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The effect of perceived trust on electronic commerce: Shopping online for tourism products and services in South Korea

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ABSTRACT

According to the OECD's 2008 statistics (Seoul Finance Internet News, 2009), Korea was ranked number one in terms of the percentage of homes with Internet access, at 80.6% of the total population. The survey also reported that two-thirds of Koreans with access to the Internet at home are online shoppers. Many tourism companies now actively use Internet sites as a key marketing and sales vehicle for their products and services. To be successful, tourism e-commerce services must be trustworthy.

This study aims to examine which factors influence trust, satisfaction, and loyalty. We employed a structural equation modeling approach to investigate the relationships among exogenous variables (navigation functionality, perceived security, and transaction cost) and mediating variables (trust and satisfaction), with loyalty as a dependent variable. To this end, a total of 340 questionnaires were collected from online panel respondents by an Internet research firm.

The results of our study indicate that navigation functionality and perceived security had a significantly positive effect on trust. However, we found that transaction cost had no effect on trust. Satisfaction was found to positively impact trust—which, in turn, influenced customer loyalty. Our findings imply that customer satisfaction influences trust, which plays a key role as an antecedent of customer loyalty in online shopping for tourism products and services.

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1. Introduction

Information communication technology (ICT) and tourism are two of the most dynamic motivators of the emerging global economy (Buhalis, 2003, p. xxiv). Both tourism and ICT increasingly provide strategic opportunities and powerful tools for economic growth, the redistribution of wealth, and the development of equity around the world (Buhalis, 2003). Buhalis (2003) noted that the rapid development of the Internet has intensified thanks to the information marketplace, e-commerce, and online markets – the Internet is becoming more sophisticated across all of these areas. Online transactions are ushering in a new era for the tourism industry, which is working to implement better commercial practices.

Currently, there are 1.46 billion Internet users in the world, up 305.5% from the year 2000 (Internet World Stats, 2009). The International Telecommunication Union (ITU, 2009) published international Internet usage rankings in which South Korea

(hereafter “Korea”) ranked eighth in the world. Remarkably, the OECD's 2008 statistics presented that Korea ranks number one in terms of the percentage (80.6%) of broadband Internet-equipped homes (Seoul Finance Internet News, 2009). As of 2008, there were more than 35 million Internet users in Korea and the usage rate for Korean residents had reached 77.1% (National Internet Development Agency of Korea [NIDAK], 2009). The NIDAK (2009) reported that 60.6% of Internet users are also Internet shoppers, defined as those who have purchased products or services (including making travel/hospitality reservations) using the Internet during the last year. The Korea National Statistical Office [KNSO] (2009) reports that in 2008, business to consumer (B2C) market transactions reached US\$14.88 billion, increasing by 15.1% over the previous year. In 2008, Korean online sales represented 7.4% of total retail sales, of which online travel arrangement and reservation services accounted for 15.7% (US\$2.33 billion) of the B2C e-commerce market (KNSO, 2009).

It is interesting to note that transactions of online shopping malls represent 66.5% of total B2C market transactions and on/offline mall transactions account for 33.5% of the total. However, online mall transactions represent 30.6% of travel arrangement and reservation services, and on/offline mall transactions account for 69.4% of the total (KNSO, 2009). Korean customers tend to buy

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relatively low- and medium-priced tourism products and services online, but they are likely to purchase high-priced tourism products and services such as luxury cruise packages offline. The energetic growth and development of the tourism industry can in part be attributed to the Internet and ICT (Buhalis & Law, 2008). Buhalis and Law (2008) suggested that reaching a new information threshold of universal, ubiquitous communication has brought the entire tourism industry into a new stage of interactivity, accelerating both wired and wireless management and marketing. The online method is ideal for the tourism industry in terms of enabling information retrieval and electronic transactions. Chen (2006) pointed to the success of certain online-tourism businesses, such as Expedia, Travelocity, and Orbitz, along with an increasing prevalence of online shopping for tourism products and services.

