationship between the variables of interest, highlighting e-service quality as the dependent variable, and various environment characteristics as the independent variables. The diagram also indicates the direction of the relationships, with solid arrows representing direct effects and dashed arrows representing moderating effects.
attributes was adopted from Kim et al. (2007) and modified for the current study. The scale incorporated all contextual factors on retail websites into five dimensions and provided strong empirical validation of the scale (Kim et al., 2009). As part of the pilot study, the modified scale of e-retail environment characteristics was examined by a panel of academic experts on e-retailing for face and content validity. Based on the feedback, revisions were made to improve the validity of the scale. The updated scale was then pre-tested by five graduate students and one faculty member specialized in e-retailing. Based on feedback, minor revisions on wording were made to improve clarity and readability of the scale. The responses from the pre-test were not included in the data analysis.

In the third section, respondents were asked to evaluate their e-satisfaction and purchase intent for the same website. E-satisfaction was measured using three questions developed by Yang et al. (2004). Purchase intent was measured using two items developed for the current study. All items employed seven-point Likert scales anchored by 1=strongly disagree and 7=strongly agree. In the final section, respondents were asked to provide general demographic information and information pertaining to previous experience with e-shopping (i.e., How often do you use the Internet? How often do you shop online? How often do you make online purchases? How often do you shop for apparel online? How often do you purchase apparel online?).

Results

Sample Characteristics

A total of 364 college students participated. In order to insure that no systematic difference between participants from the three different universities existed, a series of ANOVA tests were run. ANOVA results showed no significant differences among the participants based on their university affiliation in terms of the Internet usage ($p = .11$), general e-shopping frequency ($p = .38$), general e-purchase frequency ($p = .66$), apparel e-shopping frequency ($p = .60$), apparel e-purchase frequency ($p = .86$), apparel e-purchase quantities ($p = .98$), and apparel e-purchase expenditure ($p = .10$). Based on these results suggesting no systematic differences in their e-shopping behaviors, data from the three universities were pooled for further analysis.

With a total of 364 participants over 90% were female ($n = 336$). The mean age was 20.71 years ($SD = 1.64$) with 97% between the ages of 18 and 24. More than 32% of participants were juniors, 33% seniors, 19% sophomore, and 16% freshman. Approximately 82% were Caucasian American.

Approximately 78% of respondents indicated that they use the Internet very frequently. Over 56% shop online frequently or very frequently. Approximately 56% shop for apparel online frequently or very frequently. About 38% indicated that they had purchased more than four apparel items online in the last six months. Over 64% answered that they normally spend between $25 and $100 at one time when purchasing apparel online.

Exploratory Factor Analysis (EFA)

Exploratory factor analysis (EFA) using a varimax rotation was performed to assess the underlying factor structure of the scale items. A total of 63 attributes were factor analyzed. To obtain theoretically meaningful constructs, attributes that did not load strongly on any factor (below .5) and attributes that had cross-loadings were eliminated. The minimum eigenvalue of 1.0 criterion was used for factor extraction consideration. After a series of EFA factor analysis generated seven factors and 39 attributes were retained in the model, explaining 73.1% of the variance in the data. The seven factors were substantially similar to the five e-retail environment characteristics suggested by Kim et al. (2007) with the exception of information and website aesthetics. The information characteristic was subdivided into two factors. The first factor included 5 items related to security/privacy information and thus was labeled security/privacy. The second factor, labeled trust, included five items related...
to e-retailers’ credibility. The website aesthetics was also subdivided into two factors. The first factor, labeled web appearance, included 4 items related to appearance of a website. The second factor, labeled entertainment value, included 5 items that represent web features employed to appeal to consumers’ hedonic shopping orientation or to enhance the entertainment value of shopping experiences. The seven factors showed Cronbach’s alpha reliability scores ranging from .82 to .94.

