



Journal of Internet Banking and Commerce

An open access Internet journal (<http://www.arraydev.com/commerce/jibc/>)

Journal of Internet Banking and Commerce, August 2011, vol. 16, no.2
(<http://www.arraydev.com/commerce/jibc/>)

Effects of Information Intermediary Functions of Comparison Shopping Sites on Customer Loyalty

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Abstract

Customers are able to enjoy convenience and save time by turning to e-commerce for purchasing services and products. However, the increasing availability of product information and large differences in prices can lead to information overload for customers. Comparison shopping sites can address this problem by allowing customers to make more informed purchase decisions. Comparison shopping sites function as intermediaries, maintaining intentions and encouraging repeat visits. This study evaluates the effects of information intermediary functions of comparison shopping sites on customers' e-loyalty to comparison shopping sites.

Keywords: internet shopping; comparison shopping site; e-loyalty

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INTRODUCTION

The use of cyberspace as a platform for shopping by customers has increased dramatically as a result of a substantial increase in the number of web-sites dedicated to shopping. However, this increase in the number of e-commerce sites can result in information overload for potential buyers, which can make it difficult for buyers to select appropriate sites (Afuah and Tucci, 2000). In this regard, comparison shopping sites have emerged to help customers make a better selection, and in the process, they have changed the playing field for existing e-commerce sites (Jin and Lee, 2001). In particular, from the perspective of information brokerage, comparison shopping sites can help reduce information overload by integrating and organizing information. Further, comparison shopping sites can be considered as a viable marketing channel for increasing sales.

When comparison shopping sites first emerged, people were either unaware of their existence or under the impression that such sites provided unreliable information. In addition, because comparison shopping sites were difficult to use (Jin et al., 2003), customers avoided them. However, once they became familiar with comparison shopping sites, they began comparing prices of products such as computers, CDs, and other electronic goods.

E-commerce sites have refused to cooperate with comparison shopping sites, citing technological and legal grounds for the leakage of pricing information (Crowston and MacInnes, 2001; Wagner and Turban, 2002). Around 2001, after the burst of the dot-com bubble, e-commerce sites started to embrace the idea of comparison shopping sites because comparison shopping sites offered sellers additional opportunities to promote their sites and attract customers at lower costs.

Comparison shopping sites can help link e-commerce sites with customers by providing pertinent information on prices, products, and technical specifications. In other words, comparison shopping sites help customers to reach a rational purchase decision by facilitating their comparison of prices and evaluation of product information. In addition,

the continued use of comparison shopping sites as a means of comparing products by customers can enhance e-loyalty (Anderson et al., 1994).

Accordingly, comparison shopping sites provide potential buyers with pertinent information on e-commerce sites so that they could make informed decisions based on their selection criteria of information. As a result, potential buyers have continued to use comparison shopping sites for their purchases.

This study analyzes the effects of information intermediary functions of comparison shopping sites on customer e-loyalty, that is, purchase behavior of customers using e-commerce sites. More specifically, the study examines the extent of customer loyalty to a particular comparison shopping sites for a product purchase. Building on previous studies examining comparison shopping sites as intermediaries, this study defines and classifies the following eight information intermediary functions: information integration, product information provision, product searches, information filtering, information exchange, personalization, information reliability, and transaction facilitation. This study examines customer e-loyalty by surveying customers using comparison shopping sites and conducting a covariance structure analysis.

THEORETICAL BACKGROUND AND HYPOTHESIS

1) Comparison Shopping

Compared with the offline environment, the online environment allows customers to quickly and easily choose among a vast variety of products, resulting in information overload. Comparison shopping sites emerged in the mid 1990's to address this problem. BargainFinder.com, which appeared in 1996, was one of the first sites, and it was followed by more well-known sites typically based in the U.S., including Mysimon.com, Jango.com, Eopinion.com, and Bizrate.com.

Although the main role of comparison shopping sites is to reduce problems associated with purchase decisions, comparison shopping sites are typically classified based on the various ways in which they process product information. Wan et al. (2003) classified comparison shopping sites based on comparison shopping agents, information input/output format, and information processing methods.

In addition, the technology platform of comparison shopping sites can be classified into two types of sites: client-based sites (which require the download/installation of a program) and server-based sites (which do not require the download/installation of a program). BargainFinder.com, a server-based technology platform, charged relatively high placement fees to sellers wishing to list their products on the site (Krulwich, 1996). On the other hand, Jango.com, a client-based platform, required clients to download their program (Doorenbos et al., 1997). However, clients had difficulty in installing the program, and as a result, potential clients stayed away.

Comparison shopping sites providing real-time information updates by using intelligent agent technology can be classified into intelligent agent-based sites and data-based sites. Examples of those sites include Danawa.co.kr (computer parts) and Metaprice.co.kr (books). In addition, comparison shopping sites have many simple but multifaceted functions. Danawa.co.kr has specific functions, and Metaprice.co.kr has both recommendation and comparison functions.

