GENERAL RESEARCH

Product type and consumers' perception of online consumer reviews

Soonyong Bae · Taesik Lee

Abstract Consumers hesitate to buy experience products online because it is hard to get enough information about experience products via the Internet. Online consumer reviews may change that, as they offer consumers indirect experiences about dominant attributes of experience products, transforming them into search products. When consumers are exposed to an online consumer review, it should be noted that there are different kinds of review sources. This study investigates the effects of review source and product type on consumers' perception of a review. The result of the online experiment suggests that product type can moderate consumers' perceived credibility of a review from different review sources, and the major findings are: (1) consumers are more influenced by a review for an experience product than for a search product when the review comes from consumer-developed review sites, and (2) a review from an online community is perceived to be the most credible for consumers seeking information about an experience product. The findings provide managerial implications for marketers as to how they can better manage online consumer reviews.

Keywords e-Business · Online consumer reviews · Product type · Source effect · Online community · Blog

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Introduction

While online shopping can help consumers reduce the search cost for product information, those who want to buy experience products do not get much benefit from online shopping. It is generally difficult to obtain sufficient information about experience products (Mitra et al. 1999), and as a result, consumers are more likely to buy search products than experience products on online shopping (Girard et al. 2006; Kwak et al. 2002; Levin et al. 2003; Levin et al. 2005; Lynch et al. 2001; Olshavsky and Granbois 1979; Rowley 1996).

Online consumer reviews can offer indirect experiences about experience products and their dominant attributes. According to prior research on both offline and online shopping, it is found that consumers are more likely to be influenced by other consumers' opinions, such as traditional word-of-mouth, for experience products than for search products (Bei et al. 2004; Bone 1995; Chen et al. 2004; Nelson 1970; Nelson 1974; Mitra et al. 1999; Park and Lee 2009). Considering that online consumer reviews play an important role as an informant and a recommender of products (Park et al. 2007), online consumer reviews can be used as electronic word-of-mouth to help consumers purchase experience products online by transforming them into search products.

Online consumer reviews are consumer-generated online information, and there exist two types of information sources on the Internet from which consumers read online consumer reviews: marketer-developed and consumer-developed review sites (Bailey 2005). Prior research found that consumers perceive product information differently across information source (Bei et al. 2004). Thus, we expect that consumers' perception of online consumer reviews would be different depending on the type of source those reviews are presented at.

Product type is expected to moderate consumers' preference for online consumer review sources. Consumers tend to develop social relationships on consumer-developed review sites, such as online communities or blogs, and express their opinions and tastes freely in such sites. They share outspoken critiques and experiences about products in consumer-developed review sites. Marketer-developed review sites do not provide such environment, and it is rare for consumers who participate in marketer-developed review sites to develop social relationship. On the other hand, marketer-developed review sites can offer consumers a standard form, such as star ratings, to help consumers efficiently evaluate and compare a large number of products. As such, we suppose that consumers assessing experience products can benefit from online consumer reviews from consumer-developed review sites while it would be more useful for consumers considering search products to read online consumer reviews from marketer-developed review sites.

It would be intriguing to investigate the role of review source and product type on consumers' online shopping behaviours. There is a large body of research on the role of online consumer reviews on online shopping, but, to our knowledge, few studies have been conducted to identify consumers' perception of online consumer reviews in terms of review source (i.e. where the review is published) and product type (which type of product the review is presenting). This study also examines how the interaction between review source and product type influences consumers' perception of review credibility. Thus, this study proposes the following research question – is the perceived credibility of online consumer reviews from different review sources moderated by product type?

Related works

Product type and online consumer reviews on online shopping

Prior research classified consumer products into two types, search products and experience products, based on a criterion whether consumers can obtain enough information on the product before purchasing (Klein 1998; Nelson 1970; Nelson 1974). The amount of effort and cost required to acquire information about dominant attributes of a product is used to distinguish the two product types. According to Klein (1998), search products are those products whose information about dominant attributes can be easily acquired before purchasing. When dominant attributes of a product cannot be assessed without direct experience or when the information search is more costly and difficult than direct experience, it is considered an experience product.

