

Impact of Review Characteristics on Female Consumer Perceptions of Review Usefulness and Patronage Intent of Online Stores Hosting the Reviews

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Abstract

Applying the S-O-R Model within an online context, a hypothesized model incorporates three review characteristics (perceived concreteness, exaggeration, and sufficient quantity of reviews) for apparel products in order to present their impact on consumer perceptions of review usefulness and consumer attitude toward and patronage intent for the online stores hosting the reviews. An online survey of Korean women ($N=299$) reported their experiences in purchasing apparel products online and reading apparel reviews on a regular basis. Testing of the hypothesized model showed the usefulness of reviews were determined by two review characteristics (S: perceived concreteness and sufficient quantity of reviews); however, the negative effect of exaggerated reviews were insignificant. In addition, the perceived usefulness of reviews (O-cognitive) hosted by an online store influenced online store attitude (O-affective) which subsequently led to online store patronage intent (R). This study systemically advances online retail literature by showing how the characteristics of online reviews (as a part of the online store environment) can influence attitude toward online stores and patronage intent for online stores. Long term relationships with consumers can be achieved through the building of mechanisms to enhance the perceived usefulness of reviews by employing the strategies of hosting concrete reviews and offering a sufficient quantity of reviews. This study addresses research gaps by testing an adapted the S-O-R Model that frames review information as an element of an online store environment using a large sample.

Key words: Online reviews, Usefulness, Concreteness, Exaggeration, Quantity

I. Introduction

Online consumer reviews consist of peer-generated information about a product or its usage and purchase. It is a powerful source of word-of-mouth information which is highly trusted by consumers (Grimes, 2012). The characteristics of information offered in reviews range from very detailed expert reviews offering first-hand accounts of purchasing experience and product

use to simple expressions of satisfaction or dissatisfaction. In a recent article by Cotton Incorporated (“Retail Everywhere: Omni-Channel”, 2013), 68.0% of consumers report writing online reviews for apparel they purchased in-store or online and 71.0% note that online reviews are helpful when shopping for apparel online. Apparel is a common topic for consumer reviews and consumers on various e-commerce sites share diverse information that satisfies consumers' functional, psychological, and aesthetic needs such as design, fit, comfort, workmanship, wardrobe compatibility, durability, and social approval (e.g., Hong & Jin, 2011).

The retail sector has recognized the use of reviews

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in decision-making and many online stores are offering space on their websites for reviews (Wagner, 2008). Although an adequate quantity of reviews that explain consumer experience with or evaluation of products are important, consumers also need to be able to efficiently manage the information based on its content. Past studies on electronic word-of-mouth have studied how online review characteristics such as sidedness, inconsistencies, timeliness, and quantity influence consumer's perceptions of credibility and usefulness and review adoption (e.g., Cheung et al., 2008). Online review characteristics such as relevance, comprehensiveness and consistency were found to influence consumer perceptions related to perceived usefulness (Cheung et al., 2008), review credibility (Cheung et al., 2009), and information adoption (Cheung et al., 2008). In addition, although accuracy and timeliness are identified as important factors of information quality in the information system field (e.g., Bailey & Person, 1983; Lee et al., 2002; Wixom & Todd, 2005), Cheung et al. (2008) found accurateness and timeliness in review information did not influence consumer response.

On the other hand, reports on the effects of sidedness and quantity of reviews on consumer responses have been mixed across various studies of non-apparel products (e.g., book, digital camera, cell phone, mp3 player, music CD, PC video, video game, laser printer, car). For example, the effects of sidedness were significant in Sen's (2008) study but not significant in Cheung et al.'s (2009) study. Park and Kim (2008) and Gauri et al. (2008) found review quantity to positively affect purchase intentions whereas Park and Lee's (2008) findings did not agree. One-sided reviews which emphasize positive or negative aspects of a product to an extreme degree can be described as being biased or exaggerated reviews. Although message concreteness and bias have also been noted as important characteristics in previous qualitative research (e.g., Lee & Shim, 2007; Schindler & Bickart, 2002, 2005), findings concerning its linkages to usefulness have been unclear with mixed results (Cheung et al., 2008). In addition, limited empirical research have been conducted on how review characteristics shape attitudes toward the online store hosting the reviews and patronage intent for the online store selling the products in

which the reviews were read. Most consumers report using product reviews provided by the retail site selling the product compared to other independent review sites that do not sell products (Schindler & Bickart, 2005). Adapting the S-O-R Model as the theoretical framework, this study empirically examines how apparel product review characteristics influence consumer responses to the online stores hosting the reviews.

Empirical studies concurrently focusing on how various review characteristics influence patronage intent toward apparel stores actually hosting the product reviews within their internet site are almost non-existent on a large scale. In addition, inconsistent results across studies could be a function of sample size. Previous studies examining consumer response to review characteristic have used experimental design (Park & Lee, 2008), in-depth interviews (e.g., Lee & Shim, 2007; Schindler & Bickart, 2005), or focus group interviews (e.g., Hong & Jin, 2011). A disadvantage to these types of research methods is that it employs a smaller number of observations from a select group of consumers. With a larger sample, the generalizability of results is greater and the applicability of results to different sets of population is stronger. A larger sample size allows for collection of more information, lower margin of error and greater statistical power. This study seeks to fill the gap in research by using a large sample base and quantitatively testing the relationship among three review characteristics, attitude toward and patronage intent for the online store hosting the reviews and bring more clarity to how review characteristics contribute to the consumer purchase process in an online store.