2) E-Loyalty

Many comparison shopping sites rely on a revenue model composed of banner advertising and listing fees (Clark, 2000). To generate revenues, comparison shopping

sites require a continuous stream of visitors to their sites. In this regard, this study examines e-loyalty by defining it as repeat visits to a site. In marketing research, customer loyalty is well defined as the repeat purchase of a product or a service within a specific period of time and is related to psychological commitment and attitudes based on behavioral tendencies, approaches, and customer preferences. Further, customer loyalty is conceptualized as a variable measured by attitudes and the repeat purchase of a brand (Dick and Basu, 1994). Czepiel and Galimore (1987) defined customer loyalty as a specific attitude based on experiences accumulated through the repeated exchange relationships. Customer loyalty is also viewed as the strength of the relationship between individual attitudes toward an entity (e.g., a brand, a service, a store, or a vendor) and repeat patronage (Dick and Basu, 1994).

The newly defined concept of e-loyalty extends the concept of traditional customer loyalty to online customer behavior. Although the theoretical basis of traditional customer loyalty is very similar to that of e-loyalty, e-commerce has some distinct characteristics. Schultz (2000) explained that customer/brand loyalty in cyberspace is a concept derived from the traditional product driven. In addition, there are several differences between e-loyalty and store loyalty (Corstjens and Lal, 2000), including the way in which they build repeat visitor. Reichheld and Scheffer (2000) suggested that e-loyalty is all about quality customer support; on-time delivery; compelling product presentation; convenient and reasonably priced shipping and handling; and clear and trustworthy privacy policies.

Previous studies of customer loyalty have focused on the offline purchase behavior or attitude of customers. Expanding on the concept of loyalty, an increasing number of studies have been examining online purchase behavior. The present study clarifies the concept of customer loyalty in online transactions as "e-loyalty," which, from the perspective of business models, can be considered as a major factor influencing the success of comparison shopping sites.

3) Intermediary Functions

Gellman (1996) mentioned the Internet as a mechanism for disintermediation. However, Balley and Bakos (1997) refuted the disintermediation hypothesis and Hagel and Rayport (1997) argued the emergence of infomediaries. Further, a report by the OECD in 1998 forecasted the emergence information reintermediation, and Chiru and Kauffman (1999) developed a model of intermediation, disintermediation, and reintermediation (IDR), which was verified by Turban et al. (2000). Palvina and Vemuri (1999) argued the difficulty of disintermediation.

Based on these early studies of intermediation, research on disintermediation has expanded to include information integration, production information distribution, quality checks, guarantees (Whiston et al., 1997), timely information retrieval, filtering (Bailey and Bakos, 1997), trust certification (Palvia and Vemuri, 1999), information collection agents (Hagel and Rayport, 1997) and personalization (Negroponte, 1997). King (1999) defined disintermediation and re-intermediation in e-commerce, and Rubinstein and Wolinsky (1987) developed an intermediation model based on buyers, sellers, and middlemen. Chircu and Kauffman (2000) argued that intermediaries can increase transactions.

Thus, the present study summarizes the role of intermediators as follows: information integration, information quality, guarantees, timely information retrieval, information filtering, information exchange, transaction facilitation, trust, and personalization. Existing comparison shopping sites integrate product information to reduce the need for customers to visit multiple sites to purchase a product. In other words, comparison

shopping sites connect buyers with a comprehensive range of new sellers. Further, comparison shopping sites provide sellers with new opportunities to reduce marketing costs and attract potential buyers.

The key advantage of comparison shopping sites lies in their ability to facilitate price comparisons on one screen. However, an increasing number of competitors have prompted comparison shopping sites to offer additional functions, including information integration, product information provision, product searches, information filtering, and information exchange, among others. As a result, this study defines comparison shopping sites as new information intermediators reintermediating the relationship between sellers and buyers and thus examines the information intermediary role of comparison shopping sites, which can influence customer loyalty.

METHODOLOGY

1) Measures

In Korea, there are currently several comparison shopping sites that provide intermediation without the use of intelligent agent technology. Therefore, we regarded shopping sites with a simple comparison function as information intermediation sites and analyzed the effects of the following eight information intermediary functions: information integration, product information provision, product searches, information filtering, information exchange, information reliability, personalization, and transaction facilitation on the e-loyalty of customers. Table 1 shows the measures used in the study.

Table 1. Questionnaire items for each factor

Factor	Variable	Item
Information Intermediation	Information integration	The site provides information integration
	Product information provision	The site provides quality information
	Product searches	The site allows for product information searches by the customers
	Information filtering	The site filters out unnecessary information
	Information exchange	The site allows for information exchange between buyers and sellers
	Information reliability	The site can be trusted
	Personalization	The site provides information based on individual preferences
	Transaction facilitation	The site facilitates smooth transactions between buyers and sellers
E-Loyalty	Re-visits	I will continue to visit this site in the future

For content validity, the items used for measuring the factors were adapted from previous studies and reviewed by experts (Lee et al., 2009).