Although the Internet has reduced the search cost for consumers (Limayem et al. 2000; Lynch and Ariely 2000; Olshavsky and Granbois 1979; Ratchford et al. 2003), it is still difficult for consumers to obtain sufficient information on experience products. Information on the important attributes of experience products is not easily found from the Internet (Levin et al. 2005). Product descriptions of experience products might not provide satisfactory information, and it is often the case that the quality of the product can only be evaluated after trying or inspecting it (Hu et al. 2008). Consequently, online transactions of experience goods tend to involve more uncertainties than that of search products (Hu et al. 2008), and as such, consumers are more likely to use online shopping for search products rather than experience products (Girard et al. 2006; Levin et al. 2005). It means that consumers' willingness to buy from online would be different depending on whether information about the dominant attributes of a certain product can be accessed before purchasing through the Internet.

Klein (1998) argued that using the Internet as an interactive media can transform experience products into search products by offering indirect experiences to consumers. Virtual experiences generated from the use of the Internet can serve as a vehicle through which consumers can evaluate dominant attributes of experience products (Klein 1998; Zhou et al. 2007). Sellers can offer virtual experiences to consumers, thereby reducing the perceived risk of buying an experience product from online shopping.

Another means to obtain information on an experience product is online consumer reviews. Online consumer reviews are generated by fellow consumers who have purchased and experienced the products (Park et al. 2007). Consumers put their experiences and thoughts about the products in their online consumer reviews and use them as an informant and a recommender to help other consumers (Park et al. 2007). It is important to note that consumers evaluate online consumer reviews as being more informative and useful than other online information in terms of credibility and relevance (Chen and Xie 2008). Thus, online consumer reviews can be used to satisfy consumers' idiosyncratic tastes and positively affect their buying behaviours (Chatterjee 2001; Chen and Xie 2008; Park et al. 2007). Also, it is found that these online consumer reviews are one of the most important determinants of product sales from online shopping (Chevalier and Mayzlin 2006; Dellarocas et al. 2007; Duan et al. 2008; Hu et al. 2008).

Classification of online consumer review sources

Even when the information is all the same, the difference in information source can bring about a significant impact on the consumers' evaluation of information (Andreoli and

Worchel 1978; Harkins and Petty 1987; Kelman 1961). In other words, receiver's perception on a given piece of information can be different depending on the information sender. Prior research called this phenomenon as a "source effect", and has shown that it can influence consumers' perceived credibility for a particular piece of information and their buying behaviours (DeShields et al. 1996; Harmon and Coney 1982; Sternthal et al. 1978; Wilson and Sherrell 1993). Product information from a credible source has a stronger impact on consumers' attitude and purchase intention towards the product. Accordingly, information source can be a crucial variable in moderating consumers' consumption of information.

Bailey (2005) suggests that there are two kinds of review sources from which consumers can read online consumer reviews: company-operated websites and consumer-operated websites. Consumers visiting company-operated review sites can read online consumer reviews, get other product-related information, and also efficiently compare products from various manufacturers. One of the most important features of company-operated review sites is the use of review templates, which provide a standardized structure for online consumer reviews. For example, star ratings help consumers to quickly understand whether the product is recommended or not. In this study, we refer to company-operated review sites as marketer-developed review sites. At one extreme, there are marketer-developed review sites that encourage consumers to write reviews of the products sold on the site. For example, amazon.com and qvc.com now use online consumer reviews instead of the consumers' testimonials that direct marketers have traditionally used in their advertising. Many consumers may perceive the online reviews on these marketer-developed sites as being biased in favour of the seller. On the other hand, many well-known marketer-developed review sites, such as epinions.com, consumerreview.com and cnet.com, are operated by independent agents, which direct consumers to other sites to actually buy a reviewed product. These independent sites claim to offer unbiased advice and to have no control over what consumers say in their reviews. Nevertheless, all marketer-developed review sites are established to pursue commercial benefits, such as revenue from advertising and from generating leads.

In the same manner, consumer-operated review sites are termed as consumer-developed review sites in this study, and online communities and blogs represent consumer-developed review sites. The most distinctive difference between marketer-developed review sites and consumer-developed review sites is whether social relationships can be formed among consumers who join those sites. Social activities are an important motivation for consumers to participate in online communities or blogs, and therefore,

reviews in a consumer-developed site are generated by consumers who want to exchange product information with fellow consumers. The purpose of reviewers in online communities or blogs is not to seek rewards or incentive for engendering reviews but to voice their opinions about products through the social network. In fact, some consumers discount the reviews in independent agent sites because these sites pay reviewers for their feedback (Bailey 2005). It is possible that consumers perceive reviews on all marketer-developed reviews sites as less credible than reviews on consumer-developed sites. Table 1 shows several differences between consumer-developed review sites and marketer-developed review sites.