This research conducted an online survey of female Korean consumers, a population with active internet usage patterns in a country where the internet is integrated in consumption behavior at advanced levels. As a major source of online information, consumer reviews are more likely to be used in areas with high levels of internet access, literacy levels, and mobile web use. As a leader of internet use ("South Korea No. 1", 2012), South Korean internet users purchased products and services from websites within the past year with 57% of women reporting higher purchase experience compared to 44% of men (Korea Internet

and Security Agency, 2013). In addition, apparel and fashion related products is the top product category (17.9%) purchased online by Korean consumers (Statistics Korea, 2012). As such, South Korean female consumers are well positioned to use online reviews to help make purchase decisions for apparel products. Hence, the context of female South Korean online consumers of apparel products is of interest for the study.

II. Theoretical Background and Hypotheses

1. The S-O-R Model

The S-O-R Model (Mehrabian & Russell, 1974) serves as a framework for understanding how online reviews affect patronage intent. The original S-O-R Model illustrates that stimuli (S) in the environment affect internal affective states (O), which in turn evoke behavioral responses (R). Since introduced by Mehrabian and Russell (1974), the model has been applied within the context of the in-store retail environment (Babin et al., 2003; Donovan & Rossiter, 1982; Donovan et al., 1994) to demonstrate that environmental stimuli (S) evoke affective states (O) that lead to behavioral responses (R) in the retail environment. Donovan and Rossiter (1982) first applied the S-O-R Model to retail stores, but only focused on the O-R link. They found that affect was an important predictor of intent to spend, intent to interact with sales personnel, and intent to purchase in the store. In a follow-up study, Donovan et al. (1994) measured affective states while shopping and found that affect experienced in the store influenced time and money spent there. Babin et al. (2003), focusing on both links in the S-O-R Model, found color in retail stores (S) influenced affect (O), which in turn influenced patronage and purchase intent (R).

Online retail has grown in importance and use. U.S. online sales are predicted to reach \$523 billion by 2020 (56.0% growth from \$335 billion in 2015). Online sales of B2C in South Korea have grown 15.0% from ₩21,160 billion in 2012 to ₩24,331 billion in 2013 (Lindner, 2016; Statistics Korea, 2014). Researchers

have applied the S-O-R Model to the online retail context and focused on aspects of online stores. The S-O-R Model was applied to the online context by Eroglu et al. (2001) who proposed that website cues such as colors, graphics, layout and design, and product reviews provide information and influence affective states and behaviors. Eroglu et al. (2001, 2003) modified the original S-O-R Model by introducing cognition into the model as part of the organism (O) as an internal response. In their adaptation, Eroglu et al. (2003) modeled cognition as influenced by affective states but other researchers have found that sometimes cognition influences affective states (e.g., Kim & Lennon, 2013; Kim & Lennon, 2010). Dizén and Berenbaum (2008) have suggested that affect and cognition to be bi-directional.

The S-O-R Model has been successfully applied to both in-store and online retail environments. Stimuli (S) on websites have been found to influence affective and cognitive states (O) which in turn influence behavioral responses (R). Sometimes cognitive states influence affective states and vice versa. A series of experiments in the online environment has demonstrated that various micro sensory attributes of websites related to the placement, size, and quantity of visual images (S) influence affect (O) and/or cognition (O) which in turn influence shopping behaviors (R) (Ha & Lennon, 2010; Kim & Lennon, 2010; Kim et al., 2009). Other researchers using the S-O-R Model have asked participants to rate websites on atmospheric characteristics (Chang & Chen, 2008; Koo & Ju, 2010; Mummalaneni, 2005). In those studies, the S-O-R Model was used to show that perceptions, rather than actual manipulations, of the website affected internal states and shopping behaviors. In addition, Chang and Chen (2008) and Koo and Ju (2010) have demonstrated S-O-R Model to be useful in explaining consumer behavior in East Asian cultures, Taiwan and South Korea, respectively.

Since reviews are part of the website environment, the S-O-R Model can be used to investigate characteristics of reviews. As information technology tools, reviews are attributes of online stores (Gauri et al., 2008) or website stimuli. This perspective is consistent with Eroglu et al.'s (2001) adapted S-O-R Model, in which

low and high task-relevant information were regarded as an important atmospheric cue in websites. Thus, the S-O-R Model can be used to examine how stimuli (S) in the form of reviews within the context of an online retail environment (e.g., quantity of reviews, concreteness of reviews, exaggeration in reviews) influence cognition (O) and affect (O), which in turn evoke behavioral responses (R) in the form of patronage intent.