2) Data Collection

The data were collected by trained interviewers in November 2010. A questionnaire survey was administered to university students using comparison shopping sites in Korea. A total of 213 usable responses were collected out of the 250 distributed. We employed structural equation modeling to test the hypothesized relationships and used LISREL 8.30. Further, we used SPSS 12.0 for the frequency analysis, the exploratory

factor analysis, and the reliability test.

Table 2 presents the descriptive statistics for characteristics of the respondents. Of the 213 respondents, 49.3% were males, and 50.7% were females; 1.9% used the ENURI site, 14.1% used the DANAWA site, and 78.9% used the NAVER site; 27.2% visited comparison shopping sites less than two times per month, 37.6%, two to four times per month, and 35.2%, more than four times per month; 11.7% used the site for less than 10 months, 17.4%, 10 to 19 months, 22.5%, 20 to 29 months, and 48.3%, 30 or more months.

Table 2. Descriptive statistics

Variable		Frequency (%)
Gender	Male	105 (49.3)
	Female	108 (50.7)
Shopping site	ENURI	4 (1.9)
	DANAWA	30 (14.1)
	NAVER	168 (78.9)
	Others	11 (5.1)
Monthly use	Under 2	58 (27.2)
	2-4	80 (37.6)
	Over 4	75 (35.2)
Number of months used	Under 10	25 (11.7)
	10-19	37 (17.4)
	20-29	48 (22.5)
	Over 30	103 (48.3)
Total		213 (100)

3) Reliability and Validity Assessment

For the validity and reliability of the measures for each construct, we employed exploratory factor analysis (EFA), internal consistency, and confirmatory factor analysis (CFA). We conducted an EFA using principal axis factoring extraction with direct oblimin rotation for the eight measurement items. The EFA provided two distinct dimensions, that is, two constructs of information intermediation: information offering and information reliability. As shown in Table 3, Cronbach's alpha ranged from 0.754 and 0.586, and thus, the coefficients for all the items met or exceeded the acceptable level of 0.6 (Nunnally, 1978).

Table 3. Results of the EFA and reliability assessment

Construct	Variable	Loading	Cronbach's α
Information Offering	Information integration	0.778	0.754
	Product searches	0.546	
	Personalization	0.579	
	Transaction facilitation	0.603	
Information Reliability	Product information provision	0.514	0.586
	Information filtering	0.379	
	Information exchange	0.367	
	Information reliability	0.738	

The goodness of fit of the measurement model was evaluated by using various indices.

Table 4 presents the results of the CFA. We used the chi-square test to evaluate the overall goodness of fit and assess the adequacy of the hypothesized model in terms of its ability to reflect the variance and covariance of the data. Because of its tendency to be sensitive to sample size, other fit indices (e.g., the GFI, the NFI, and the CFI) were considered in conjunction with the chi-square test. For the statistical significance of parameter estimates, we used t-values. According to the confirmatory factor analysis, the chi-square was 30.18 ($p < 0.05$), the goodness-of-fit index (GFI) was 0.97, the normed fit index (NFI) was 0.93, the comparative fit index (CFI) was 0.97, and the root mean square error of approximation (RMSEA) was 0.051. In general, fit statistics greater than or equal to 0.90 for the GFI, the NFI, and the CFI indicate a good model fit (Bagozzi and Yi, 1988; Mulaik et al., 1989). The RMSEA was less than 0.1, as recommended by Steiger and Lind (1980). Thus, the measurement model provided an acceptable fit to the observed data.

Table 4. Results of the CFA

Construct	Variable	Loading	t-value	CR
Information	Information integration	0.61	8.82	0.76
Offering	Product searches	0.60	8.65	
	Personalization	0.76	11.44	
	Transaction facilitation	0.67	9.79	
Information	Product information provision	0.67	9.38	0.64
Reliability	Information filtering	0.30	3.92	
	Information exchange	0.40	5.38	
	Information reliability	0.79	11.05	

All t-values were significant at the 0.01 level.

We conducted a test of convergent and discriminant validity. For this, we considered the fit of the model, the statistical significance of each standardized path coefficient, construct reliability (CR), and average variance extracted (AVE). The standardized path coefficients for all the items were significant ($t > 1.96$). As shown in Tables 4 and 5, the CR values were greater than or equal to 0.6, suggesting that the convergent validity of the scale was satisfactory (Anderson and Gerbing, 1988; Fornell and Larcker, 1981).