An online community is made up of consumers who have similar interests and want to develop social relationships by sharing opinions and ideas with other consumers (Rheingold 1993). Kozinets (2002) suggests that consumers who share enthusiasm and knowledge about certain products with others will establish online communities, where they take part in various online activities such as praising or complaining about the products. An online discussion forum and a bulletin board are examples of an online community (Brown et al. 2007).

A blog can be defined as quickly and frequently updated Web pages with a reverse chronological sequence of dated entries. It tends to be highly personal and be read by repeated visitors (Kumar et al. 2004; Moor and Efimova 2004; Nardi et al. 2004). While a blog is a personal medium for consumers to present their ideas, it can grow with the bloggers' participation into a huge social medium by establishing networks (Lenhart and Fox 2006; Marlow 2002; Marlow 2004; Nardi et al. 2004). Sharing knowledge and experiences are important reasons why consumers connect through a blog network, and thus, the wisdom of crowds can be developed thorough large blog communities (Kaiser et al. 2007; O'reilly 2007).

Hypotheses

To overcome ambiguity and increase quality of decision making for a product purchase, consumers tend to rely on word-of-mouth, and this reliance is more evident for the case of experience products than for search products (Bone 1995; Nelson 1970; Nelson 1974). Product information available from the Internet, such as consumer feedback, product recommendations, and word-of-mouth, has stronger effects on consumers considering experience products than search products from online shopping (Huang et al. 2009; Park and Lee 2009; Senecal and Nantel 2004). It can be said that consumers are more likely to participate in word-of-mouth communications with others to share and exchange information about experience products than they

Table 1 Differences among online consumer review sources

Online consumer review sources	Founder	Objectives	Standardized review format	Social relationship among participants	Examples
Marketer-developed sites	Sellers	Commercial benefits	Available	Limited or none	epinions.com, consumerreview.com, cnet.com, consumersearch.com, rateitall.com
Consumer-developed sites	Consumers	Knowledge sharing, association with others	None	Frequent and strong	Online community, blog

do for search products because it is difficult for consumers to access enough information about experience products by other means (Chen et al. 2004; Mitra et al. 1999).

Online consumer reviews are known as User Generated Content (UGC), and they are somewhat different from electronic word-of-mouth in terms of whether the content is generated by users or it is conveyed by users (Cheong and Morrison 2008). Electronic word-of-mouth is *delivered by consumers* after it is produced by sellers or consumers. UGC, such as online consumer reviews, are *generated by consumers* (Cheong and Morrison 2008). Nevertheless, online consumer reviews, in a sense, can be considered as a kind of electronic word-of-mouth, as they are disseminated through electronic word-of-mouth.

Considering that consumers assessing experience products are more likely to take advantage of word-of-mouth communication than consumers assessing search products, it is expected that the consumers' perception of online consumer reviews would be different depending on the product type. Due to the nature of experience products, consumers will more likely to read reviews written by previous consumers to help determine the quality of a product and to reduce uncertainty associated with the online transaction (Hu et al. 2008). Thus, we can assume that consumers are more influenced by online consumer reviews for experience products than for search products.

Consumers deem information they found in UGC more trustworthy than information they found in Producer Generated Content (PGC), such as Web ads (Cheong and Morrison 2008). Also, product recommendations from seller-independent websites influence consumers more than those from seller-dependent websites (Alba et al. 1997; Bakos 1997; Lynch and Ariely 2000). For example, consumers recognize that product information from Internet forums that are independent of sellers to be more persuasive than seller-created product information from corporate Web pages (Bickart and Schindler 2001). Consumers may think that consumer-developed review sites are more independent from sellers than marketer-developed review sites. Thus, online consumer reviews from consumer-developed review sites have a stronger effect on consumers as they are expected to provide consumers with more candid product information and wider alternatives than those from marketer-developed review sites.

Also, consumers' perception of online consumer reviews can be different even between consumer-developed review sites. It has been found that consumers who seek product information are more likely to rely on an online community, such as a discussion board, than a blog (Cheong and Morrison 2008). That is, consumers perceive an online community as a more trustworthy source than a blog.

This study looks into the two different types of review sites where consumers can access product reviews. The first type is consumer-developed review sites, such as an online community and a blog. They have been established by consumers sharing same interests, in order to share their knowledge and experiences. In consumer-developed review sites, participants tend to develop empathy towards each other, which encourages them to offer more candid and relevant product information to help each other. It is likely for consumers who join these kinds of networks to develop social relationships (Brown et al. 2007; Kozinets 2002; Marlow 2002; Marlow 2004; Rheingold 1993). Strong ties can be developed in online communities and blogs, as repeated visitors can communicate with other consumers frequently (Brown et al. 2007; Kumar et al. 2004). Therefore, consumers would believe that online consumer reviews delivered via an online community and a blog are written with no agenda behind them.