**Confirmatory Factor Analysis (CFA)**

To test construct validity of factors, Confirmatory factor analysis (CFA) using the maximum likelihood procedure of LISREL 8.80 was conducted. Five different fit indexes were employed to assess model fit: chi-square statistics, normed fit index (NFI), comparative fit index (CFI), relative fit index (RFI), and the root mean square error of approximation (RMSEA). The initial fit of the model was not good ($\chi^2 = 4904.83$ with $df = 866$; NFI = .93; CFI = .94; RFI = .92; RMSEA = .11). The development of the final measurement model followed the respecification guidelines suggested by Anderson and Gerbing (1988) (i.e., items that were loaded on the wrong factor, were cross-loaded, or exhibited large standardized residuals were removed). The final model provided an adequate fit to the data ($\chi^2 = 752.29$ with $df = 369$; NFI = .97; CFI = .99; RFI = .97; RMSEA = .053). CFI, NFI, and RFI were greater than the recommended .90 and RMSEA was less than .08 (e.g., Hu & Bentler, 1999; Tabachnick & Fidell, 2001). All factor loadings were greater than the recommended .40 cutoff and were statistically significant (Nunnally & Bernstein, 1994). The convergent validity of the measurement model was examined by computing the composite reliability and average variance extracted (AVE). All composite reliabilities exceeded the .70 threshold (Nunnally & Bernstein, 1994) and the AVE exceeds .50 (Fornell & Larcker, 1981) (Table 1). The discriminant validity of each construct was evidenced by (1) each indicator loading higher on the construct of interest than on any other variable (Chen et al., 1998) and (2) the square root of each construct’s AVE is larger than its correlations with other constructs (only for convenience, the correlation with satisfaction was not met the criteria) (Gefen & Straub, 2003). Cronbach’s alpha coefficients were used to assess reliabilities of the measures. As shown in Table 1, reliability coefficients were acceptable for all constructs since all values exceed the .70 guideline suggested by Nunnally and Bernstein (1994). Table 2 provides descriptive statistics of the constructs and correlations among the constructs.

**Hypotheses Testing**

**Testing Hypotheses 1 Through 6**

Structural equation modeling using maximum likelihood techniques was used to examine the hypothesized relationships among the five e-retail environment dimensions represented in the seven e-retail environment characteristics, e-satisfaction, and purchase intent. The overall fit statistics suggested that the research model provided an adequate fit to the data ($\chi^2 = 1068.06$, $df = 370$; NFI = .96; CFI = .97; RFI = .95; RMSEA = .069). The model fit indexes all exceeded their respective common acceptance levels. Figure 2 shows the standardized LISREL path coefficients.

