Consumer perceptions of online consumer product and service reviews

Focusing on information processing confidence and susceptibility to peer influence

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Abstract

Purpose – Online consumer reviews play an important role in influencing consumers’ purchasing decisions by providing a wealth of information about products and services. Framed by uncertainty reduction theory, the purpose of this paper is to examine consumer perceptions of online consumer reviews and effects on consumer attitudes and usage behaviors in relation to individual characteristics.

Design/methodology/approach – Data were randomly collected from 1,930 US online consumer review users using an online survey.

Findings – The researchers found that consumers perceived both benefits and costs from online consumer reviews and that both benefits and costs influenced consumer attitudes toward, and usage behaviors of, online consumer reviews. Individual characteristics – confidence in the information process and consumer susceptibility to interpersonal influence – were shown to determine how online consumer reviews were perceived.

Originality/value – The results provide insight to retailers and marketers as to how they can use consumer reviews for their products or services to improve business performance.

Keywords Online consumer review, Benefits, Costs, Uncertainty reduction, Information processing confidence, Consumer susceptibility to interpersonal influence, Electronic commerce, Consumer behaviour, United States of America

Paper type Research paper

Introduction

Physical stores are in a position to offer information not available from online retailers. For example, consumers can examine actual product displays and interact with salespeople (Dellarocas, 2003). However, purchasing products online can create a high level of uncertainty compared to transactions made in brick-and-mortar stores (Dellarocas, 2003). In addition, the online environment may provide shoppers with limited information in comparison to an in-store shopping context (Kim et al., 2006). The uncertainty a consumer experiences may be more exaggerated for retailers who operate only online stores and do not maintain physical retail locations (Chatterjee, 2001). Therefore, to reduce the uncertainty consumers may experience online, many companies currently provide virtual portals for online consumer reviews, allowing previous peer buyers to share their experiences in purchasing and/or consuming products and services (Park et al., 2006).
Online consumer reviews express the opinions of product purchasers and/or service users and are posted on websites that are hosted either by a selling company or a third-party virtual platform; these reviews usually contain a written open comment section, often accompanied by a numerical rating (Hennig-Thurau and Walsh, 2003). Such reviews provide different types of information not presented in traditional online shopping settings because they give consumers the opportunity to share their previous experiences of products, services, and companies with other potential consumers (Hennig-Thurau and Walsh, 2003). Opinions posted by peers have been recognized as more trustworthy than company-sponsored advertising (Dellarocas, 2003; Sher and Lee, 2009); they are also considered a more valuable and sought-after source of information (Goldsmith and Horowitz, 2006).

Online reviews can benefit both the consumers and the companies that choose to use them. Yao et al. (2009) found that positive reviews increase consumers’ intentions to purchase a product. Although the exact effect of reviews on purchase behaviors has not yet been clearly explained, studies have shown that reviewed products in some categories sell better online than non-reviewed products (Creamer, 2007). On the other hand, online consumer reviews could potentially have negative effects on decision making if the amount of information presented in reviews is too overwhelming to process or the opinions stated in the reviews are inconsistent (Park and Lee, 2008; Yao et al., 2009). Given the growing interest in online consumer reviews, it is imperative for online retail industries to understand how consumers perceive the benefits and costs of using these reviews and the influence these perceptions have on their usage behavior. However, to date, no empirical studies directly identifying both benefits and costs of using online consumer reviews have been reported. In addition, consumers’ perceived benefits and costs of online consumer reviews have not been explicitly identified in the literature.

This paper contributes in three ways to the limited body of research on online consumer reviews. First, this study explores the notion that consumers perceive both positive and negative aspects (i.e. benefits and costs, respectively) of online consumer reviews, and these perceptions affect their review usage behaviors. The study also makes a significant contribution to the online review literature as most previous studies in this field have focused on positive aspects (Park et al., 2006; Park and Lee, 2008; Yao et al., 2009). This study included costs of online reviews along with benefits and examined the effects of individual characteristics on costs and benefits. The study also investigated the influences of consumer perceptions on attitudes associated with online consumer reviews and the effect of attitudes on usage behaviors.

Second, this study examined individual characteristics -- information process confidence and consumer susceptibility to interpersonal influence -- that might affect consumer perceptions of online consumer reviews differently. Because individuals differ in their level of abilities in information acquisition and processing (Alba and Hutchinson, 1987), consumers who are confident in information processing may use online consumer reviews differently from those with low confidence. Furthermore, individuals’ tendencies to seek information from others may influence their perceptions of peer opinions posted online. To our knowledge, the present study is the first to examine the relationships between consumer confidence in processing information and their susceptibility to interpersonal influences via their perceptions of both the benefits and the costs of using online consumer reviews.
Finally, a causal model integrating research variables was tested and validated using a cross-validation approach. The proposed model examined direct and indirect effects of information process confidence and consumer susceptibility to interpersonal influence on attitudes and usage behaviors of online consumer reviews, mediated by perceived benefits and costs of online consumer reviews.

**Conceptual framework and research hypotheses**

*Uncertainty reduction theory*

Uncertainty reduction theory (Berger and Calabrese, 1975) was employed as the conceptual framework to examine consumers’ use of online consumer reviews. Uncertainty reduction theory (Berger and Calabrese, 1975), discussing interpersonal communication, states that uncertainty naturally occurs when two people have an initial meeting. Uncertainty exists in many situations in everyday life (Hogg, 2007), and can stem from an inability to predict the behavior of the other person and his or her potential responses to the interaction (Berger and Calabrese, 1975).

In an online shopping context, uncertainty can be experienced regarding products, processes, and emotions (Hu et al., 2008). For example, the level of uncertainty may increase if there is a discrepancy between the actual product and what the shopper was expecting to find. Uncertainty may also increase if shoppers are purchasing a product from a seller without any previous experience or knowledge of the seller. To help consumers gather information online, consumer reviews can be used to reduce consumers’ uncertainty by confirming their purchase decisions with comments from peer consumers about product-related information (Berger and Calabrese, 1975; Hogg, 2000; Brumfield, 2008; Hu et al., 2008; Rameriz et al., 2002). Hu et al. (2008) revealed that information about product quality and the security and safety of shopping at a specific online retailer can be easily gleaned from web sites. When a consumer feels that more information is needed, online reviews can be used to reduce uncertainty related to products, new processes (such as purchasing online or from an unknown web site), or companies. However, at the same time, uncertainty can be increased by consumer reviews if consumers experience cognitive incongruence because of conflicting information in other consumers’ opinions (Yao et al., 2009). Similarly, surplus information presented in consumer reviews can cause information overload (Park and Lee, 2008), which often occurs when consumers are not confident about their decision and in an ambiguous situation (Schneider, 1987). Therefore, the perception of online consumer reviews can vary by situation or individuals; previous research of such is discussed in the following section.