2. Concreteness of Reviews and Perceived Usefulness of Reviews

Perceived usefulness of a review is defined as the degree to which people believe that a particular review will enhance their shopping and buying decisions (Davis, 1989). As a belief, perceived usefulness is a cognitive variable; hence in the S-O-R Model it is used as a cognitive state. For online retailers, the strategic focus on reviews is to serve as a host or conduit for information (Mudambi & Schuff, 2010) that leads to better decision-making and consequently a higher level of satisfaction for consumers (Dabholkar, 2006). Sussman and Siegal (2003) studied the relationship between information usefulness and knowledge adoption of emails by international consultants. They found information that was valuable, informative, or helpful were considered to be useful. A previous study by Mudambi and Schuff (2010) offer evidence that usefulness of reviews to differ based on review characteristics.

Concreteness of reviews refers to specificity and clarity in information. For example, detailed information about specific product attributes is more concrete than vague language that readers would have to interpret. Based on information provided by e-store managers, Koernig (2003) found that more tangible or concrete information led to more positive evaluations of and higher loyalty for websites. Guided by the S-O-R Model, Richard's (2005) research found that information content including specific product information positively affected purchase intent. Based on in-depth interviews with a small number of respondents who had experience reading the reviews of book, car, toys, camera, movie, restaurant, and travel, Schindler and Bickart (2005) found that specific features or details of the message were considered as being more valuable.

In addition, Mudambi and Schuff (2010) report review depth to be more helpful for search goods (cell phone, digital camera, laser printer) compared to experience goods (mp3 player, music CD, and PC video). Sen (2008) report longer reviews (compared to short reviews) to be more helpful since length is associated with the reviewer's "seriousness and/or expertise". Although results are based on reviews for non-apparel products and qualitative or experimental data, these studies also suggest review descriptions written in discrete, tangible language to be useful to consumers by offering specific information in an online shopping context of apparel products. Therefore, the following hypothesis is proposed.

H1-a: Concreteness of apparel reviews will be positively related to perceived usefulness of the reviews.

3. Exaggerated Reviews and Perceived Usefulness of Reviews

Exaggeration can be considered as a stronger form of bias in which a personal position pertaining to a subject is overstated ("Exaggerate", n.d.). Exaggerated reviews, which emphasize a certain aspect (e.g., positive or negative) of the product in an extreme way, may risk being perceived as biased. Because of the unbalanced nature, biased reviews may be considered less useful. In an interview of Korean consumers about several products (e.g., digital camera, cosmetics, and bags), Lee and Shim (2007) confirmed that strongly positive reviews were perceived as exaggerated and lacked credibility. Other studies on the sidedness of reviews found unbalanced reviews be less helpful. For example, when making a potentially risky decision, Schindler and Bickart's (2005) interviewees were interested in negative review information and the reviews conveying only positive content and with the lack of negative information were perceived as being biased. Mudambi and Schuff (2010) found reviews for experience goods (mp3 player, music CD, and PC video) with extreme ratings were judged to be less helpful than reviews with moderate ratings. Hence, the hypothesis was proposed as below.

H1-b: Exaggeration in apparel reviews will be negatively related to perceived usefulness of the reviews.

4. Quantity of Reviews and Perceived Usefulness of Reviews

When consumers read online reviews about a product, each review may be analogous to an argument about a product. The quantity of reviews about a product could be perceived as the amount of information. As the quantity of arguments may strengthen its persuasive ability by increasing the amount of information available for processing (Petty & Cacioppo, 1984), increased quantity of information in an e-WOM context can influence consumers' perceptions and evaluations as well as behavioral responses toward the product. In addition, a high number of reviews enable consumers to find similar opinions across many reviews which strengthens the credibility of information. Based on this rationale, the usefulness of reviews would correspond to the quantity of reviews. Using experiments, several researchers report the quantity of reviews in an e-WOM context increased the perceived product popularity (e.g., Park et al., 2007) and product purchase intention (e.g., Gauri et al., 2008; Park & Kim, 2008; Park et al., 2007; Sher & Lee, 2009). These studies focused on non-apparel products such as book/magazines, DVD/video, flowers/food (Gauri et al., 2008), cell phone (Sher & Lee, 2009) and portable multi-media player (Park & Kim, 2008; Park et al., 2007).

However, a few studies found the positive effects of review quantity on consumers' perception of review informativeness and purchase intention were dependent on review type, involvement levels and product type. According to Park and Lee's (2008) experimental study on review type, the number of reviews was positively related to perceived informativeness of reviews in simple-recommendation reviews while a curvilinear relationship like reverse U shape existed between review quantity and perceived informativeness in attribute-value reviews. On the other hand, an insignificant relationship between the number of reviews and perceived informativeness of reviews was found when the review quality was low and respondents were