Of the seven factors, five were significant predictors of e-satisfaction. Convenience and customization had significant positive effects on e-satisfaction. Thus, $H1$ and $H2$ were supported. With regards to information, only privacy/security had a positive effect on e-satisfaction. Trust did not appear to have a statistically significant influence on e-satisfaction. Thus, $H3$ was partially supported. The relationship between communication and e-satisfaction was not significant. Thus, $H4$ was not supported. With regards to website aesthetics, both web appearance and entertainment value had significant effects on
<table>
<thead>
<tr>
<th>Factors and Items</th>
<th>Factor Loading</th>
<th>T-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Convenience</strong> (α = .92; AVE = .61; CR = .92)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. This site provides easy-to-follow instructions on how to browse the website.</td>
<td>.79</td>
<td>- a</td>
</tr>
<tr>
<td>2. This site has clear and well-organized product categories (e.g., active wear, outerwear, shirts, pants, etc.).</td>
<td>.85</td>
<td>17.52</td>
</tr>
<tr>
<td>3. This site provides easy checkout for making purchases without logging into the website.</td>
<td>.68</td>
<td>13.41</td>
</tr>
<tr>
<td>4. The search function on this website is easy-to-use and helpful.</td>
<td>.76</td>
<td>14.98</td>
</tr>
<tr>
<td>5. This site and all its links work well.</td>
<td>.87</td>
<td>18.28</td>
</tr>
<tr>
<td>6. This site makes it easy for customers to contact the company (e.g., provides 1-800 numbers).</td>
<td>.74</td>
<td>15.30</td>
</tr>
<tr>
<td>7. This site provides timely information about product availability while I browse, so that I learn about availability before checkout.</td>
<td>.77</td>
<td>15.51</td>
</tr>
<tr>
<td><strong>Customization</strong> (α = .82; AVE = .63; CR = .83)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. This site offers a gift wrapping service that satisfies customer needs when purchasing gifts online.</td>
<td>.71</td>
<td>-</td>
</tr>
<tr>
<td>2. This site provides an option to purchase gift cards that are personalized for me.</td>
<td>.87</td>
<td>13.61</td>
</tr>
<tr>
<td>3. This site provides an option to purchase gift certificates that are personalized for me.</td>
<td>.79</td>
<td>12.83</td>
</tr>
<tr>
<td><strong>Security/privacy</strong> (α = .95; AVE = .91; CR = .95)</td>
<td></td>
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</tr>
<tr>
<td>1. This site provides adequate information about the company’s security policy.</td>
<td>.94</td>
<td>-</td>
</tr>
<tr>
<td>2. This site provides adequate information about the company’s privacy policy.</td>
<td>.97</td>
<td>31.60</td>
</tr>
<tr>
<td><strong>Trust</strong> (α = .89; AVE = .74; CR = .89)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. This site provides adequate information about the company’s history so I feel I can trust this website.</td>
<td>.80</td>
<td>-</td>
</tr>
<tr>
<td>2. This site provides information about investor relations so I feel I can trust this website.</td>
<td>.83</td>
<td>17.18</td>
</tr>
<tr>
<td>3. This site provides adequate information about the company’s business ethics so I feel I can trust this website.</td>
<td>.93</td>
<td>19.41</td>
</tr>
<tr>
<td><strong>Communication</strong> (α = .90; AVE = .77; CR = .91)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. While I shop, I can get real-time “Live help” if I need to.</td>
<td>.74</td>
<td>-</td>
</tr>
<tr>
<td>2. For more information, I could use the site’s chat rooms.</td>
<td>.96</td>
<td>16.95</td>
</tr>
<tr>
<td>3. For more information, I could use the site’s bulletin boards.</td>
<td>.91</td>
<td>16.60</td>
</tr>
<tr>
<td><strong>Web appearance</strong> (α = .94; AVE = .81; CR = .94)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. This site uses visually appealing background colors.</td>
<td>.93</td>
<td>-</td>
</tr>
<tr>
<td>2. This site has visually appealing logos.</td>
<td>.96</td>
<td>34.83</td>
</tr>
<tr>
<td>3. This site has attractive graphics on the main page.</td>
<td>.90</td>
<td>28.83</td>
</tr>
<tr>
<td>4. Borders or background patterns on the webpage are aesthetically pleasing.</td>
<td>.80</td>
<td>21.07</td>
</tr>
<tr>
<td><strong>Entertainment value</strong> (α = .82; AVE = .61; CR = .82)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. This site plays music in the background which makes shopping pleasurable.</td>
<td>.74</td>
<td>-</td>
</tr>
<tr>
<td>2. This website has flash intro that provides a pleasant greeting to visitors to the website.</td>
<td>.81</td>
<td>13.18</td>
</tr>
<tr>
<td>3. This site provides useful visual presentation aids, such as audio and videos.</td>
<td>.80</td>
<td>13.01</td>
</tr>
</tbody>
</table>

*continued on following page*
e-satisfaction. However, interestingly, web appearance had a strong positive effect on e-satisfaction while entertainment value had a negative relationship to e-satisfaction. Thus, H5 was partially supported.

Decomposition of effects was further conducted to test H6 predicting the mediating effect of e-satisfaction on purchase intent. As shown in Table 3, indirect effects from e-retail environment characteristics on purchase intent were significant. The effects of convenience, customization, security/privacy, web appearance, and entertainment value of the e-retail environment on purchase intent were mediated by e-satisfaction. No direct effects from these e-retail environment characteristics on purchase intent were significant, thus providing support for H6.

Based on this finding, the direct paths from e-retail environment characteristics on purchase intent were removed for further analyses. A fit of this final model was adequate to proceed with multiple group analyses ($\chi^2 = 1074.30, df = 377; \text{NFI} = .96; \text{CFI} = .97; \text{RFI} = .95; \text{RMSEA} = .069$).