*Consumer perceptions of online consumer reviews*

Consumer reviews offer a wealth of information about products or services, which can be used for decision making (Chatterjee, 2001; Clemons et al., 2006). In previous studies, consumers perceived that reading online consumer reviews was useful because it could decrease information search time (Hennig-Thurau and Walsh, 2003; Goldsmith and Horowitz, 2006). The presence of reviews may make consumers feel comfortable choosing an unfamiliar retailer that offers other benefits, such as a lower price (Chatterjee, 2001). Reading what other users have posted can also provide a sense of the product’s popularity (Hennig-Thurau and Walsh, 2003; Goldsmith and Horowitz, 2006; Park and Lee, 2008; Sher and Lee, 2009), and a great deal of positive reviews may encourage purchases (Park and Lee, 2008). Readers may also rely on consumer reviews...
to be sure of their purchase by confirming that their peers approve of the product (Hennig-Thurau and Walsh, 2003; Creamer, 2007).

Most existing studies indicate positive values of online consumer reviews, while several studies point out the negative aspects associated with them (Park et al., 2006; Park and Lee, 2008; Yao et al., 2009). Park and Lee (2008) show that a large volume of reviews may speak positively about the product’s popularity, but the volume of information negatively affects readers by overwhelming them. High quantities of reviews with dense information could cause information overload, hindering decision making by increasing uncertainty. The inability to process the large amount of information presented through reviews may cause individuals, in particular those who are having great difficulties in the information search, to be discouraged and feel less confident in their decision making (Park et al., 2006).

Another study shows that sometimes consumers are skeptical of the validity of online consumer reviews due to the unknown credentials of the review poster (Sher and Lee, 2009). Additionally, when a review site contains only positive reviews, users may doubt the authenticity and credibility (Doh and Hwang, 2009). Conflicting reviews about a product, service, or company can also hinder consumers’ information processing and increase difficulty in determining the quality of the information. This situation can cause readers to become confused by offering an inconclusive depiction of the product’s quality, and, therefore, decrease the usefulness of the review itself (Ghose and Ipeirotis, 2007; Yao et al., 2009). Table I summarizes the previous studies that have examined perceived benefits and costs of using consumer reviews.

Synthesizing the literature and previous studies, we propose that consumers perceive both positive and negative aspects (i.e., benefits and costs, respectively) from online consumer reviews. Considering online consumer reviews as an important channel in acquiring product and/or service-related information (Bounie et al., 2005), it aligns with the model proposed by Schmidt and Spreng (1996). They postulate that consumers would encounter both benefits and costs during an information search. Derived from basic economic theory in which individuals try to maximize their benefits over costs (Bell and Cochrane, 1956), benefits are individual evaluations of utility to achieve a goal (Gutman, 1982), and costs are individual assessments of time and/or efforts devoted to achieve certain outcomes (Bettman, 1979). Schmidt and Spreng (1996) further proposed a positive relationship of benefits and a negative relationship of costs with motivation to continue an information search. In a similar manner, the present study developed the following hypotheses:

H1. Perceived benefits of online consumer review will positively affect attitudes toward online consumer reviews.

H2. Perceived costs of online consumer review will negatively affect attitudes toward online consumer reviews.

The effects of attitudes toward online consumer reviews on frequent usage behavior
Attitudes refer to one’s cognitive and affective orientations with respect to some stimulus object or behavior (Fishbein and Ajzen, 1975). According to the theory of reasoned action (Fishbein and Ajzen, 1975), generally speaking, consumers’ favorable attitudes toward a behavior will lead to greater intentions to perform the behavior. In this theory, intentions capture the motivational factors affecting a behavior, positing
Previous studies & Pilot study (n = 50)

**Benefits**
- Can help me to reduce risk of making a decision
  - Amblee and Bui (2007), Clare (2010)
  - Yes (n = 1)
- May help me be more knowledgeable in making informed decisions
  - Bounie et al. (2005), Park and Lee (2008)
  - Yes (n = 14)
- Can be used gauge product popularity
  - Duan et al. (2008), Gao et al. (2006), Goldsmith and Horowitz (2006), Hennig-Thurau and Walsh (2003), Park and Lee (2008), Sher and Lee (2009)
  - Yes (n = 4)
- May help me be more knowledgeable in making informed decisions
  - Bounie et al. (2005), Clare (2010), Park and Lee (2008), Hennig-Thurau and Walsh (2003)
  - Yes (n = 14)
- Can be used to gauge product popularity
  - Duan et al. (2008), Gao et al. (2006), Goldsmith and Horowitz (2006), Hennig-Thurau and Walsh (2003), Park and Lee (2008), Sher and Lee (2009)
  - Yes (n = 4)
- Can help me gain knowledge about how this product works
  - Hennig-Thurau and Walsh (2003)
  - Yes (n = 7)
- Can help me obtain product information in general
  - Bounie et al. (2005), Hennig-Thurau and Walsh (2003), Park and Lee (2008)
  - Yes (n = 47)
- Is more trustworthy than company-sponsored advertising because they are posted by peers
  - Dellarocas (2003), Wilson and Sherrell (1993)
  - Yes (n = 5)
- Encourages me to make a purchase because of overall positive reviews
  - Bounie et al. (2005), Yao et al. (2009)
  - Yes (n = 17)
- Can save time
  - Hennig-Thurau et al. (2004)
  - Yes (n = 7)
- May help me choose a different product based on negative reviews
  - Hennig-Thurau et al. (2004)
  - Yes (n = 3)
- May help me compare prices
  - Goldsmith and Horowitz (2006)
  - Yes (n = 10)
- May help me compare quality of different products
  - Goldsmith and Horowitz (2006)
  - Yes (n = 24)
- Can help me judge product quality
  - Dhar and Chang (2009), Hennig-Thurau and Walsh (2003), Hu et al. (2008), Park et al. (2006), Park and Lee (2008)
  - Yes (n = 23)
- Can help me check product feature and function
  - None
  - Yes (n = 2)
- Is reliable
  - None
  - Yes (n = 31)
- Is trustworthy
  - None
  - Yes (n = 16)
- Can save money
  - None
  - Yes (n = 6)
- Helps me learn about products
  - Park and Lee (2009)
  - No
- Helps me learn about brands
  - Kim et al. (2006), Vermeulen and Seegers (2009)
  - No
- Helps me learn about retailers
  - Chatterjee (2001)
  - No
- Approves my decision by showing how my peer group (other consumers) feels
  - No
- Posted on a trustworthy web site are to be considered true
  - Park and Lee (2009)
  - No
- Can help me obtain up-to-date information
  - Hennig-Thurau and Walsh (2003)
  - No
- May help me find best deals
  - Goldsmith and Horowitz (2006)
  - No
- May help me to confirm my decision
  - Hennig-Thurau and Walsh (2003), Kim et al. (2006)
  - No
- Is dependable
  - None
  - Yes (n = 16)
- May provide different opinions about the product that I never considered
  - None
  - Yes (n = 1)

(continued)
that as an individual’s intentions associated with a behavior become stronger, the individual should be more likely to perform the behavior.