Second, most of the marketer-developed review sites are sponsored or managed by sellers. It is rare for consumers who participate in marketer-developed review sites to develop personal relationships. It is often the case that they generate online consumer reviews to get some rewards from sellers. Readers of these reviews know about this, and may consider reviews from marketer-developed review sites as another kind of Web ads for products that is seller-oriented rather than consumer-oriented. This study suggests that although online consumer reviews are UGC, consumers perceive that online consumer reviews from marketer-developed review sites are far closer to PGC than UGC.

This study also proposes that the effect of a review on consumers' perception can be different depending on the interaction between review source and product type. Bei et al. (2004) analyzed consumers' online information search behaviours, and found that their preference for online information sources is different across product type.

Consumers tend to rely on UGC from fellow consumers when they seek information for experience products through the Internet. In contrast, consumers who seek information for search products put more value on PGC from retailers and manufacturers. Given that whether consumers consider a review as PGC or UGC may depend on review source, we expect that there is a significant interaction between review source and product type. That is, the effect of review source on consumers' perception of a review would be moderated by the product type. It means that consumers would be more likely to rely on a review from consumer-developed review sites when they are seeking information for experience products, and that those who search information for search products tend to depend on a review from marketer-developed review sites.

Based on prior research on consumers' perception of electronic word-of-mouth and information search behaviour, this study investigates whether consumers' perception of a review is different depending on the interaction between review source and product type, particularly in terms of the perceived credibility. Credibility is the most important criteria for assessing information quality (Fogg and Tseng 1999; Rieh 2002; Wathen and Burkell 2002). Wathen and Burkell (2002) argue that an offer of credible information is an essential requirement to induce an effect on consumers' attitude and behaviour. Credibility is especially important in the Internet environment because it contributes to the formation of consumers' online trust (Corritore et al. 2003; Rieh and Danielson 2007). According to Choi and Rifon (2002), building credibility on the Internet is an important factor for the success of e-biz, and offering credible product information is a challenge for online marketers.

Discussions presented in this section lead to the following hypotheses:

H1   Consumers perceive an online consumer review for an experience product more credible than that for a search product

H2-1 Consumers perceive an online consumer review for an experience product from a consumer-developed review site more credible than that from a marketer-developed review site

H2-2 Consumers perceive an online consumer review for a search product from a marketer-developed review site more credible than that from a consumer-developed review site

These hypotheses are established to examine whether consumers' perceived credibility of an online consumer review is different depending on the interaction among review source and product type, that is, the main research question proposed in this study.

Research design and method

Design and subjects

This study first examines whether there are significant main effects from review source and product type on consumers' perceived credibility of an online consumer review. Also, an interaction effect between them is investigated. Six different experimental conditions are generated by a 3×2 factorial design with three types of review sources (an online community, a blog, and a marketer-developed review site) and two types of products (a search product and an experience product) to test the hypotheses. Three hundred undergraduate and graduate students participate in an online experiment through e-mails. Considering that most active online shoppers are young adults under the age of thirty, this choice of samples seems suitable for the purpose of this study (Horrigan 2008; Lenhart and Fox 2006; Limayem et al. 2000; Mack et al. 2008). The participants are assigned to one of the factorial cells, and each of the six conditions is made up of fifty participants. The number of males is equal to that of females for each condition.

Variables

This study selected subject products for the experiment based on prior research. Most goods possess both search and experience attributes (Sheffet 1983), and the demarcation between search products and experience products is not always unambiguous. Still, the typologies by Nelson (1970, 1974) and Klein (1998) which stem from information economics are generally accepted for the research of product type. As such, this study adopts their definition and designs the experiment accordingly.

A digital camera is chosen as a search product (Choi et al. 2006; King and Balasubramanian 1994; Xia and Bechwati 2008). Many consumers read online consumer reviews when they are purchasing electronics from online shopping because electronics are comparatively more sophisticated than other products (Park et al. 2007). For an experience product, a movie is chosen for the experiment (Chang and Ki 2005; Reinstein and Snyder 2005). Several studies have used a movie to identify the effects of online consumer reviews on online shopping (Chang and Ki 2005; Dellarocas et al. 2007; Duan et al. 2008; Reinstein and Snyder 2005). Specifically, this study chooses 'EOS 500D (Cannon)' digital camera and the movie 'Avatar'. They are both well known to consumers and numerous online consumer reviews are written about them. To test whether this choice of products is adequate, i.e. the participants perceive the camera as a search product and the movie as an experience product, they are asked to evaluate their perception of products.