in a low involvement situation (Park et al., 2007). As such, low-involvement consumers were affected by the quantity of reviews but not by the quality of reviews, whereas, high-involvement consumers were mainly affected by review quantity when the quality of reviews was high but not when the quality of reviews was low. In terms of purchase intention, a curvilinear shape represented the relationship with review quantity when reading attribute-value reviews for portable media players which was manipulated as a high involvement situation (Park & Lee, 2008). Mudambi and Schuff (2010) reported that review depth, which may be associated with the quantity of communication, had a greater positive effect on the helpfulness of the review for search goods (cell phone, digital camera, and laser printer) than for experience goods (mp3 player, music CD, and PC video). Considering the effects of review quantity on consumers' evaluation of reviews and reaction to products depend on involvement levels and product type, the effects of review quality should be examined with consideration of product type and involvement levels. In particular, when reading attribute-oriented product reviews and buying high involvement products, too many reviews caused information overload consequently decreasing perceived informativeness (Park & Lee, 2008). Considering consumers' information overload tendency, researchers need to focus on the sufficient quantity of reviews (not simply high quantity) and how many reviews are perceived to be sufficient for understanding the various features of products and making a purchase decision depending on product type. Based on this rationale, the following hypothesis were proposed.

H1-c: Sufficient quantity of apparel reviews will be positively related to perceived usefulness of the reviews.

5. Perceived Usefulness of Reviews and Attitude toward an Online Store

Many studies have shown perceived usefulness of an information technology system to be the most influential variable affecting favorable attitudes toward the information technology system (e.g., Legris et al., 2003).

Review channels are information technology tools and the pre-purchasers' reviews hosted by shopping sites are also considered online store attributes (Gauri et al., 2008). This is consistent with Eroglu et al. (2001), who cite reviews included as one of the various types of text information as an important type of environmental cue present on websites in their adaptation of the S-O-R Model. Based on how store attributes can influence attitude toward a store (Monroe & Gultinan, 1975), the availability and quality of reviews provided in online stores can help consumers make better online shopping decisions.

Attitude is defined as "an individual's propensity to evaluate a particular entity with some degree of favorability or unfavorability" (Eagley & Chaiken, 2007, p. 583). Hence, attitude is an affective variable and as applied to the S-O-R Model it is used as an affective state. Several studies have found relationships between usefulness and attitude in an online shopping context (e.g., Huang, 2008; Vijayasathy, 2004). Since consumers use the internet and shopping sites to search for information about products, transactions, and customer service as well as for shopping and buying products (Wolfenbarger & Gilly, 2001), usefulness of reviews providing pre-purchasers' opinions about apparel items in an online store would positively influence attitude toward the store in which the reviews are read. Thus, the following hypothesis was developed.

H2: Perceived usefulness of apparel reviews will be related to favorable attitudes toward the online store hosting the reviews.

6. Attitude toward and Patronage Intention for an Online Store

Previous research has explained store patronage based on purchase frequency (e.g., Shim & Kotsiopoulos, 1992), purchase intent or willingness to buy (e.g., Summers & Wozniak, 1990), and frequency of visit and store choice (Pan & Zinkhan, 2006). Spiggle and Sewall (1987) defined store patronage as a comprehensive construct including the concept of store choice and store loyalty. Similar to Kim and Lennon's (2010) study assessing intent to revisit (R) as a response vari-

able, studies using the S-O-R Model have investigated patronage intent as a response to the online environment.

Attitude is an antecedent variable explaining store choice or patronage behavior. For instance, Monroe and Gultinan (1975) proposed a link between attitude and patronage behavior in their store choice model and Korgaonkar et al. (1985) confirmed a link between attitude and patronage within store contexts. In addition, a strong relationship between attitude toward attributes of television shopping programs and patronage intent were found (Eastlick & Liu, 1997). More recently, a meta-analysis by Pan and Zinkhan (2006) confirmed store attitude to be a strong predictor of shopping frequency. Therefore, favorable attitude toward an online store would be positively related to patronage intent of the store for buying apparel products. Yun and Good (2007), based their study on the S-O-R Model, found favorable e-store image which was derived from favorable merchandise, service and shopping atmosphere influenced patronage intent of an e-store. Based on the studies cited above, the following hypothesis was developed.

H3: Favorable attitude toward the online store hosting apparel reviews will be positively related to patronage intent for the same online store hosting the reviews.

Using the S-O-R Model as the conceptual framework, <Fig. 1> summarizes the hypotheses and illustrates how review characteristics influence consumers' patronage intent for the online store hosting the reviews with the three characteristics in a high involvement context of purchasing apparel products. The relationships among constructs within the model show the influence of review characteristics such as concreteness, exaggeration, and sufficient quantity of reviews (S) on perceived usefulness of reviews (O) which in turn influences attitude toward the online store hosting the reviews (O) and then patronage intent for the online store (R).