Previous studies have investigated the relationship between attitudes and behavioral intention in the internet shopping context (Chen and Tan, 2004; Heijden and Verhagen, 2004). Particularly with regard to obtaining information online, a great deal of research examining the links between attitudes and behaviors has focused on online advertising (Korgaonkar and Wolin, 2002; Wolin et al., 2002). Wolin et al. (2002) found web users’ attitudes toward online advertisement influenced the users’ behavioral intentions; the web users who held more positive attitudes towards online advertising were more likely to respond favorably to it. Similarly, another study by Korgaonkar and Wolin (2002) revealed a positive relationship between attitudes and frequent online purchase behaviors with regard to web advertisements. These findings were further confirmed by Wang et al. (2008) who conducted a study with Chinese consumers, reporting that consumers’ attitudes toward advertisements online was a significant predictor of consumers’ behavioral responses, such as advertise clicking and online shopping frequency.

<table>
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<tr>
<th>Consumer product and service reviews</th>
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<tr>
<td>Previous studies</td>
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<tr>
<td><strong>Costs</strong></td>
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<tr>
<td>May make me confused because of too much available information</td>
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<tr>
<td>May make me confused because of inconsistent information</td>
</tr>
<tr>
<td>May make me frustrated because of too many different opinions</td>
</tr>
<tr>
<td>Is questionable because reviewers’ credentials are unknown</td>
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<tr>
<td>Makes it difficult to make a decision because of inconsistent reviews</td>
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<tr>
<td>Makes me doubt the authenticity because of too positive reviews</td>
</tr>
<tr>
<td>Is not helpful because reviewer seems not knowledgeable enough to write a review</td>
</tr>
<tr>
<td>May increase purchase risk because of inconsistent reviews</td>
</tr>
<tr>
<td>Is not descriptive enough to influence my purchase decision</td>
</tr>
<tr>
<td>Does not convey product quality</td>
</tr>
<tr>
<td>May describe isolated incidents</td>
</tr>
<tr>
<td>Cannot be trusted due to quality of writing</td>
</tr>
<tr>
<td>Is not wise because I doubt the authenticity of posted reviews</td>
</tr>
<tr>
<td>Is not helpful because it is too emotional and without any constructive information</td>
</tr>
<tr>
<td>Make it difficult to make a decision because of inconsistent reviews</td>
</tr>
<tr>
<td>Is waste of my time</td>
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</tbody>
</table>

Table I.
Previous studies have tested this relationship regarding online consumer reviews by showing the influence of reviews on product purchase intentions (Amblee and Bui, 2007; Park and Lee, 2008), but have rarely looked into the effects of consumers’ attitudes on behavioral intention or usage behavior with regards to the online consumer reviews. The current study examines actual behavior instead of intention to use online consumer reviews, targeting actual users of online consumer reviews as participants. Therefore, based on the literature discussed above, it is presumable that favorable attitudes toward online consumer reviews will yield more frequent use of online consumer reviews, generating the following research hypothesis:

\[ H3. \text{ Attitudes toward online consumer reviews will positively affect frequent usage behavior.} \]

The effects of information processing confidence on perception of online consumer reviews

Information processing confidence measures the level at which consumers are confident in their ability to evaluate messages from mass media, think quickly, and point out weakness when the information presented is not consistent (Wright, 1975). This concept was originally proposed by Wright (1975) to differentiate it from face-to-face situations in which deliverer and receiver physically co-exist. He postulated that individuals process and respond differently to information presented in mass media. Later, Alba and Hutchinson (1987) pointed out that consumers have different abilities to process adequate information in the right amount during decision making (Bearden et al., 2001).

Research about online consumer reviews identified concerns about amount of information (Park et al., 2006; Park and Lee, 2008) or content presented by online consumer reviews (Yao et al., 2009). When faced with heavy information and large numbers of reviews, some consumers may be too overwhelmed, and may encounter an inability to process the information and feel less confident in their decision making (Park et al., 2006; Park and Lee, 2008). In addition, conflicting opinions presented could make it difficult for the consumer to determine accurate product information (Yao et al., 2009). In this context, information processing confidence is an appropriate measure because it describes how confidently participants process information posted on a virtual platform (Chatterjee, 2001; Dellarocas, 2003; Bolton et al., 2004; Weinberg and Davis, 2005). Consumers with high confidence are less likely to be hesitant with processing information and will be more confident in processing the information from online consumer reviews, in that they may be able to maximize benefits while spending less time and effort than individuals with low confidence. Furthermore, the effect of information processing confidence may be more salient in a situation of overloading as well as conflicting information presented by virtual review portals. When an individual is more confident in his or her choices, he or she will be able to quickly reduce uncertainty (Clatterbuck, 1979). In summary, users with high information processing confidence may be able to perceive more benefits and less costs associated with using online consumer reviews than those with low information processing confidence. Therefore, the following hypotheses were proposed:

\[ H4a. \text{ Information processing confidence will positively affect perceived benefits of online consumer reviews.} \]

\[ H4b. \text{ Information processing confidence will negatively affect perceived costs of online consumer reviews.} \]
The effects of consumer susceptibility to interpersonal influence on perceptions of consumer reviews

A great deal of research notes that people have a tendency to be influenced by others’ opinions in their decision making (Price and Feick, 1984; Bearden et al., 1989; Mourali et al., 2005). Bearden et al. (1989) defined the concept of consumer susceptibility to interpersonal influence, referring to an individual’s tendency to seek information from others to learn about products, brands, and services. Generally speaking, consumers who are highly likely to be influenced by others will be more subject to others’ opinions. Research has shown that individuals commonly seek out information from others who are significant to them when making purchasing decisions (Cohen and Golden, 1972; Price and Feick, 1984; Mourali et al., 2005).

Consumer susceptibility to interpersonal influence has been successfully applied to the online shopping context, specifically in examining consumer word-of-mouth such as recommendations and suggestions on products through online communication (Park and Lee, 2009). In an online consumer review context, written information about product quality and/or usage experiences posted by previous users is available to consumers to read (Hennig-Thurau and Walsh, 2003). Considering information presented in online consumer reviews are perceived as being more valuable (Goldsmith and Horowitz, 2006), and more trustworthy (Dellarocas, 2003; Sher and Lee, 2009) than information given by companies, individuals with high consumer susceptibility to interpersonal influence would likely have a greater tendency to be influenced by the information presented in online consumer reviews, both positive and negative, compared to the consumers with low consumer susceptibility to interpersonal influence.