Testing Hypothesis 7

To test if consumers’ prior e-shopping experience moderates the relationships among e-retail environment characteristics, e-satisfaction, and purchase intent, multiple group comparisons were conducted. Based on the responses concerning e-shopping frequencies (mean = 4.63 ($SD = 1.38$), median = 4.7, min. = 1, max. = 7), participants were divided into two experience groups using median splits. Both high and low e-shopping experience groups had 168 participants each.

A base model with high and low e-shopping experience groups with no constraints was first tested, yielding ($\chi^2 = 1691.90, df = 754; \text{NFI} = .93; \text{CFI} = .96; \text{RFI} = .93; \text{RMSEA} = .077$). The overall fit of the model was acceptable. After the initial model assessment, invariance across latent factor loadings was tested to examine whether the measurement model was equally valid across groups. A chi-square difference test was used to compare the base model with all free parameter estimation and the constrained model in terms of whether a set of indicators reflects latent variables equally between the two groups. If there is no significant difference between the base model and constrained model, the constrained model is a superior model because it is more parsimonious. While both the base model and constrained model with invariant factor loadings across the groups produced good fit of the data, the chi-square difference test comparing these two models was not significant ($\Delta df = 20, \Delta \chi^2 = 11.8, p > .1$). Therefore, the constrained model was retained, indicating that the factor loadings for both high and low e-shopping experience groups were the same.

Based on the assessment of invariance across latent factor loadings, the invariance across path coefficients was tested. H7 predicted that e-shopping experience as an individual characteristic moderates the relationships be-

<table>
<thead>
<tr>
<th>Table 1. continued</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E-satisfaction (α = .94; AVE = .84; CR = .94)</strong></td>
</tr>
<tr>
<td>1. Overall, I am very satisfied with this website.</td>
</tr>
<tr>
<td>2. Overall, I am very satisfied with my Internet-based transactions.</td>
</tr>
<tr>
<td>3. Overall, I am very satisfied with the products/services offered by this website.</td>
</tr>
<tr>
<td><strong>Purchase intent (α = .76; AVE = .68; CR = .80)</strong></td>
</tr>
<tr>
<td>1. If I purchase apparel items in the next 30 days, I will use this website.</td>
</tr>
<tr>
<td>2. I strongly recommend this site to others.</td>
</tr>
</tbody>
</table>

*Note: AVE = average variance extracted; CR: composite reliability; *Set to 1 therefore no t-values are given
Table 2. Means, standard deviations, and correlation matrix

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Convenience</td>
<td>5.84</td>
<td>1.16</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Customization</td>
<td>4.72</td>
<td>1.72</td>
<td>.48**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Security/privacy</td>
<td>5.46</td>
<td>1.51</td>
<td>.67**</td>
<td>.44**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Trust</td>
<td>4.88</td>
<td>1.64</td>
<td>.51**</td>
<td>.49**</td>
<td>.59**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Communication</td>
<td>3.17</td>
<td>1.78</td>
<td>.06</td>
<td>.36**</td>
<td>.16**</td>
<td>.39**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Web appearance</td>
<td>5.61</td>
<td>1.47</td>
<td>.62**</td>
<td>.41**</td>
<td>.50**</td>
<td>.38**</td>
<td>.07</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Entertainment value</td>
<td>3.61</td>
<td>1.88</td>
<td>.11*</td>
<td>.25**</td>
<td>.17**</td>
<td>.35**</td>
<td>.42**</td>
<td>.31**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. E-satisfaction</td>
<td>5.88</td>
<td>1.28</td>
<td>.83**</td>
<td>.50**</td>
<td>.60**</td>
<td>.49**</td>
<td>.06</td>
<td>.67**</td>
<td>.08</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>9. Purchase intent</td>
<td>5.40</td>
<td>1.50</td>
<td>.65**</td>
<td>.47**</td>
<td>.50**</td>
<td>.43**</td>
<td>.15**</td>
<td>.55**</td>
<td>.17**</td>
<td>.72**</td>
<td>1</td>
</tr>
</tbody>
</table>