The early S-O-R Model by Mehrabian and Russell (1974) examined environmental stimuli such as music, crowd, and fragrance that involved auditory, visual, and olfactory human senses. These stimuli affect a per-

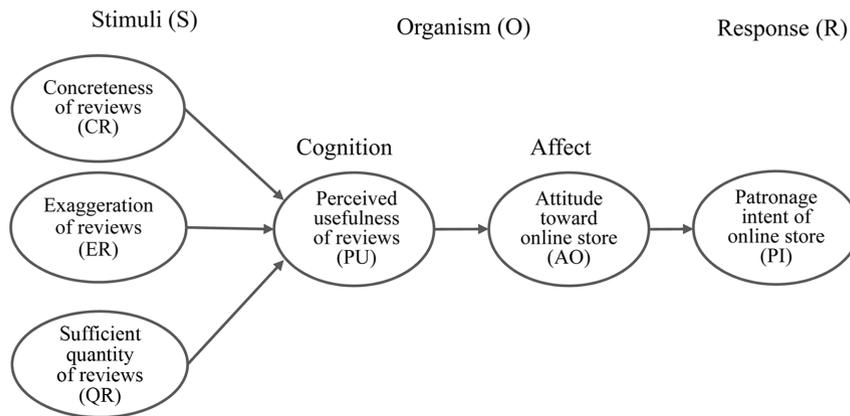


Fig. 1. Structural equation model of research variables applied within the S-O-R Model.

son's mood and feelings first. Our study applies the S-O-R Model beyond environmental stimuli and applies it within the context of the "text stimuli" where marketers can create affective response through the type and quantity of information within an online retail site using product reviews.

The important point to note is that unlike visual or tactile stimuli, a high involvement situation is assessed where a high number of consumer purchase products and website information text is processed through a central route to persuasion where the receiver is an active participant and the receiver has the motivation and ability to process the message (Petty & Cacioppo, 1984). Thus, cognitive response to informational stimuli in the form of product reviews and shopping website will influence affective response, attitude here. In this case, we can theorize the information processing route as presented in our hypotheses: stimuli → cognition → affect → response. Because the current study examines the characteristic of product review text as stimuli, cognitive response related to information processing is expected to occur prior to affective response, that is, attitude here.

III. Research Methods

1. Measurement

Exploratory focus group interviews were conducted

to identify appropriate measures. Two focus groups consisted of six Korean female consumers in their 20s (3 workers, 2 undergraduate students, 1 graduate student) and six in their 30s (3 professionals, 2 housewives, 1 graduate student). All participants had prior experience reading reviews when shopping online for apparel. Participants were asked (a) what types of apparel product reviews were important, useful or credible when shopping for apparel online and (b) what actions were taken after reading reviews for apparel products. Key words and illustrative quotes from responses were identified by a 3-member coding team. Results confirmed the importance of three review characteristics (concreteness, exaggeration, and sufficient quantity of reviews). Respondents also noted that the reviews affected their attitude toward the apparel product with the reviews and the online store hosting the reviews, and future patronage intent of online stores with the reviews.

All items used to measure constructs tested in the hypothesized model were measured on a 5-point Likert scale (1=strongly disagree, 5=strongly agree). Measurement items for concreteness (3 items), exaggeration (2 items) and sufficient quantity (3 items) of reviews were newly developed based on the keywords generated from previous qualitative research using in-depth interviews (Lee & Shim, 2007; Schindler & Bickart, 2005), content analysis (Schindler & Bickart, 2002) focusing on reviews for non-apparel products,

and our focus group interviews for apparel products. Measures for perceived usefulness of reviews (7 items) were newly developed based on Corbitt et al. (2003) and our focus group interviews. Attitude toward the online store was conceptualized as a combination of factors that represent different aspects of the store experience: consumers' favorable feelings toward the online store itself, the product being sold within the store, and the transaction process in the store. The three measures of attitude toward the store represent factors which would cause consumers' favorable feelings toward the online store in which the reviews were read were adapted and modified from previous studies (Lohse & Spiller, 1999; Szymanski & Hise, 2000). Six items measuring intent to patronize the store were adapted from Flavián et al. (2006) and Srinivasan et al. (2002).

2. Data Collection and Respondent Characteristics

An online survey was completed by a convenience sample of 319 Korean women (20 to 39 years old) who reported experience purchasing apparel online and reading reviews on a regular basis during a 3-month time period. Requests for participation in the survey were solicited with online postings in 20 websites associated with online communities and blogs which female participants could be frequently found. In addition, a survey panel compiled by the researcher from previous studies was invited to participate. Participants were given an incentive of 20 thousand KRW (South Korean Won, approximately 16 U.S. Dollars, USD) for participation.

First, respondents were asked to list one apparel item for which they recently read reviews when shopping. After writing the item, respondents were additionally asked to write the price of the item, the date of shopping the item, and the name of the online store where they read the reviews about the apparel item written above by respondents. Here, asking respondents to write the information allows them to recall their shopping item for which reviews were read by respondents and to better facilitate their responses to some of questions focusing on the apparel item which they recalled.

Next, respondents' perception of usefulness of reviews concerning the apparel item listed in the previous question and respondents' attitude toward and patronage intent of the online stores which provided the reviews were measured by a 5-point Likert scale. Demographic information was also collected (Table 1). SPSS 12.0 and AMOS 16.0 were used for data analysis. Prior to data analyses, 20 responses from participants with missing data or outlier data points were deleted based on the Mahalanobis distance test (Byrne, 2001) and the data of 299 female Korean consumers were used for hypothesis testing.