In recent years, an increasing number of consumers have taken advantage of the many benefits offered by electronic commerce (Yoon, 2002, p. 48). Yoon (2002) presented convenience, economic cost, and product diversity as only some of the attributes associated with the e-commerce revolution that has brought about a fundamental change in the conceptualization of commercial transactions. The number of Internet users has increased dramatically, but many users are reluctant to provide sensitive personal information online because they do not trust e-commerce security (Suh & Han, 2003; Yoon, 2002). Suh and Han (2003) contend that online users are able to access critical files on computers all over the world because the Internet was originally designed for research, not for commerce. Adding to the uncertainty of e-commerce is the fact that the parties to a transaction are not co-located and thus cannot rely on elements such as physical proximity, hand-shakes, and body language (Suh & Han, 2003, p. 138).

The Internet has changed how the tourism business operates around the globe. For example, Maswera, Edwards, and Dawson (2009) explained how the tourism industry in sub-Saharan Africa may overcome various obstacles to e-commerce adoption and practice. In recent years, online relationships in the tourism industry have become very important throughout the world, with trust becoming one of the most important factors that makes e-business successful for hotels and resorts (Fam, Foscht, & Collins, 2004).

The nature of the tourism industry seems ideally suited to the Internet: (1) the product offered by the tourism industry is intangible; (2) production and consumption are inseparable; and (3) demand is perishable and fluctuates significantly (McCole, 2002). McCole (2002) suggested that trust is essential to all commercial transactions and that the role of trust in economic exchanges online may be a key marketing tool. However, there is a dearth of research regarding perceived trust in online shopping for tourism products and services.

Trust plays a central role in transactions, and a lack of trust in online businesses is a primary reason why many consumers choose not to shop online (Wu & Chang, 2006, p. 1254). Certain previous studies (Cyr, 2008; Cyr, Kindra, & Dash, 2008; Harris & Goode, 2004; Jin, Park, & Kim, 2007; McKnight & Chervany, 2001) have tried to examine trust in electronic commerce contexts together with other factors. For example, McKnight and Chervany (2001) designed a typology of trust concepts by using an e-commerce customer relationships model. Kim, Kim, and Shin (2009) tried to model trust roles using subjective norms, offering practical suggestions for airline marketing managers regarding strategic plans and applications that are effective in enhancing productivity or performance. Furthermore, certain studies have explored consumer satisfaction and loyalty in terms of purchase intentions (Kim & Lim, 2005; Lim & Kim, 2006).

A few studies have been conducted on trust in the tourism e-commerce context with regard to other concepts that are

important to consumer satisfaction (Chen, 2006; Kim et al., 2009; McCole, 2002; Wu & Chang, 2006). Furthermore, research has been very limited regarding the perceived trust encountered by experienced online shoppers for tourism products and services. In this respect, this study aims to examine which factors influence trust and whether trust and satisfaction have an effect on loyalty. A structural equation modeling approach was employed to investigate the relationships among exogenous variables (navigation functionality, perceived security, and transaction costs), and trust, satisfaction, and loyalty.

2. Review of related literature

2.1. Definition of constructs

2.1.1. Navigation functionality

Little research has been done on the concept of navigation functionality on online shopping. According to Yoon (2002), this concept contains the technical expertise of the website designer, overall operational efficiency, usefulness of help functions, and the speed with which navigation is conducted online as important measures of the effectiveness of website performance. Taylor and England (2006) stated that the concept includes as follows: (1) navigation bars – navigation text, images, or animations; (2) individual hyperlinks – connecting two individual web pages in a website; (3) image maps – containing a number of hyperlinks; (4) drop down menus/collapsible menus – where all choices are not permanently visible; and (5) search options – locating content in the whole website or sections of the website. Thus, navigation functionality means that effective search functionality with enough guiding information should be designed into the website (Pi, Li, Chen, & Chen, 2007).

2.1.2. Perceived security

This concept is one of the most challenging issues faced by customers who want to buy products or services online and the issue comes from the vulnerabilities website from which the product is purchased (Suh & Han, 2003). Chellappa and Pavlou (2002) suggested that such variables as encryption, protection, verification, and authentication should be the antecedents of perceived security, which influence the perceived security of consumers. Because most people do not know if their information is being collected, recorded, and possibly used later for undesired purposes, they are becoming more and more conscious of how their information is being used. Moreover, consumers are becoming increasingly hesitant about giving out sensitive information on the web (Yenisey, Ozok, & Salvendy, 2005). Thus, perceived security may be defined as the subjective probability in the customer's eyes that his or her personal or financial information will not be shown, saved, and/or stolen during e-commerce and storage by outside parties (Flavian & Guinaliu, 2006, p. 604).