Park and Lee (2009) conducted a study to examine the effects of such influence as an individual characteristic on perceived usefulness of online reviews by comparing US and Korean consumers. They found a significant positive effect on perceived usefulness in that consumers with a greater consumer susceptibility to interpersonal influence perceived online reviews as being more useful than the consumers with less consumer susceptibility to interpersonal influence. However, Park and Lee (2009) only examined the relationship between consumer susceptibility to interpersonal influence and usefulness of online reviews without investigating perceived costs associated with them. Although previous studies identified several dimensions of online consumer reviews associated with costs (Park et al., 2006; Sher and Lee, 2009; Yao et al., 2009), there has been no study that examines the relationship between individual characteristics and costs of online consumer reviews. We argue that consumers with high consumer susceptibility to interpersonal influence are more likely to be influenced by not only positive but also negative opinions of others. Thus, the present study extends Park and Lee (2009)’s study by investigating consumer susceptibility to interpersonal influence and its effect on benefits and costs of online consumer reviews. Therefore, the following hypotheses are proposed:

\( H5a \). Consumer susceptibility to interpersonal influence will positively affect perceived benefits of online consumer reviews.

\( H5b \). Consumer susceptibility to interpersonal influence will positively affect perceived costs of online consumer reviews.
Methods

Pilot study
Prior to the data collection, a pilot study was conducted with 50 graduate and undergraduate students with age ranges from 18 to 50 years to identify consumer perceptions of online consumer reviews as well as the variety of products and information sought-after in consumer reviews. Online consumer reviews were defined in the present study as the opinions and ideas about the product and/or service usage experiences by peer consumers available online such as a company owned forum or a third-party owned virtual platform using open-ended questions. Respondents who had experience reading online consumer reviews were asked to identify perceived benefits and costs of online consumer reviews. Responses were coded by two primary investigators and two graduate students independently to identify consumers’ perception about online consumer reviews. Findings were used to develop a questionnaire for perceived benefits and costs of online consumer reviews and modify measurements for the study.

Sampling and procedure
Data were collected using a random sample approach through a marketing research company from US nationwide online shoppers 18 years and older. The shoppers had previous purchase experiences from various online retailers. Dillman’s (2000) online survey method and follow-ups were utilized.

Instrument
To assess participants’ information processing confidence, we adapted and modified four items from Wright (1975). Seven items were borrowed from Bearden et al. (1989) to measure consumer susceptibility to interpersonal influence. To measure attitudes toward online consumer reviews, we used four items from Huff and Alden (1998). Three items from Park and Lee (2009) were used to assess frequent usage behavior concerning online consumer reviews. The authors developed 26 items regarding perceived benefits and 15 items of perceived costs based on the findings of the pilot study and previous literature. All items in the study, except attitudes, were measured on a seven-point Likert scale (1 – strongly disagree, 7 – strongly agree), while the items capturing attitudes were measured on a seven-point bipolar scale as the original scales were formatted.

Data analysis
Descriptive analysis, correlation, t-test, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and path analysis were conducted to analyze the data using SPSS 18.0 and LISREL 8.72. To validate results of the present study and check the structural stability of the data, a cross-validation approach was employed. The data were randomly split into two sub-samples of similar size: one as a calibration sample \( (n = 966) \) and the other as a validation sample \( (n = 964) \) (Schumacker and Lomax, 2004). All the analyses were conducted separately in both sub-samples as were those utilized in the pooled sample (Kim and Kim, 2010).

Results
Non-response bias
To determine non-response bias, we compared early and late responses, as participants who responded late are often assumed to be similar to non-respondents
(Armstrong and Overton, 1977). About 20 percent of early and late responses were compared by t-tests for independent samples, focusing on six research variables used for the causal model analysis:

1. information processing confidence;
2. consumer susceptibility interpersonal influence;
3. perceived benefits;
4. perceived costs;
5. attitudes; and
6. frequency of usage behavior.

No significant difference of means between the two groups was found on any of the research variables ($p > 0.1$).

**Sample characteristics**
A total of 3,970 survey responses were collected, representing a response rate of 13.2 percent. Based on a screening question with the purpose of identifying consumers who had previous experience in reading online consumer reviews, data from 2,083 respondents were obtained, of which 1,930 complete responses were deemed usable for data analysis. About 53 percent of the respondents were female, and 47 percent were male. A majority of the respondents were White American (81.9 percent) and had some college or higher education (80.2 percent). Almost half of the respondents (48.7 percent) were married and were employed (55.7 percent). More than half had an annual household income range between $25,000 and $49,999 (52.0 percent), and about 13 percent of respondents reported over $75,000 as their income range. All of the respondents had experiences with reading online consumer reviews, and the majority of them (88.3 percent) had read online consumer reviews at least once within the last three months. No significant differences were found among demographic variables between calibration and validation samples ($p > 0.1$).

**Dimensions of online consumer review perception**
The results show that participants in the study perceived both the benefits and costs dimensions of online consumer reviews. The dimensions determined by the EFA explained 63.10 percent of the total variance with high factor loadings (0.62 – 0.84). Cronbach’s $\alpha$ for benefits and costs dimensions were 0.98 and 0.96, respectively. Table II shows the results of factor analyses for the pooled sample as well as two sub-samples (i.e. calibration and validation samples). The results provide similar findings which provide evidence of statistical stability of the findings in the present study.