As shown in <Table 1>, respondents were relatively young (20-34 yrs, 82.2%), single (64.9%), employed (63.6%) and residents of big cities (50.5%) and several provinces (49.5%). The average Korean household monthly income in 2011 was 3,112 USD (Statistics Korea, 2012). Approximately 45.8% of the study's respondents reported their household monthly income to be less than 3,500 thousand KRW (2,835 USD) and about half of the respondents (62.9%) had a household monthly income of 2-5 million KRW (1,620-4,050 USD). About 55.9% of respondents reported they either "frequently" (42.5%) or "very frequently" (13.4%) shopped online for an apparel product and about 89.3% indicated they were frequent readers of apparel reviews.

All respondents had recently read reviews about the apparel items which respondents wrote on the questionnaire. The apparel products included one-piece dresses (n=51), shirts (n=46), jackets (n=34), pants (n=27), cardigans (n=23), blue jeans (n=22), blouses (n=20), skirts (n=13), children's wear (n=15), jumpers (n=8), training wear (n=6), suits (n=5), coats (n=4), knit wear (n=4), vest (n=4), and other items (n=17) mentioned from one or two respondents (e.g., inner wear, swimsuit, leggings, stocking, Y-shirts, and Korean traditional costume). In terms of price paid for the apparel item, 152 (50.8%) participants paid 20-49K KRW, 86 (28.8%) paid 50-250K KRW, 40 (13.4%) paid 10-19.9K KRW, 19 (6.4%) paid less than 10K KRW, and 2 (0.7%) had no response. In terms of the apparel item they had listed in the survey, about 86.3% of the respondents had read the review about these items within 2 months of taking the survey, 78.6% of

Table 1. Respondent characteristics

(N=299)

Characteristics	Categories	Frequency	Percent (%)
Age	20-24 years	62	20.7
	25-29 years	94	31.4
	30-34 years	90	30.1
	35-39 years	53	17.7
Marital status	Unmarried	194	64.9
	Married	105	35.1
Occupation	Housewife/unemployed	38	12.7
	Employed	190	63.6
	Students	53	17.7
	Others	18	6.0
Monthly family income (KRW) ^a	Less than 2 million	40	13.4
	2 million - less than 3 million	63	21.1
	3 million - less than 4 million	67	22.4
	4 million - less than 5 million	58	19.4
	5 million - less than 6 million	34	11.4
	More than 6 million	37	12.4
Education	Graduated from high school but did not attend college	25	8.4
	Current college student	50	16.7
	Graduated from college but did not attend graduate school	200	66.9
	Graduated from graduate school	20	6.7
	Missing	4	1.3
Area of residence	Capital city (Seoul)	108	36.1
	6 Big cities ^b	43	14.4
	8 Provinces ^c	148	49.5

a: KRW is South Korean Won

b: Includes the metropolitan cities of Incheon, Busan, Daegu, Daejeon, Gwangju, and Ulsan

c: Includes the provinces of Gyeonggi-Do, Chungcheongbuk-Do, Chungcheongnam-Do, Gyeongsangbuk-Do, Gyeongsangnam-Do, Jeollabuk-Do, Jeollanam-Do, and Gangwon-Do

the respondents read the review within a month of the survey, and 64.2% of the respondents had read the reviews about the items while taking the survey. Given the short time period since reading the reviews, we believe respondents could easily recall their experience with the reviews. Most respondents (74.2%) purchased the apparel item from the online store where they had read the reviews at the time of reading (49.8%) or a few days later from the same online store (24.4%).

Considering the type of apparel item and range of price points presented by the participants and the real-life shopping environment in which they were asked about product reviews, the participants are likely to

have processed the information in a high involvement situation. The high involvement decision making situation can be seen in various marketing studies (e.g., Mittal, 1989; Park & Lee, 2008; Park et al., 2007). Also, considering that an overwhelming percentage of participants (74.2%) actually purchased an apparel item from the shopping site, the activities related to product reviews can be considered high involvement. In high involvement shopping situations, consumers are more likely to pay attention to their purchasing process which makes it easier for them to recall their experiences of reading product reviews. This is evidenced in the detailed accounts offered by participants con-

cerning their shopping experience in previous interview studies (e.g., Hong & Jin, 2011; Lee & Shim, 2007; Schindler & Bickart, 2005) and our own focus group interviews.

IV. Data Analysis and Results

1. Validity and Reliability of Research Variables

First, Exploratory Factor Analysis (principal components, varimax rotation, extracting factors with eigenvalues above 1.0) was conducted on the measurement items. Six factors were identified: perceived usefulness of reviews, patronage intent of the online store, attitude toward the online store, concreteness of reviews, exaggeration of reviews, and sufficient quantity of reviews. When conducting EFA, several items were eliminated due to cross-loading. All items with loading values at .576 and above were presented in <Table 2>.