2.1.3. Transaction cost

Many online customers hesitate at the last moment to click the final order button for a purchase when they confirm the transaction cost. In general, e-commerce reduces transaction costs which are defined as the costs of exchanging information and incorporating decision processes (Bunduchi, 2005). Bunduchi (2005) also mentioned transaction risks, which are defined as operation risks associated with the other parties in the transaction willfully mishandling the transaction, and opportunism risks associated with a lack of bargaining power. To proceed with a transaction, consumers should search for information and monitor the process to ensure the best deal. The costs involved in all such transaction-related activities are called transaction costs (Teo & Yu, 2005). Hann

and Terwiesch (2003, p. 1565) defined frictional cost as the disutility with respect to learning to search online, the disutility of clicking in payment information, the cognitive cost of comparing different offerings, and the opportunity cost of time for the online transaction. Tourism sites may need more input from the consumer, and their products and services require more cognitive effort to make a purchasing decision than those of books or CDs (Hann & Terwiesch, 2003). Thus, the costs depend on coordinated efforts in the exchange between the parties involved in the logistics services and procedures-related transaction activities (Rabinovich, Kne-meyer, & Mayer, 2007).

2.1.4. Perceived trust

Trust can be defined as a feeling of security and willingness to depend on someone or something (Chung & Kwon, 2009). Fam et al. (2004, p. 198) proposed that trust, together with customer satisfaction, is a dynamic process and is built over a certain period of time contributing to satisfaction beyond the effects of the economic outcome. Chen (2006) classified perceived trust into two ways: (1) defining trust as a belief, confidence, attitude, or expectation about another party's trustworthiness; and (2) defining trust as a behavioral intention or behavior of reliance and involving vulnerability and uncertainty. Moreover, McCole (2002) summarized ten dimensions cited most frequently in the literature. They include availability, competence, consistency, discreteness, fairness, integrity, loyalty, openness, promise, and fulfillment. Thus, consumers' perceived e-trust in the e-commerce environment of tourism B2C affects completing transactions securely and maintaining the privacy of personal information (Kim et al., 2009).

2.1.5. Satisfaction

Consumers' satisfaction is a key factor for establishing long-term relationships with them and acquiring their repurchase intentions (Lee, Lee, Lee, & Babin, 2008). Kim, Ma, and Kim (2006) stated that because e-commerce is mainly related to use of a new technological breakthrough, receptivity to online environment is important to form a positive relationship with satisfaction. Bai, Law, and Wen (2008) suggested that in online environments, striving for satisfaction should be very significant to increase intentions for actual purchase of tourism products online. Cyr (2008) also conducted research on satisfaction in the hotel industry, investigating three components of website design: information, navigation, and visual design, and evaluating relationships between trust and satisfaction with loyalty across different cultures. Thus, concerning satisfaction, it can be expected that satisfaction and trust are mediators between antecedents (i.e., navigation functionality, perceived security, and transaction cost) and loyalty in the online paradigm.

2.1.6. Loyalty

Cyr et al. (2008), defined e-loyalty, meaning online loyalty, as perceived intention to visit or use websites and to consider purchasing from them now and later. Jin et al. (2007) found that the reputation of an online company affects loyalty via trust across different cultures in the same way. Kim, Lee, and Hiemstra (2004) suggested that an online virtual community should develop an effective way to keep loyal clients, and companies adopting online virtual communities are able to bring in potential customers and keep them as highly loyal clients. Loyalty is presented as a sequential four-stage framework that is directly and indirectly related to trust, satisfaction, perceived value, and service quality (Harris & Goode, 2004). Thus, loyalty is the central driver of purchasing intentions and closely related to trust, satisfaction, and other factors from the online paradigm.