Online consumer reviews for the experiment are generated based on a few actual online consumer reviews from the Internet. The reviews recommend products to participants by delivering positive messages. All participants in the three conditions where a digital camera is used are presented with the same review article on the camera. The process is the same for the participants of the other three conditions in which a movie is used. Also, the participants are informed that the online consumer review they read has been taken from one of three review sources – a marketer-developed site, online community, and a blog.

Prior research defined media credibility as worthiness of being believed. They used multidimensional constructs, such as believability, fairness, accuracy and depth of information, to measure credibility (Johnson and Kaye 2004; Johnson and Kaye 2009; Johnson et al. 2008). This study uses these four dimensions to gauge consumers' perceived credibility of an online consumer review about the subject products. After reading an online consumer review from different review sources, participants evaluate how believable, fair, accurate, and in depth it is, based on a seven-point scale.

There are several variables that can affect consumers' decision making besides review source and product type, and these variables need to be controlled in order to increase the validity of the experiment. Above all, consumers' prior knowledge of products should be considered, and it is measured by having the participants specify their prior knowledge from "I have never heard of it" to "I already know about it" based on a seven-point scale (Park et al. 2007). In addition, participants' responses to an online consumer review can be different depending on whether they are skilled at online shopping (Goel and Prokopec 2009). Thus, participants are asked to evaluate their online shopping frequencies from "rarely" to "very frequently" based on a seven-point scale.

Experimental procedures

The experiment was conducted right after 'Avatar' was released. Participants took part in an experiment through a URL that was an e-mail attachment, and they completed it individually. They were instructed to read a cover story and were assigned one of six experimental conditions.

The experiment proceeds with the following five steps: first, participants read brief information about the product. Second, they are informed of the review source from which an online consumer review has been extracted. Then, an online consumer review on the product is presented to them. Next, they are asked to evaluate the credibility of the review based on the four measures. Finally, participants are required to answer several questions for control variables and manipulation checks. The experiment session wraps up by having them filling in demographic information. Participants are asked to complete the first three steps within one minute each in order to make them focus on the experiment.

Figure 1 presents an example of a blog review for an experience product, a movie. The exact same page including text, pictures, layout is presented to the participants in each of the three movie conditions. The only difference among those three conditions is whether the page is described as coming from a marketer-developed site, an online community, or a blog. Different text and pictures, but the identical layout, are used for the three digital camera conditions. Informing the type of review source for the search product conditions is done the same way as the experience product conditions.

Results

Manipulation checks

Before testing the hypotheses, we need to ensure that the participants perceive the two types of experimental products in different ways: one as a search product and the other as an experience product. For this purpose, they are asked to answer the following two questions (Nelson 1974; Park and Lee 2009): "Do you think that you can get enough information about the dominant attributes of this product before purchasing?", and "Do you think that online information searches give you sufficient information for you to evaluate this product before purchasing?" A seven point scale from one, absolutely no, to seven, absolutely yes is used to measure their responses.

The factor analysis shows that two items have a single factor structure (Cronbach's Alpha=0.810, eigenvalue= 1.681), and thus a mean value of the two items is used for manipulation checks. The ANOVA result shows that there is a significant difference in the way participants perceive the two products (F(1, 298)=710.453, p=0.000: M=5.660 and 3.297). It means that participants are more likely to think that they can get enough information from the Internet, for a digital camera than for a movie. It is thus concluded that the participants' perception of product type is manipulated successfully.

Hypotheses testing

The participants' perceived credibility of an online consumer review is measured in the four dimensions: believability, fairness, accuracy and depth of the review (Johnson and Kaye 2004; Johnson and Kaye 2009; Johnson et al. 2008). They also have a single factor structure (Cronbach's Alpha=0.807, eigenvalue=2.554), and thus a mean value

Fig. 1 An example of a blog review

of the four items is used as a single dependant variable. The participants' prior knowledge on the subject products and their online shopping experiences are used as covariates.

ANCOVA and ANOVA analysis is conducted to test the hypotheses. Table 2 presents the means and standard deviations of the dependant variable in six experimental conditions. Table 3 shows the main effects and the interaction effect of independent variables, review source and product type. It is found that the covariates have no significant effects on the dependent variable ($F(1, 292)=0.020$, $p<0.886$ and $F(1, 292)=0.735$, $p<0.392$).