The first factor, “perceived benefits of online consumer reviews”, consisting of 26 items. The second factor, “perceived costs of online consumer reviews”, consisted of 14 items related to negative aspects of reading online consumer reviews after dropping one item. To validate the dimensions of perceived benefits and costs of online consumer reviews identified from the EFA and to further refine scales, CFA was conducted (Chisholm and Ricci, 1998; Hurley *et al.*, 1997). Fit indices revealed GFI of 0.91, CFI of 0.99, NFI of 0.99, RFI of 0.98, IFI of 0.99, and RMSEA of 0.054, which are considered a good model fit to the data (Bagozzi and Yi, 1988; Hair *et al.*, 1998). Factor loadings for perceived benefits ranged from 0.68 to 0.88 and for perceived costs ranged from
<table>
<thead>
<tr>
<th>Items</th>
<th>Pooled (n = 1,930)</th>
<th>Sample 1 (n = 966)</th>
<th>Sample 2 (n = 964)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceived benefits (PB)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May help me to confirm my decision</td>
<td>0.800 − 0.146</td>
<td>0.802 − 0.152</td>
<td>0.816 − 0.122</td>
</tr>
<tr>
<td>Can help me to reduce risk of making a decision</td>
<td>0.719 − 0.054</td>
<td>0.738 − 0.058</td>
<td>0.712 − 0.017</td>
</tr>
<tr>
<td>May help me be more knowledgeable in making informed decisions</td>
<td>0.811 − 0.167</td>
<td>0.806 − 0.179</td>
<td>0.820 − 0.151</td>
</tr>
<tr>
<td>May provide different opinions about the product that I never considered</td>
<td>0.738 − 0.099</td>
<td>0.755 − 0.128</td>
<td>0.728 − 0.075</td>
</tr>
<tr>
<td>Is reliable</td>
<td>0.788 − 0.150</td>
<td>0.774 − 0.164</td>
<td>0.796 − 0.123</td>
</tr>
<tr>
<td>Is trustworthy</td>
<td>0.789 − 0.153</td>
<td>0.779 − 0.157</td>
<td>0.797 − 0.119</td>
</tr>
<tr>
<td>Can be used gauge product popularity</td>
<td>0.725 − 0.077</td>
<td>0.732 − 0.068</td>
<td>0.729 − 0.048</td>
</tr>
<tr>
<td>Can help me judge product quality</td>
<td>0.828 − 0.156</td>
<td>0.816 − 0.157</td>
<td>0.819 − 0.129</td>
</tr>
<tr>
<td>Can help me gain knowledge about how this product works</td>
<td>0.825 − 0.109</td>
<td>0.826 − 0.118</td>
<td>0.823 − 0.094</td>
</tr>
<tr>
<td>Can help me check product feature and function</td>
<td>0.806 − 0.099</td>
<td>0.806 − 0.104</td>
<td>0.788 − 0.089</td>
</tr>
<tr>
<td>Can help me obtain product information in general</td>
<td>0.815 − 0.115</td>
<td>0.804 − 0.143</td>
<td>0.825 − 0.106</td>
</tr>
<tr>
<td>Is dependable</td>
<td>0.795 − 0.151</td>
<td>0.783 − 0.160</td>
<td>0.799 − 0.136</td>
</tr>
<tr>
<td>Is more trustworthy than company-sponsored advertising because they are posted by peers</td>
<td>0.765 − 0.180</td>
<td>0.762 − 0.163</td>
<td>0.774 − 0.157</td>
</tr>
<tr>
<td>Posted on a trustworthy web site are to be considered true</td>
<td>0.739 − 0.106</td>
<td>0.747 − 0.101</td>
<td>0.736 − 0.081</td>
</tr>
<tr>
<td>Encourages me to make a purchase</td>
<td>0.794 − 0.119</td>
<td>0.803 − 0.110</td>
<td>0.792 − 0.091</td>
</tr>
<tr>
<td>because of overall positive reviews</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helps me learn about products</td>
<td>0.832 − 0.115</td>
<td>0.849 − 0.109</td>
<td>0.860 − 0.110</td>
</tr>
<tr>
<td>Helps me learn about brands</td>
<td>0.802 − 0.061</td>
<td>0.789 − 0.063</td>
<td>0.818 − 0.061</td>
</tr>
<tr>
<td>Helps me learn about retailers</td>
<td>0.755 0.000</td>
<td>0.764 0.006</td>
<td>0.785 0.005</td>
</tr>
<tr>
<td>Approves my decision by showing how my peer group (other consumers) feels</td>
<td>0.774 0.047</td>
<td>0.752 0.043</td>
<td>0.799 0.044</td>
</tr>
<tr>
<td>Can help me obtain up-to-date information</td>
<td>0.845 0.081</td>
<td>0.835 0.090</td>
<td>0.866 0.060</td>
</tr>
<tr>
<td>Can save time</td>
<td>0.793 0.076</td>
<td>0.793 0.082</td>
<td>0.804 0.064</td>
</tr>
<tr>
<td>Can save money</td>
<td>0.808 0.099</td>
<td>0.808 0.110</td>
<td>0.802 0.068</td>
</tr>
<tr>
<td>May help me choose a different product based on negative reviews</td>
<td>0.811 0.144</td>
<td>0.819 0.133</td>
<td>0.823 0.122</td>
</tr>
<tr>
<td>May help me compare prices</td>
<td>0.723 0.003</td>
<td>0.726 0.002</td>
<td>0.713 0.000</td>
</tr>
<tr>
<td>May help me compare quality of different products</td>
<td>0.831 0.123</td>
<td>0.826 0.086</td>
<td>0.836 0.116</td>
</tr>
<tr>
<td>May help me find best deals</td>
<td>0.762 0.021</td>
<td>0.741 0.002</td>
<td>0.761 0.000</td>
</tr>
<tr>
<td><strong>Perceived costs (PC)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May increase purchase risk because of inconsistent reviews</td>
<td>0.109 0.619</td>
<td>0.082 0.637</td>
<td>0.135 0.618</td>
</tr>
<tr>
<td>May make me confused because of too much available information</td>
<td>−0.045 0.783</td>
<td>−0.048 0.802</td>
<td>−0.016 0.790</td>
</tr>
<tr>
<td>May make me confused because of inconsistent information</td>
<td>−0.008 0.777</td>
<td>−0.036 0.789</td>
<td>0.010 0.797</td>
</tr>
<tr>
<td>May make me frustrated because of too many different opinions</td>
<td>−0.027 0.799</td>
<td>−0.044 0.816</td>
<td>−0.009 0.816</td>
</tr>
</tbody>
</table>

Table II. Factor loadings for EFA of perceived benefits and perceived costs (continued)
0.63 to 0.84, while the \( t \)-value of benefits ranged from 37.39 to 52.83, and of costs ranged from 24.99 to 27.90. The results of CFA concluded that data fit well with perceived benefits and costs of factor structure and further verified two dimensions of online consumer review perceptions.

**Dimensions of information processing confidence, consumer susceptibility to interpersonal influence, attitudes, and usage behavior**

All research constructs except perceived benefits and costs were extracted to a single dimension with high factor loadings (0.74, -0.93) and Cronbach’s \( \alpha \) scores (0.80, -0.91). Table III shows the results of the factor analysis for the pooled sample and two spilt samples providing similar results. Therefore, we can conclude that the validation results provided evidence of the statistical stability of data. After examining dimensions of multiple item measures, the means of each measure were obtained and used for further statistical testing of hypotheses. Table III provides descriptive statistics and a correlation matrix among research constructs in the model. Path analysis was conducted to test hypothesized relationships in the model (Table IV).