Table 5. Correlations

Construct	Mean	SD	IO	IR
Information offering	4.991	0.839	(0.440)	0.469
Information reliability	4.083	0.844	0.469	(0.331)

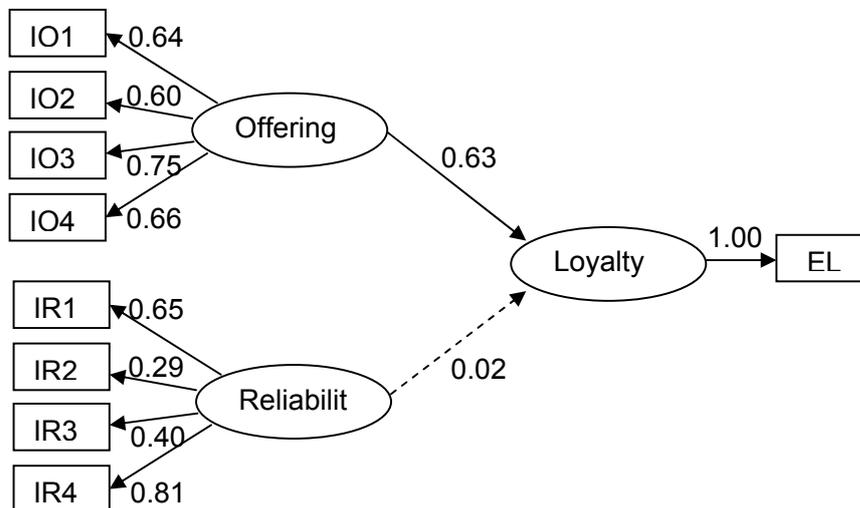
Correlations were significant at the 0.01 level. The AVE values in parentheses.

According to Fornell and Larcker (1981), AVE should be greater than the square of correlations between constructs. As shown in Table 5, the square of correlations between a construct and any other construct in the model was less than the AVE value, providing evidence of discriminant validity.

COVARIANCE STRUCTURE ANALYSIS

To examine the effect of information intermediary functions of comparison shopping sites

on customer e-loyalty, we conducted a covariance structure analysis. The results of the covariance structure analysis are presented in Figure 1.



All the loadings were significant at the 0.01 level, except for that indicated by the dotted line.

Figure 1. Results of the covariance structure analysis

According to covariance structure analysis, the chi-square was 44.83 ($p < 0.05$), the goodness-of-fit index (GFI) was 0.96, the normed fit index (NFI) was 0.91, the comparative fit index (CFI) was 0.96, and the root mean square error of approximation (RMSEA) was 0.057. The RMSEA was less than 0.1, as recommended by Steiger and Lind (1980). Thus, the fit statistics indicate a good model fit.

As shown in Figure. 1, the path estimates indicate that “information offering” was a significant predictor of customer e-loyalty ($\beta = 0.63$, $p < 0.01$). However, “Information reliability” did not influence customer e-loyalty ($\beta = 0.02$, $p > 0.1$). Therefore, only those information intermediary functions of comparison shopping sites belonging to “information offering” had a significant positive effect on customer e-loyalty.

CONCLUSIONS AND IMPLICATIONS

Although customers are able to enjoy convenience and save time by turning to e-commerce, the rapidly increasing availability of product information can lead to information overload, which can make it difficult for customers to make purchases. Comparison shopping sites, which emerged in the last decade, can help customers make more informed and efficient purchase decisions. Comparison shopping sites function as intermediaries, maintaining purchase intentions and encouraging repeat visits. In this regard, this study evaluates the effects of information intermediary functions of comparison shopping sites on customers' intention to revisit.

Specifically, this study defines and classifies the following eight information intermediary functions: information integration, product information provision, product searches, information filtering, information exchange, personalization, information reliability, and

transaction facilitation. This study examines the effects of these functions on e-loyalty to popular comparison shopping sites.

The results indicated that "information offering" functions had significant effects on customers' e-loyalty to comparison shopping sites. In other words, customers are likely to revisit a comparison shopping site if they perceive that the site provides them with integrated information, product search functions, personalized information, and a smooth transaction system. Thus, comparison shopping sites managers should provide more and better "information offering" functions that can effectively address customers' various needs.

The results have some practical implications for managers attempting to induce revisit intentions (customer loyalty). Efforts to improve information intermediary functions can not only increase the likelihood of revisits by customers but also encourage customers to recommend the sites they like to their friends and family members in the long run. Further, comparison shopping sites can boost their profits through revisits by existing customers. This study has an important limitation. The respondents were university students residing in Seoul, Korea, and thus, any generalization of the findings to groups outside the sample profile should be implemented with caution. Despite this limitation, however, it is likely that the views of the respondents closely reflect those of comparison shopping sites customers across Korea. Future research should use larger data sets across a wider range of cities to verify the results of this study.

ACKNOWLEDGEMENT

This paper was supported by the Sahmyook University Fund in 2010.

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