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

Figure 2. Path coefficients for the model

Chi-square difference tests were used to assess the moderating effects of prior e-shopping experience. As shown in Table 4, the model fit comparison between the two groups was significantly different for path parameter estimates for the relationships between the e-retail environment characteristics and e-satisfaction and also the relationship between e-satisfaction and purchase intent. A series of SEM multiple groups analyses were conducted by imposing equality constraints on all factor loadings and each of the path coefficients.
Table 3. Decomposition of direct, indirect, and total effects for the hypothesized model

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Predictor variables</th>
<th>Total effect</th>
<th>Indirect effect</th>
<th>Direct effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-satisfaction</td>
<td>Convenience</td>
<td>.60 (9.55)***</td>
<td>-</td>
<td>.60 (9.55)***</td>
</tr>
<tr>
<td></td>
<td>Customization</td>
<td>.09 (2.11)*</td>
<td>-</td>
<td>.09 (2.11)*</td>
</tr>
<tr>
<td></td>
<td>Security/privacy</td>
<td>.15 (3.17)**</td>
<td>-</td>
<td>.15 (3.17)**</td>
</tr>
<tr>
<td></td>
<td>Web appearance</td>
<td>.20 (4.26)***</td>
<td>-</td>
<td>.20 (4.26)***</td>
</tr>
<tr>
<td></td>
<td>Entertainment value</td>
<td>-.10 (-2.45)*</td>
<td>-</td>
<td>-.10 (-2.45)*</td>
</tr>
<tr>
<td>Purchase intent</td>
<td>Convenience</td>
<td>.58 (6.44)***</td>
<td>.46 (5.31)***</td>
<td>.12 (1.24)</td>
</tr>
<tr>
<td></td>
<td>Customization</td>
<td>.11 (1.91)</td>
<td>.07 (2.00)*</td>
<td>.04 (.79)</td>
</tr>
<tr>
<td></td>
<td>Security/privacy</td>
<td>.04 (0.60)</td>
<td>.11 (2.83)*</td>
<td>-.08 (-1.33)</td>
</tr>
<tr>
<td></td>
<td>Web appearance</td>
<td>.17 (2.66)*</td>
<td>.15 (3.52)**</td>
<td>.02 (.28)</td>
</tr>
<tr>
<td></td>
<td>Entertainment value</td>
<td>-.04 (-.78)</td>
<td>-.08 (-2.27)*</td>
<td>.03 (.69)</td>
</tr>
<tr>
<td></td>
<td>E-satisfaction</td>
<td>.76 (6.28)***</td>
<td>-</td>
<td>.76 (6.28)***</td>
</tr>
</tbody>
</table>

Note. Standardized path coefficients with t-values in parentheses. * p < .05; ** p < .01; *** p < .001

Table 4. Multiple group analyses for the moderating effects of e-shopping experience

<table>
<thead>
<tr>
<th>Equality Constraints</th>
<th>χ²</th>
<th>df</th>
<th>Δχ²</th>
<th>Δdf</th>
<th>Sig</th>
<th>Invariant</th>
</tr>
</thead>
<tbody>
<tr>
<td>No constraints (base model)</td>
<td>1691.90</td>
<td>754</td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Factor loadings (FL)</td>
<td>1703.70</td>
<td>774</td>
<td>11.8</td>
<td>20</td>
<td>ns</td>
<td>Yes</td>
</tr>
<tr>
<td>Factor loadings and Path coefficients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL + Convenience → e-satisfaction</td>
<td>1805.75</td>
<td>776</td>
<td>102.05</td>
<td>2</td>
<td>***</td>
<td>No</td>
</tr>
<tr>
<td>FL + Customization → e-satisfaction</td>
<td>1709.69</td>
<td>776</td>
<td>5.99</td>
<td>2</td>
<td>*</td>
<td>No</td>
</tr>
<tr>
<td>FL + Security/privacy → e-satisfaction</td>
<td>1711.93</td>
<td>776</td>
<td>8.23</td>
<td>2</td>
<td>*</td>
<td>No</td>
</tr>
<tr>
<td>FL + Entertainment value → e-satisfaction</td>
<td>1709.18</td>
<td>776</td>
<td>5.48</td>
<td>2</td>
<td>ns</td>
<td>Yes</td>
</tr>
<tr>
<td>FL + Web appearance → e-satisfaction</td>
<td>1719.74</td>
<td>776</td>
<td>16.04</td>
<td>2</td>
<td>***</td>
<td>No</td>
</tr>
<tr>
<td>FL + E-satisfaction → purchase intent</td>
<td>2045.45</td>
<td>776</td>
<td>341.75</td>
<td>2</td>
<td>***</td>
<td>No</td>
</tr>
</tbody>
</table>