**Model testing**

The results revealed that \( \chi^2 = 259.01 \) (\( df = 7, p < 0.001 \)), GFI was 0.96, CFI was 0.91, IFI was 0.91, NFI was 0.90, and RMSR was 0.06 (Figure 1). The \( \chi^2 \) was significant,
<table>
<thead>
<tr>
<th>Variables</th>
<th>Factor items</th>
<th>Pooled $n = 1,930$</th>
<th>Sample 1 $n = 966$</th>
<th>Sample 2 $n = 964$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information processing confidence</td>
<td>I am totally confident about my ability to judge messages coming from the mass media</td>
<td>0.839</td>
<td>0.838</td>
<td>0.833</td>
</tr>
<tr>
<td></td>
<td>I am certainly able to think quickly</td>
<td>0.867</td>
<td>0.865</td>
<td>0.859</td>
</tr>
<tr>
<td></td>
<td>When I hear an argument being presented, I am quick to spot the weaknesses in it</td>
<td>0.821</td>
<td>0.819</td>
<td>0.805</td>
</tr>
<tr>
<td></td>
<td>I usually have to stop and think for a while before making up my mind on even in unimportant matters (item dropped)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Percent of variance explained</td>
<td>70.948</td>
<td>70.713</td>
<td>69.340</td>
</tr>
<tr>
<td></td>
<td>Cronbach's $\alpha$</td>
<td>0.795</td>
<td>0.792</td>
<td>0.778</td>
</tr>
<tr>
<td>Consumer susceptibility to interpersonal influence</td>
<td>It is important that others like the products and brands I buy</td>
<td>0.805</td>
<td>0.801</td>
<td>0.799</td>
</tr>
<tr>
<td></td>
<td>I like to know what brands and products make good impressions on others</td>
<td>0.798</td>
<td>0.800</td>
<td>0.806</td>
</tr>
<tr>
<td></td>
<td>I achieve a sense of belonging by purchasing the same products and brands that others purchase</td>
<td>0.829</td>
<td>0.844</td>
<td>0.823</td>
</tr>
<tr>
<td></td>
<td>To make sure I buy the right product or brand, I often observe what others are buying and using</td>
<td>0.820</td>
<td>0.817</td>
<td>0.832</td>
</tr>
<tr>
<td></td>
<td>I often seek out the advice of my friends regarding which products I buy</td>
<td>0.807</td>
<td>0.822</td>
<td>0.829</td>
</tr>
<tr>
<td></td>
<td>I spend a lot of time talking with my friends about product information</td>
<td>0.816</td>
<td>0.808</td>
<td>0.828</td>
</tr>
<tr>
<td></td>
<td>My friends or neighbors usually give me good advice on what brands of products to buy</td>
<td>0.739</td>
<td>0.741</td>
<td>0.733</td>
</tr>
<tr>
<td></td>
<td>Percent of variance explained</td>
<td>64.412</td>
<td>64.850</td>
<td>65.248</td>
</tr>
<tr>
<td></td>
<td>Cronbach's $\alpha$</td>
<td>0.908</td>
<td>0.909</td>
<td>0.911</td>
</tr>
<tr>
<td>Attitudes toward online consume reviews</td>
<td>To me online consumer reviews are</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bad-good</td>
<td>0.852</td>
<td>0.859</td>
<td>0.847</td>
</tr>
<tr>
<td></td>
<td>Worthless-valuable</td>
<td>0.850</td>
<td>0.849</td>
<td>0.856</td>
</tr>
<tr>
<td></td>
<td>Negative-positive</td>
<td>0.818</td>
<td>0.831</td>
<td>0.821</td>
</tr>
<tr>
<td></td>
<td>Not favorable-favorable</td>
<td>0.832</td>
<td>0.831</td>
<td>0.829</td>
</tr>
<tr>
<td></td>
<td>Percent of variance explained</td>
<td>70.252</td>
<td>71.003</td>
<td>70.258</td>
</tr>
<tr>
<td></td>
<td>Cronbach's $\alpha$</td>
<td>0.859</td>
<td>0.864</td>
<td>0.859</td>
</tr>
<tr>
<td>Frequent usage behavior</td>
<td>I often search through consumer reviews on the internet</td>
<td>0.828</td>
<td>0.927</td>
<td>0.931</td>
</tr>
<tr>
<td></td>
<td>I refer to online consumer reviews whenever I need information on companies or goods</td>
<td>0.894</td>
<td>0.895</td>
<td>0.897</td>
</tr>
</tbody>
</table>

Table III. EFA results for model constructs (continued)
but it was caused by the large sample size of this study \((n = 1,930)\) as the \(\chi^2\)-statistic is sensitive to sample size (Bagozzi and Baumgartner, 1994). Thus, other fit indices were examined simultaneously to assess the overall fit of the model (Jöreskog and Sörbom, 1986). All the fit indices for the model were acceptable.
Hypotheses testing: H1-H5
A parameter estimate $t$-value greater than 2.00, obtained by dividing the parameter by its standard error, was considered an indicator of statistical significance (Byrne, 1998). The $t$-value greater than 2.00 is corresponding to the $p$-value of less than 0.05 as critical $t$-value in the $t$-distribution is 1.96 in the two-tail test. All hypotheses in the model were statistically supported. The paths from perceived benefits to attitudes ($H1: \beta = 0.63; t = 35.98$), perceived costs to attitudes ($H2: \beta = -0.13; t = -5.00$), attitudes to frequent usage behavior ($H3: \beta = 0.44; t = 21.68$), information processing confidence to perceived benefits ($H4a: \beta = 0.38; t = 18.85$) and perceived costs ($H4b: \beta = -0.11; t = -5.24$), and consumer susceptibility to interpersonal influence to perceived benefits ($H5a: \beta = 0.22; t = 10.78$) and perceived costs ($H5b: \beta = 0.27; t = 12.70$) were significant as hypothesized.

Model cross-validation
To further validate the model and path coefficients, multi group analysis was conducted by following Lomax’s (1983) sequential strategy. The result shows that there is no significant difference of path structures in the model between sub-samples, and therefore, all structural coefficients between the calibration and the validation samples are not significantly different. As a result, the findings with the pooled sample in the model are not data dependent and further validate the results of the proposed model in the present study.