Prior to conducting Confirmatory Factor Analysis (CFA), the distribution of all measurement items was inspected for skewness and kurtosis. Kurtosis values of measurement items ranged between $-.614$ and $.761$ and skewness values ranged between $-.800$ and $.547$ indicating a normal distribution of the data (Kline, 2004). The measurement model including the final items maintained in EFA was analyzed by CFA and as a result one item measuring concreteness of reviews was deleted in the process based on modification indices (Table 2). The final measurement model produced good fit indices (GFI=.943, AGFI=.915, RMSEA=.041, TLI=.967, CFI=.975, $\chi^2/df=1.510$). The 90% confidence interval for the RMSEA ranged from .027 (the lower bound) to .054 (the upper bound) and the p value of close fit was .860. The RMSEA estimate was less than .050, the upper bound of the 90% interval was less than .060 and the probability value associated with the test of close fit was higher than .050 (Byrne, 2001). In addition, the TLI value was higher than .950 (Byrne, 2001; Hu & Bentler, 1999; Hulland et al., 1996). The sample size ($n=299$) met Hoelter's critical N (CN=289). Composite reliabilities and AVEs were respectively higher than recommended values (.700 and .500) except for the concreteness of reviews (.609 and .442).

All squared multiple correlation (SMC) values were found to be lower than all average variance extracted (AVE) values confirming discriminant validity (Table 3).

2. Hypotheses Testing

A structural equation model illustrated in <Fig. 1> was analyzed to test the hypotheses. As shown in <Fig. 2>, the model's goodness-of-fit was acceptable based on recommended limits ($\chi^2/df=1.854$, GFI=.922, AGFI=.892, RMSEA=.054, TLI=.945, CFI=.955). The hypothesized model fits the data well in that the RMSEA was .054 (lower bound of the 90% interval was .042, upper bound of the 90% interval was .065) and the probability value associated with the test of close fit was .294. Our sample size ($n=299$) for the hypothesized path model was adequate based on Hoelter's CN of 238. Therefore, the hypothesized model was accepted. The results of hypotheses testing were presented in <Fig. 2>. Concreteness of reviews ($\beta=.463, p=.000$) and sufficient quantity of reviews ($\beta=.184, p=.029$) significantly influenced perceived usefulness of review information. Thus, H1-a and H1-c were supported. Concreteness and sufficient quantity of reviews respectively explained 46.3% and 18.4% of the variance in perceived usefulness of reviews. The effect of perceived exaggeration of reviews was not significant; H1-b was rejected.

Perceived usefulness of reviews positively influenced attitude toward the online store; H2 was supported. Perceived usefulness of reviews explained 53.3% of the variance in attitude toward the online store (See standardized estimates). Finally, customers' attitude toward the online store had a significant effect on patronage intent, so H3 was supported. Attitude toward the online store explained 45.1% of the variance in patronage intent of the online store for the online store.

V. Discussion and Conclusions

This study aimed to investigate how the characteristics of product reviews impact patronage intent of the websites hosting the reviews. The S-O-R Model was applied within a retail context and focused on apparel product reviews. Major findings are discussed

Table 2. Confirmatory factor analysis of measurement model

(N=299)

Variables		Items	Estimate	S.E.	t-value	Standard Estimates	Composite Reliability	Mean
Concrete-ness of reviews	CR2	Most of the reviews posted on this apparel item were specific.	1.000			.742	.609	3.11
	CR1	Most of the reviews posted on this apparel item were clear.	.803	.121	6.616***	.578		
Exaggeration of reviews	ER1	Many of the reviews posted about this apparel item seemed to exaggerate the good points of the product.	1.000			.953	.768	2.60
	ER2	Many of the reviews posted about this apparel item seemed to have exaggerated opinions in favor of the product.	.579	.216	2.681**	.603		
Sufficient quantity of reviews	QR1	The amount of reviews posted on this apparel item were enough for me to make a decision on whether to buy this apparel or not.	1.000			.910	.867	3.51
	QR3	Amount of reviews posted on this apparel item were enough for me to understand the features of the apparel.	.830	.049	16.986***	.841		
	QR2	There were many reviews posted on this apparel item.	.793	.056	14.240***	.726		
Perceived usefulness of reviews	PU1	The reviews were useful in choosing the best apparel product.	1.000			.844	.824	3.60
	PU2	The reviews were useful to judge the superior aspects of this apparel product.	.928	.061	15.181***	.833		
	PU3	The reviews posted about this apparel item were useful to make a purchase decision.	.781	.063	12.350***	.687		
	PU4	The reviews posted about this apparel item were useful to minimize my losses in purchasing this apparel.	.780	.081	9.570***	.554		
Attitude toward an online store	AO2	Feelings towards the online store after reading the reviews posted about the apparel item mentioned by the participant: My feelings toward the online store that hosted the reviews became more favorable.	1.000			.826	.787	3.41
	AO1	My feelings toward the online store's transaction process (e.g., delivery, return, exchange, refund) related to this product became more favorable.	.901	.081	11.113***	.712		
	AO3	My feelings toward this product became more favorable.	.836	.077	10.818***	.688		
Patronage intent for online store	PI2	Patronage intentions of the online store that hosted the product reviews for the apparel item mentioned by the participant: I will patronize this online store in the future.	1.000			.885	.884	3.36
	PI1	I will purchase apparel from this online store more frequently than other stores.	.938	.052	18.100***	.870		
	PI3	I will visit this online store first when purchasing apparel.	.902	.056	16.101***	.787		