convenience, customization, security/privacy, and web appearance of the e-retail environment and e-satisfaction. No significant chi-square difference was found for the relationship between entertainment value and e-satisfaction. A significant chi-square difference on the relationship between e-satisfaction and purchase intent across groups existed. Based on the chi-square difference tests, the less constrained model was considered superior and thus it can be concluded that the path coefficients are different between the high and low e-shopping experience groups. How-
ever, the relationship between the entertainment value of e-retail environment characteristics and e-satisfaction did not differ between the two groups. A closer examination of path coefficients across groups showed that both convenience and web appearance had positive influences on e-satisfaction for both groups but the path coefficients were different. However, customization had a significant positive impact on e-satisfaction only for the low e-shopping experience group, while security/privacy had a significant positive impact on e-satisfaction only for the high e-shopping experience group. Overall, the findings provide support for the moderating role of prior e-shopping experience in how e-retail environment characteristics affect e-satisfaction and also how e-satisfaction affects purchase intent.

Discussions and Implications

This study examined the impact of e-retail environment characteristics on e-satisfaction and purchase intent and the mediating role of e-satisfaction. Furthermore, the moderating effects of consumers’ previous e-shopping experience in relation to the relationships among e-retail environment characteristics, e-satisfaction, and purchase intent were investigated.

First, this study examined the effects of e-retail environment characteristics in relation to e-satisfaction and purchase intent using SEM. The findings support the effects of the service-escape on human behaviors conceptualized by Bitner (1992) as well as the S-O-R model (Mehrabian & Russell, 1974). Overall the e-retail environment influenced e-satisfaction as consumers’ internal response to the e-retail environment and further purchase intent. Extending prior research, the findings further provide empirical evidence that the five dimensions of e-retail environment characteristics, including convenience, customization, security/privacy, web appearance and entertainment value, influence e-satisfaction and purchase intent.

Convenience

Of the factors which had influences on e-satisfaction, convenience was the strongest indicator in affecting consumers’ e-satisfaction. How easily consumers can find their desired information with minimal effort seems to be a very important issue when shopping for apparel online. Many other studies have also emphasized the importance of convenience in the context of e-shopping (e.g., Yang & Fang, 2004). Therefore, it is critical to develop a well-organized and easy-to-follow website with a speedy transaction option and no broken links to increase customer satisfaction, which in turn enhances purchase intent. Providing browsing instructions on the website is suggested since information is helpful for consumers to navigate the site with ease.

Customization

As predicted, customization had a significant positive impact on e-satisfaction. This is consistent with previous studies (e.g., Swaid & Wigand, 2007). Customization could enhance the consumer e-shopping experience. To satisfy e-consumers, e-retailers should understand consumers’ specific needs and provide their shoppers with customized service (e.g., gift wrapping service, personalized gift card).

Security/Privacy

Security/privacy was also a highly important indicator which affects e-satisfaction. This finding is consistent with previous research which indicated that transaction security and personal information privacy are major concerns for e-customers (e.g., Yang & Fang, 2004). If consumers do not feel safe executing a transaction on the site, they will not purchase items from the site. E-retailers should reassure their customers regarding protection of personal data and credit card information. This reassurance of protection eventually affects consumer purchase intent.
Web Appearance

Web appearance was also found as an important indicator influencing e-satisfaction, which in turn affects purchase intent. According to Santos (2003), web appearance is the first determinant observed by Internet users. Providing pleasing background colors, graphics, background patterns, and/or logos are expected to increase consumer e-satisfaction. Thus, e-retailers can consider the design of web appearance as a competitive strategy to enhance purchase intent through e-satisfaction.