Post hoc analysis: decomposition of effects
Finally, the decomposition of effects was conducted, and the results of the effects are presented in Table V. Significant indirect effects were shown from information processing confidence and consumer susceptibility to interpersonal influence on mediated by both perceived benefits and perceived costs of online consumer reviews (0.25 and 0.10, respectively). Information processing confidence and consumer susceptibility

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Independent variable</th>
<th>Total effects</th>
<th>Indirect effects</th>
<th>Direct effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived benefits</td>
<td>Information processing confidence</td>
<td>0.38 (18.85)</td>
<td>–</td>
<td>0.38 (18.85)</td>
</tr>
<tr>
<td></td>
<td>Consumer susceptibility to interpersonal influence</td>
<td>0.22 (10.78)</td>
<td>–</td>
<td>0.22 (10.78)</td>
</tr>
<tr>
<td>Perceived costs</td>
<td>Information processing confidence</td>
<td>-0.11 (-5.24)</td>
<td>–</td>
<td>-0.11 (-5.24)</td>
</tr>
<tr>
<td></td>
<td>Consumer susceptibility to interpersonal influence</td>
<td>0.27 (12.70)</td>
<td>–</td>
<td>0.27 (12.70)</td>
</tr>
<tr>
<td>Attitudes</td>
<td>Information processing confidence</td>
<td>0.25 (16.66)</td>
<td>0.25 (16.66)</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Consumer susceptibility to interpersonal influence</td>
<td>0.10 (6.69)</td>
<td>0.10 (6.69)</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Perceived benefits</td>
<td>0.63 (35.98)</td>
<td>–</td>
<td>0.63 (35.98)</td>
</tr>
<tr>
<td></td>
<td>Perceived costs</td>
<td>-0.12 (-7.16)</td>
<td>–</td>
<td>-0.12 (-7.16)</td>
</tr>
<tr>
<td>Usage behavior</td>
<td>Information processing confidence</td>
<td>0.11 (13.21)</td>
<td>0.11 (13.21)</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Consumer susceptibility to interpersonal influence</td>
<td>0.05 (6.39)</td>
<td>0.05 (6.39)</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Perceived benefits</td>
<td>0.28 (18.57)</td>
<td>0.28 (18.57)</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Perceived costs</td>
<td>-0.06 (-6.80)</td>
<td>-0.06 (-6.80)</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Attitudes toward consumer reviews</td>
<td>0.44 (21.68)</td>
<td>–</td>
<td>0.44 (21.68)</td>
</tr>
</tbody>
</table>

Table V.
Decomposition of direct, indirect and total effects for model

Notes: Significant effects ($t > 2.00$) are shown in italics; $t$-values are in parentheses
interpersonal influence had indirect effects (0.11 and 0.05, respectively), and both perceived benefits and costs had indirect effects (0.28 and −0.06, respectively) on frequent usage behavior. Perceived benefits had the strongest total effects on attitudes (0.63), followed by information processing confidence (0.25). Attitudes had the strongest total effect on frequent usage behavior (0.44), followed by perceived costs (0.28) of online consumer reviews, and information processing confidence (0.11). Among individual characteristics, information processing confidence had a stronger direct effect on perceived benefits than consumer susceptibility to interpersonal influence (0.38, and 0.22, respectively), but consumer susceptibility to interpersonal influence had a stronger direct effect on perceived costs than information processing confidence (0.27, and −0.11, respectively). Our proposed conceptual model explained a variance for PB ($R^2 = 0.20$) and perceived costs ($R^2 = 0.09$), attitudes ($R^2 = 0.40$), and usage behavior ($R^2 = 0.19$).

### Discussion

The present study was the first attempt to provide empirical evidence on consumers’ general perceptions of online consumer reviews, integrating both perceived benefits and costs along with individual characteristics. More specifically, integrating uncertainty reduction theory (Berger and Calabrese, 1975) as a conceptual framework, the present study shed light on the online consumer review literature by identifying both benefit and cost aspects of online consumer reviews with actual users and investigating the causal relationships among information processing confidence, consumer susceptibility to interpersonal influence, perceived benefits, perceived costs, attitudes, and usage behaviors. The two dimensions of consumer perceptions regarding online consumer reviews, perceived benefits and perceived costs, were found, supporting the propositions in information search behaviors by Schmidt and Spreng (1996). In the perceived benefits dimension, consumers perceived online consumer reviews as helpful in gathering information about product features, functions, price ranges, quality and popularity. Reading online consumer reviews seems to help them save time and money, and find best deals. This result is consistent with the previous studies that identified the positive values of online consumer reviews (Chatterjee, 2001; Clemons et al., 2006; Goldsmith and Horowitz, 2006; Park and Lee, 2008). In the perceived costs dimension, respondents perceived that reviews caused them confusion and frustration due to too much or conflicting information, or doubt about authenticity of the reviews. Findings reflect well the negative aspects of online consumer reviews identified in the previous studies (Park et al., 2006; Sher and Lee, 2009; Yao et al., 2009). These findings are in line with the notion that information from online reviews is useful in helping reduce uncertainty that consumers may face while they are shopping online (Brumfield, 2008; Hu et al., 2008).

Consumers’ individual characteristics, information processing confidence and consumer susceptibility to interpersonal influence affect both perceived benefits and perceived costs differently. The results indicate that there was a significant positive relationship of information processing confidence with perceived benefits, yet a negative relationship with perceived costs. As Alba and Hutchinson (1987) pointed out, consumers have different abilities when it comes to processing the amount and contents of the information presented. Findings of the current study revealed that the consumers with high information processing confidence were more likely to recognize benefits and less likely to perceive costs of online consumer reviews. Although consumers may
encounter too much information (Park et al., 2006) or conflicting information presented in online reviews (Yao et al., 2009), these negative values seem less likely to hinder information processing for consumers with high information processing confidence. These relationships can be explained by the characteristics of individuals with high information processing confidence, who have the ability to think quickly and to spot weakness if any inconsistent information is presented (Wright, 1975).

Another individual characteristic, consumer susceptibility to interpersonal influence, also has positive influence on both perceived benefits and perceived costs. Consumers who are more susceptible to peer opinions and values were more likely to perceive benefits as well as costs of online consumer reviews. The positive relationship between consumer susceptibility to interpersonal influence and perceived benefits supports Park and Lee’s (2009) findings. In addition, this study further identified the effect of consumer susceptibility to interpersonal influence on perceived costs that has not been explored in previous studies. The path coefficient of consumer susceptibility to interpersonal influence on perceived costs was greater than on perceived benefits, which suggest that consumers with high consumer susceptibility to interpersonal influence were more likely to perceive costs than benefits of online consumer reviews. When considering the fact that consumers try to maximize their benefits over costs (Bell and Cochrane, 1956), consumers with high consumer susceptibility to interpersonal influence may face more confusions and difficulties while they are using online consumer reviews. Park and Lee’s (2009) study suggested that consumer susceptibility to interpersonal influence would be the appropriate consumer characteristics for online review users, as they understand reviews’ usefulness more than those with low consumer susceptibility to interpersonal influence. However, the positive association between consumer susceptibility to interpersonal influence and perceived costs investigated in the present study illustrates a need for careful approach considering consumers with high consumer susceptibility to interpersonal influence as they perceived greater perceived costs than perceived benefits. Although individuals with high consumer susceptibility to interpersonal influence continuously gather information from others (Price and Feick, 1984; Mourali et al., 2005), we suggest that online retailers need to be aware of that consumer with high consumer susceptibility to interpersonal influence perceive costs of online consumer reviews, paying extra attention to maximizing perceived benefits, while minimizing perceived costs in providing online review portals. Considering the negative influence of perceived costs regarding online consumer reviews on attitudes and usage behaviors, a considerate approach is recommended in dealing with costs that consumers may perceive from the reviews.