Table 3 shows there exists a main effect of product type on the perceived credibility ($F(1, 292)=48.620$, $p=0.000$). But while there exists a significant main effect of review source on participants' perceived credibility of an online consumer review ($F(2, 292)=6.922$, $p<0.001$; see Table 3), it should be noted that a significant interaction exists between review source and product type ($F(2, 292)=9.802$, $p=0.000$; also Table 3). It implies that the product type can moderate the effects of review source on participants' perceived credibility of an online consumer review, and it is visible in

Fig. 2. This raises a question of how the interaction between review source and product type influences participants' perceived credibility of a review. To answer this question, an additional analysis is needed separately for each type of the products, to test the differences in perceived review credibility between the review sources.

Specifically, to test whether the participants' perceived credibility of an online consumer review is higher for an experience product than for a search product, a follow-up ANCOVA analysis has been conducted. The result indicates that while product type induces meaningful difference on participants' perceived credibility of a review from consumer-developed review sites ($F(1, 96)=41.398$, $p=0.000$ for an online community review; $F(1, 96)=23.490$, $p=0.000$ for a blog review), there is no significant difference in the perceived credibility between the two products in case of a marketer-developed review site ($F(1, 96)=0.276$, $p<0.600$). It means that, for consumer-developed review sites, consumers are more influenced by a review for an experience product than for a search product. On the other hand, in case of marketer-developed review sites, product type does not play an

Table 2 Descriptive statistics of perceived review credibility

		Mean and standard deviation of the perceived credibility		
		Movie	Digital Camera	Total
Marketer-developed review site		4.410(0.771)	4.315(0.809)	4.363(0.788)
Consumer-developed review site	Online community	5.295(0.804)	4.250(0.794)	4.773(0.953)
	Blog	4.875(0.751)	4.085(0.825)	4.480(0.880)
Total		4.860(0.852)	4.217(0.810)	4.538(0.890)

Table 3 Main effects and the interaction effect among variables

Variables	Sum of squares	F	Significance
Prior knowledge	0.013	0.020	0.886
Shopping experience	0.464	0.735	0.392
Product type	30.686	48.620	0.000
Review source	8.737	6.922	0.001
Review source * Product type	12.373	9.802	0.000

important role on consumers' perceived review credibility. Thus, H1 can be partially accepted only for a review from consumer-developed review sites, and this study suggests that perceived credibility of a review for the two types of products can be different across reviews source.

For an experience product, participants' perceived credibility of an online consumer review is greater for consumer-developed review sites than for a marketer-developed review site ($F(2, 147)=16.283$, $p=0.000$), confirming H2-1. Table 4 shows that there are meaningful differences in the participants' perception of a review for an experience product among different review sources. In particular, consumers considered a review from an online community as the most credible product information when they search for information about an experience product. This suggests that consumers' perceived review credibility can be different even among consumer-developed review sites.

In case of the search product, there is no significant difference in participants' perception of review credibility across different review sources, and therefore, H2-2 is not supported. While the plot for the digital camera result in Fig. 2 suggests that participants' perceived credibility of an

online consumer review is greater for a marketer-developed review site than for consumer-developed review sites, the results of our additional test in Table 5 finds that the difference is not significant ($F(2, 147)=1.073$, $p<0.345$). We conclude that consumers do not recognize the review source as an important factor to influence their perception of reviews when they are searching information for search products on the Internet.

In summary, the interaction between review source and product type influences the way consumers perceive credibility of an online consumer review, and it can be the answer for our research question. Therefore, it is expected that consumers' preference for online consumer review sources are different depending on the product type. First, consumers perceive an online consumer review for an experience product more credible than that for a search product *only when* the review comes from consumer-developed review sites. Second, while consumers give higher credits to a review from consumer-developed sites than from marketer-developed sites when the review is on an experience product, the review source has no significant impact on perceived review credibility if it is for a search product.

Discussion and implications

Online consumer reviews can be used as an efficient communication tool to reduce consumers' uncertainty and perceived risk of buying experience products from online shopping. This study has contributed to enlarging research boundaries about online consumer reviews by identifying consumers' different perceptions in response to various online consumer review sources. The findings of this study bring several academic and managerial implications about how to use online consumer reviews to assist the online shopping behaviours of consumers.

This study shows that consumers perceive an online consumer review's credibility differently, and detailed nature of the difference depends on the interaction between where the review is published and which type of product is being reviewed. In other words, product type can moderate the influence of review source on perceived review credibility, and, thus, how consumers perceive review source and product type can determine their adoption of the review.