Entertainment Value

In this study, entertainment value had a statistically significant negative effect on consumer e-satisfaction. The finding is not consistent with previous research which indicated an important role of entertainment features in relation to e-service quality (Singh, 2002). Entertainment features such as flash intro may decrease the speed of downloading, especially if consumers have low-speed Internet connections. Consequently, this might have a negative effect on consumers' satisfaction with a website. In this study, participants’ Internet connectivity was not examined. Therefore, in future research, it would be important to examine how consumers’ Internet connection types influence consumer perception of entertainment value in relation to e-satisfaction.

Second, this study provided empirical support for the mediating role of e-satisfaction in the relationship between e-retail environment characteristics and purchase intent, consistent with the S-O-R model and the servicescape. Consistent with prior research findings (Ranaweera et al., 2008; Yang & Peterson, 2004), e-satisfaction had a positive impact on purchase intent. In addition to the positive relationship between the two variables, this study revealed that the effects of e-retail environment characteristics on purchase intent were fully mediated by e-satisfaction. No significant direct effects from the e-retail environment characteristics on purchase intent were found, while indirect effects via e-satisfaction were all significant. This finding emphasizes the importance of e-satisfaction as a key factor leading to positive behavioral outcomes and suggests that it is critical for e-retailers to use consumers’ e-satisfaction measurement as a tool to evaluate the effectiveness of e-retail environment characteristics in the conversion of browsers into purchasers. In fact, e-retail industry leaders like Foresee and Internet Retailer widely use consumer satisfaction and behavioral intent as two key performance matrices in e-retailing (Internet Retailer, 2007b). E-retailers are often tempted to implement as many bells and whistles as possible to create a cutting edge look, when in fact such features may adversely impact e-satisfaction. Industry experts warn that some features can clutter the site and overwhelm shoppers (Internet Retailer, 2009b). Therefore, e-retailers need to be cautious when changing the e-retail environment. As supported in this study, convenience, customization, security/privacy, and web appearance can have positive influences on e-satisfaction, while entertainment value can have a negative impact on e-satisfaction. Convenience had the strongest impact on e-satisfaction, which is consistent with the fundamental needs of e-shoppers.

According to an Internet Retail report (2009a), e-retailers have started to take a back-to-basics approach with regard to the e-retail environment. The relatively small positive impact of web appearance on e-satisfaction as compared to the positive impact of convenience and the negative impact of entertainment value suggest that a key to successful e-retailing is doing basics right, such as convenience and security/privacy.

Third, another important finding of the study was the moderating effect of consumers’ previous e-shopping experience on the relationships among e-retail environment characteristics, e-satisfaction, and purchase intent. SEM multiple group analyses showed that convenience, customization, security/privacy, and web appearance dimensions of the e-retail environment influenced e-satisfaction and were different between the high and low e-shopping experience groups. Also, the relationship between e-satisfaction and purchase intent was
moderated by consumers’ prior e-shopping experience. Interestingly, customization had a positive impact on e-satisfaction only for the low e-shopping experience group, whereas security/privacy only had a positive impact on e-satisfaction for the high e-shopping experience group. In essence, this finding seems consistent with the concept of “getting basics right” as reported in Internet Retailer (2009a). For those who shop online frequently, basic features ensuring security/privacy may be more important in e-retailing than novel features that allow customization of individual preferences. Therefore, e-retailers need to get all the basics right before adding any bells and whistles to their e-retail sites. These findings also provide empirical support for the servicescape and the S-O-R model in e-retailing.

Limitations and Suggestions for Future Research

This study focused on apparel e-retailing. To enhance the generalizability of the findings, future research should address additional contexts within e-retailing and include other product categories such as books, electronics, toys, and e-services. Second, generalizing the results of this study is limited by the use of a convenience sample of college students, predominantly women. Future research needs to include a wider range of demographics to improve generalizability of the findings. Future research can also include other personal characteristics that are likely to influence e-shoppers’ evaluations of e-retail environment characteristics such as attitude toward technology, trust propensity, and shopping orientation.

REFERENCES


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