Moreover, the mediating effects of perceived benefits and perceived costs from information processing confidence and consumer susceptibility to interpersonal influence on attitudes and usage behaviors were confirmed. The positive indirect effects of information processing confidence and consumer susceptibility to interpersonal influence on attitudes and frequent usage behaviors suggest that consumers who have greater confidence in information processing and/or consumers who have more tendencies to be influenced by other opinions were more likely to have favorable attitudes and more frequently use online consumer reviews. More specifically, information processing confidence showed stronger indirect effects on attitudes and usage behaviors than consumer susceptibility to interpersonal influence, while both were mediated by perceived benefits and perceived costs. In other words, consumer’s confidence to process information
available is a more significant consumer characteristic to predict the use of online consumer reviews than individual’s tendency influenced by peers when considering both benefits and costs dimensions of online consumer reviews. The present study was the first attempt to integrate information processing confidence in the model for understanding consumer perceptions, attitudes, and usage behaviors regarding online consumer reviews and examine the effects of consumer susceptibility to interpersonal influence on both perceived benefits and costs.

Furthermore, as predicted, both benefits and costs of online consumer reviews influenced consumers’ attitudes and frequent usage behaviors with regard to online consumer reviews. Consumers who perceived greater benefits of online consumer reviews were more likely to have favorable attitudes toward online reviews, yet consumers who perceived more costs were more likely to have less favorable attitudes toward online consumer reviews as expected. Moreover, there were indirect effects of perceived benefits and perceived costs through attitudes on usage behaviors: perceived benefits has a positive indirect effect and perceived costs has a negative indirect effect on frequent usage behaviors associated with online consumer reviews, both of which were mediated by attitudes. Overall, attitudes were more influenced by perceived benefits and information processing confidence than perceived costs and consumer susceptibility to interpersonal influence. Similarly, in predicting consumer usage behavior, perceived benefits and information processing confidence were stronger variables than perceived costs and consumer susceptibility to interpersonal influence. Attitudes appeared to be the most influential factor in determining usage behavior. The results extend the existing body of literature in online consumer reviews by examining the link between attitudes and behaviors with regard to online consumer reviews. Most of the previous studies only explored the influence of online consumer reviews on consumers’ purchase intentions of products (Park and Lee, 2008); whereas this study focused on consumers’ attitudes toward online consumer review and their effects on actual review usage behaviors. The positive effects of attitudes on frequent usage behaviors also support previous studies of attitude and behavior relationships in general (Korgaonkar and Wolin, 2002; Chen and Tan, 2004). Consumers who have more favorable attitudes appeared to use online consumer reviews more frequently.

Implications

This study enhances understanding of how consumers’ perceptions of online consumer reviews influence both consumer attitudes and their use of online reviews. The present study used the uncertainty reduction theory (Berger and Calabrese, 1975) as a conceptual framework. These findings are in line with the notion that information gained through online reviews is useful in reducing uncertainty that consumers may face when they are shopping online (Brumfield, 2008; Hu et al., 2008). It should also be noted, however, that consumers’ perceived costs associated with consumer reviews may increase uncertainty with their decision making. Whereas most of the previous literature on consumer reviews has focused on the positive aspects of reviews (Park et al., 2006; Park and Lee, 2008; Yao et al., 2009), the present study’s findings contribute to the online review literature by suggesting that consumers perceive certain cost dimensions in the online review context. The present study’s findings may also provide insights for retailers and marketers regarding how they can use online consumer reviews related to their products or services to improve business performance. Online retailers should
consider providing an effective and efficient online platform that could be beneficial in easing consumers’ perceived costs, while also enhancing the perceived benefits of online consumer reviews. Thus, online retailers implementing online reviews for their business should consider ways to reduce perceived costs when consumers turn to online reviews for information. For example, retailers could pay attention to designing effective review tools rather than just listing all the reviews previous consumers have written, because many consumers may experience information overload. Providing consumers with effective online review systems that include providing options to reorganize review content based on their needs, such as by product rating and pros and cons, may help reduce the perception of costs associated with online reviews. Furthermore, consumers’ individual characteristics influence their perceptions of online reviews differently; therefore, it is suggested that understanding and implementing appropriate business strategies for specific customer segments is another essential element for reducing perceived costs in the online review context.

Limitations and recommendations
The present study explored benefit and cost dimensions of online consumer reviews by developing scales. Although we conducted separate analyses using the pooled sample and sub-samples and comparing the results in two sub-samples to validate the perceived benefits and perceived costs scales in the present study, validation of these scales with different consumer groups would be meaningful for future study.

This study takes into account both positive and negative aspects of consumer perceptions of online reviews. The ways consumers use online reviews may differ by specific product categories and product familiarity and involvement. Thus, investigating consumer review usage behavior in different product categories and focusing on the level of familiarity and involvement would enrich our understanding regarding online consumer review usage behavior. Furthermore, the importance of consumer reviews may not be limited to the online shopping context. Recently, K-mart started to post selected consumer reviews next to the products in their stores to help inform consumers (Anderson, 2010). Extending this study to physical retail settings to explore consumer perceptions of both benefits and costs of reviews and the effects on their purchase decisions would be valuable.

Our findings suggest a stronger impact of perceived benefits and information processing confidence on attitudes and usage behaviors compared to that of perceived costs and consumer susceptibility to interpersonal influence. In the current study, two antecedent variables of benefits and costs were tested in the model based on the literature and empirical studies. However, other potential variables might influence consumer perceptions of online consumer reviews, such as personal values, shopping orientation, or previous shopping experience. Thus, in a future study, it would be interesting to consider these potential variables.

As indicated by previous research (Doh and Hwang, 2009) and the present study, some consumers expressed doubt about the authenticity and credibility of consumer reviews when the reviews are too positive or inconsistent. Thus, future study to empirically examine how consumers respond to these issues would be useful.

The present study examined individual characteristics regarding the way that participants perceived online consumer reviews, but we did not consider demographic differences. Thus, investigating how differences in generational cohort as well as gender
may change consumer perception and usage behaviors will be necessary to provide retailers with specific information on their target market. The present study used uncertainty reduction theory with the notion that uncertainty that consumers encounter in online shopping contexts would be reduced as a result of perceived benefits of online consumer reviews, but increased because of perceived costs of online consumer reviews. However, the present study did not empirically examine consumers’ uncertainty reduction; thus, future study may want to investigate uncertainty reduction as a mediating variable between attitudes toward online retailers and usage behavior. Lastly, this study only measured usage behaviors for online consumer reviews in relation to perceived benefits and perceived costs, and attitudes, but examining effects of perceived benefits and costs of online consumer reviews on consumer purchase intentions would be helpful to understand their direct influence on consumer decision making.

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