First, perceived credibility of a review from different sources varies across product type. While consumers are more likely to be influenced by a review for an experience product than for a search product when the review comes from consumer-developed review sites, the product type has no significant effect on review credibility when a review is from marketer-developed review sites. It implies that consumers who want to evaluate dominant attributes of experience products expect to benefit more from a review
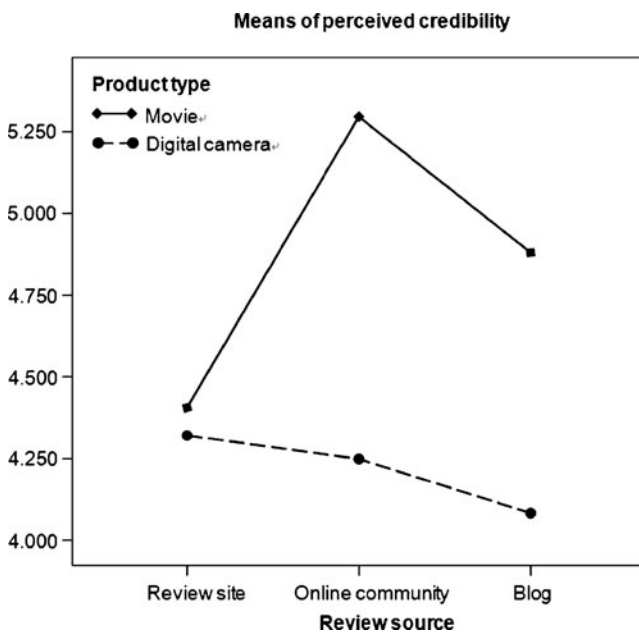
Fig. 2 The interaction effect for perceived review credibility

Table 4 Multiple comparisons of perceived review credibility for an experience product

Multiple comparisons	(i) source	(j) source	Mean difference (i-j)	Significance
Tukey HSD	review site	online community	−0.885	0.000
		blog	−0.465	0.009
	online community	review site	0.885	0.000
		blog	0.42	0.021
	blog	review site	0.465	0.009
		online community	−0.42	0.021

from consumer-developed review sites. Thus, findings from prior research arguing that consumers rely on various kinds of communication mechanisms to assess quality of experience products (Huang et al. 2009; Park and Lee 2009; Senecal and Nantel 2004) can only be applied to online consumer reviews from online communities and blogs.

This might be due to the fact that consumers think that they can better acquire indirect experiences about experience products from a review in online communities and blogs than that of marketer-developed review sites. Consumers establish online communities and keep blogging to develop social relationships on the Internet. Particularly, one of important reasons for consumers' developing and participating in online communities and blogs is to share their knowledge and experiences about certain products in the context of those social relationships. Therefore, consumers may feel that they can obtain honest and unbiased indirect experiences about a product, especially for experience products, from their online neighbours in online communities and blogs.

According to the findings from this study, consumers hesitate to use a review from marketer-developed review sites to make their decision of purchasing experience products online. This is possibly because they believe marketer-developed review sites are founded or sponsored by sellers to pursue commercial benefits whereas consumer-developed review sites are independent of sellers. Thus, consumers may feel that reviews from marketer-developed review sites provide biased product information in line with sellers' objectives and that they cannot get trustworthy indirect experiences of fellow consumers about the experience products.

Second, consumers' perception of an online consumer review depends on the review source. In particular, the source effect exists when consumers are seeking a review for experience products. Findings of prior research that consumers' perception of information is different for different sources of the information are valid for online consumer reviews about experience products (DeShields et al. 1996; Harmon and Coney 1982; Sternthal et al. 1978; Wilson and Sherrell 1993).

It has also been found that consumers' perceived credibility for a review about an experience product is the highest when it comes from an online community. Consumers seeking reviews about experience products seem to pay attention to – perhaps subconsciously – whether the review sites are established by consumers or not, and they perceive an online community as a more independent and trustworthy review source than others. It is interesting to note that this result is not universal across different topics that a review article discusses. For instance, it was found that consumers seeking information on political issues tend to perceive a blog as a more credible information source than an online community (Johnson and Kaye 2009; Johnson et al. 2008). In case of product information search, particularly for experience products, this study suggests that consumers are more likely to rely on an online community than a blog, supporting the findings of Cheong and Morrison (2008).