** $p < .01$, *** $p < .001$
 $\chi^2 = 157.073$ (df=104, $p = .001$), $\chi^2/df = 1.510$, GFI=.943, AGFI=.915, RMR=.045, RMSEA=.041 (LO 90: 0.027, HI 90: 0.054, Pclose = .860), TLI=.967, CFI=.975, NFI=.930, PNFI=.712, PCFI=.746

(1) Items eliminated as result of EFA: "The apparel reviews were useful to make a decision as to whether or not I should continue to patronize the online store" (PU), "The apparel reviews were useful to judge whether the online store selling this apparel is trustworthy" (PU), "The reviews posted about the apparel product were useful to determine how I would benefit from purchasing this product" (PU), "When purchasing clothes, I will shop for clothes at other online stores before shopping at this online store" (Reverse item) (PI), "It is more pleasurable to buy clothes at this online store than other stores" (PI) and "I will shop at this online store every time I purchase clothes" (PI). (2) Cronbach's alpha of items as a result of EFA: CR=.669, ER=.728, QR=.863, PU=.804, AO=.784, PI=.883. (3) Item eliminated as result of CFA: "Most of the reviews posted on this apparel item were easy to understand" (CR3).

Second, perceived usefulness of product reviews affected attitude toward the online store hosting the reviews which subsequently lead to patronage intent for the online store. Prior to this study, little was known about how reviews, considered as e-store attributes, impact consumers' patronage intent of online stores. To our knowledge, this is the first attempt to empirically and systematically explain the relationship between perceived usefulness of product reviews and attitude toward and patronage intent for online stores. Our study offers deeper understanding of the mechanism behind consumers' usage (or influence) of e-WOM reviews in an e-retail context by identifying the relationship among stimuli (S: the characteristics of reviews posted apparel products), organism (O: consumer perception of the reviews with such characteristics and the online stores hosting the reviews), and response behavior (R: purchase intent of apparel products in the online stores) with a wide range of consumer age groups. Therefore, the current study fills the critical gap concerning e-WOM message and e-retail literature by contributing to the understanding of how e-retail firms' review characteristics influence consumers' purchase behavior and which then increases product sales related to reviews posted on apparel products and hosted by online stores.

Third, we predicted the more consumers perceive reviews as being exaggerated, the less consumers perceive reviews as being useful. No relationship was found between the exaggerated characteristics and perceived usefulness of reviews indicating that prior results of Lee and Shim (2007) using an in-depth interview and small sample cannot be generalized to apparel product reviews and female Korean consumers. The difference in results can be attributed to the product type. Preference for apparel products can be highly subjective and dependent on the individual. Aesthetic preferences and product fit vary by individual consumers. As such, reviews with exaggerated descriptions or evaluation may not be viewed as biased opinions but instead as individual differences where tolerance for individual expression can be higher.

The research results offer several practical implications to e-retailers. Online stores are able to maintain a potential long term relationship with consumers by

building mechanisms to enhance perceived usefulness of reviews by encouraging concrete reviews and a sufficient quantity of them. Managers should make an effort to secure highly concrete reviews in their online stores. For example, online stores could develop specific criteria for submitting reviews by asking for detailed reviews based on product attributes (e.g., size, color, and fabric) and customer service interactions (e.g., easy connection with call centers and quick response to customer's questions) which are considered important when shopping online (Hong, 2011). Online stores also need to retain "sufficient quantity" of reviews. Online stores may make efforts to determine the "right" quantity of reviews for consumers. Online surveys that gauge consumer satisfaction with "review load" may inform retailers how to effectively solicit reviews and control information shared online.

This study has several limitations but also provides multiple opportunities for future research. First, our study quantitatively measured the concreteness of reviews as the degree of "detailed and specific description" of reviews by survey items which was newly developed using key words driven from our focus group interviews and other qualitative studies (Schindler & Bickart, 2002, 2005). The AVE and CR value of this variable was slightly short of the recommended value. Future studies need to improve the measurement of this variable by adding additional items. Considering the importance of detailed descriptions concerning multiple aspects of apparel products, new measurement items could be developed. Second, there was no relationship between the perceived exaggeration and usefulness of reviews. Future studies may determine the varied preferences connected to product characteristics and systematically study how the degree of subjective product evaluations influence processing of product reviews. Third, consideration of both the positive effect of sufficient quantity in perceived usefulness of reviews and the problem of information overload caused by increased quantity in perceived informativeness of reviews (Park & Lee, 2008) provide future research opportunities for identifying the "right" quantity of reviews depending on product type. Finally, this study used a convenience sample of female consumers. Future studies are needed on male consumers.

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