This study reveals that there is no meaningful source effect in consumers' perception of review credibility for search products. It seems that consumers do not base their evaluation of a review for search products on where the review comes from. Consumers may not feel that they need

Table 5 Multiple comparisons of perceived review credibility for a search product

Multiple comparisons	(i) source	(j) source	Mean difference (i-j)	Significance
Tukey HSD	review site	online community	0.065	0.915
		blog	0.230	0.333
	online community	review site	−0.065	0.915
		blog	0.165	0.566
	blog	review site	−0.230	0.333
		online community	−0.165	0.566

much of indirect experiences to evaluate search products. Consumers tend to simply refer to reviews for search products regardless of its review sources. Therefore, sellers can satisfy consumers more easily with reviews from marketer-developed review sites when consumers are searching for information on search products.

Findings of this study offer a few insights to sellers in terms of how they can enhance their online sales. An online consumer review can play an important role as an informant and a recommender for product information about experience products. The fact that consumers can easily conduct Internet search does not necessarily mean that experience products have become search products (Nakayama et al. 2010). This study proposes that a shift from experience products to search products requires effective use and delivery of online consumer reviews to prospective consumers. Sellers selling experience products on the Internet should consider how they can effectively offer online consumer reviews to consumers in order to encourage them to overcome their perceived uncertainty of online shopping (Bone 1995).

Sellers can benefit from supporting online opinion leaders to play active roles in an online community, as consumers tend to perceive product recommendations from an online community more credible than those from other websites. It would be more effective to support the development of an online community for consumers than to sponsor other websites for Web ads. It is particularly so these days when readily available social relationships on the Internet empowers consumers with a much stronger role in the online shopping environments (Deighton and Kornfeld 2009). Sellers may have incentives to pose themselves as a consumer and present their promotion of experience products as online consumer reviews, taking advantage of the anonymity afforded by an online community (Godes and Mayzlin 2009; Mayzlin 2006).

In case of search products, sellers should consider how to develop and improve unique features of marketer-developed review sites to help consumers conveniently evaluate their products. While reviews from marketer-developed sites do not seem useful for the experience product, sellers still retain some marketing power to promote their search products through online consumer reviews. Therefore, sellers should distinguish their review sites by offering consumers reviews with features that are not available in consumer-developed review sites. For example, sellers can develop various features such as identification of a reviewer type and visual cues to help consumers efficiently evaluate their products (Davis and Khazanchi 2008).

It is also important for sellers to recognize different types of products have different channels to most effectively communicate with consumers. Considering that sellers have limited marketing resources to promote their products, product type should be considered in choosing proper review sources before they try to engage consumers in the online marketing effort. That is, sellers need to carefully take into account the product type when they formulate marketing strategies of using online consumer reviews to improve product sales.

Limitations and future research

This study has several limitations. First, further research is needed to generalize the findings of this study. This study used a digital camera for a search product and a movie for an experience product. Although each of them is one of the well-known, representative products for search and experience products, future research should consider various kinds of products to generalize consumers' perception of product type on online shopping. The participants of this study's experiment were limited to only undergraduate and graduate students, which may need to be expanded for generalizing its results. While young adults are reasonable samples for analyzing consumers' online behaviours (Cheong and Morrison 2008; Gallagher et al. 2001), it needs to include subjects from various age groups to increase the validity of findings.

Second, this study used only positive reviews for an online experiment. Consumers access both positive reviews and negative reviews on the Internet, and the review valence may affect the results of this study. Although it has been found that most of the online consumer reviews on the Internet have been positive (Chevalier and Mayzlin 2006; Dellarocas and Narayan 2006), negative reviews should be considered to investigate the effect of online consumer reviews on online shopping.

Third, the control variables of this study were consumers' prior knowledge of products and online shopping experiences. It should be noted that there are other variables besides those which can influence consumers' perception of online consumer reviews. Product characteristics, such as brand and price of a product, and consumer characteristics, such as involvement and commitment towards a product, are examples of such variables that can potentially influence the outcome.

Lastly, this study did not consider the differences between marketer-developed sites that sell products like amazon.com and independent sites that do not sell products such as epinions.com, nor the differences between various types of online communities and blogs (John 1999; Spaulding 2010; Wei 2009). Future research can contribute to enlarging research areas of consumers' online information search behaviour and source effect on the Internet by comparing various types of websites. Findings of such study can be used to examine the reason why consumers

select certain review source to get product information. In particular, it may be interesting for future research to see if consumers' reason for relying on certain review source fits the theoretical explanation of information search behaviour from prior research.

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