2.2. Trust associated with navigation functionality, security, and transaction cost

Tourism e-commerce is a highly information-intensive area. By using the Internet, purchasers of tourism products and services enjoy convenience and can access more flexible rates, save time, and reduce both costs and negotiation time (Wu & Chang, 2005). However, a consumer's intention to purchase is more sensitive to trust in the context of service providers' facilities (technology acceptance) than it is to trust among users (Lee, Ahn, & Han, 2006). Among variables related to trust, search functionality is primarily employed by Internet users to evaluate the level of their control over their search efforts online, indicating the level at which their information needs are effectively fulfilled (Yoon, 2002, p. 55). Overall operational effectiveness, the usefulness of the help function, and the speed at which one can navigate pages online are vital measures of the efficiency of navigation functionality (Yoon, 2002). Although navigation functionality in the study was found to be a significant antecedent to satisfaction only, Yoon (2002) proposed that navigation functionality would be positively related to trust and satisfaction. Pi et al. (2007) stated that navigation functionality influences the trust of online customers directly. Therefore, it is hypothesized in this study that navigation functionality will be related to trust and satisfaction in tourism electronic commerce as follows:

H₁: Navigation functionality has a positive effect on trust

H₄: Navigation functionality has a positive effect on satisfaction

The growth of the Internet has been accompanied by increasing interest in the concept of trust (Sillence, Briggs, Harris, & Fishwick, 2006). Corritore, Kracher, and Wiedenbeck (2003) defined online trust as something that exists between an individual and his or her informational or transactional use of the Internet; they investigated certain fundamental characteristics of trust and perceived credibility. Fam et al. (2004) argued that trust in the context of relationships between consumers and online service providers is influenced by user privacy and perceived security. Yousafzai, Pallister, and Foxall (2003) offer insights into the role of perceived security, perceived privacy, and perceived trustworthiness as related to trust in electronic banking. Their study also emphasizes the importance of security as a distinct notion and comments on the relationship between customer trust and perceived security. Furthermore, Chellappa and Pavlou (2002) found that the security has a positive relationship with the trust. Flavian and Cuinaliu (2006) also stated that the perceived security has a positive effect on trust, along with loyalty which is also influenced by satisfaction. Therefore, it is hypothesized in this study that perceived security will be related to trust and satisfaction in tourism e-commerce as follows:

H₂: Perceived security has a positive effect on trust

H₅: Perceived security has a positive effect on satisfaction

McKnight, Choudhury, and Kacmar (2002) developed and tested a model of consumer trust for electronic commerce providers. They concluded that trust is a strategic imperative for online service providers because it strongly influences consumer purchasing intentions when consumers interact with unfamiliar vendors through the Internet.

Bunduchi (2005) proposed the important role of goodwill trust and transaction costs in internet-based electronic business. Also, Rabinovich et al. (2007) investigated transaction cost in internet commerce firms with logistics service and found the role of transaction costs is very important. Another study (Teo & Yu, 2005)

suggested that transaction cost has positive relationships with trust and consumers' willingness to buy online. Lim and Kim (2006) conducted research on antecedent variables of preference and online satisfaction based on transaction cost, focusing on Internet tourism businesses, and found that transaction cost is a very important factor in tourism e-commerce. Thus, it is hypothesized in this study that transaction cost will be related to trust and satisfaction in tourism e-commerce as follows:

H₃: Transaction cost has a positive effect on trust

H₆: Transaction cost has a positive effect on satisfaction

2.3. Relationships among trust, satisfaction, and loyalty

Customers are unlikely to complete a transaction if they do not trust the website they are shopping at (Chang & Chen, 2008; Marsh, Meech, & Dabbour, 2000). Hwang and Kim (2007) pointed out that the practitioners and researchers for e-commerce should understand and enhance the trust paradigm in the context of the e-commerce and e-CRM (Customer Relationship Management) environment. Corbitt, Thanasankit, and Yi (2003) found that online users are more likely to buy online if they feel a higher degree of trust in e-commerce and have more experience using the Internet, given the perceived market orientation, site quality, technical trustworthiness, website look, and feel. Jones and Leonard (2008) developed a model of e-commerce trust related to markets and auctions. Bai et al. (2008) empirically tested that website quality has a direct and positive impact on user satisfaction, and that user satisfaction has a direct and positive impact on intent to repurchase. Other researchers (Kim et al., 2006) argued that Chinese hotel guests are less likely to rely on hotel branding and cost benefits but are more likely to evaluate sites in terms of consumer information and online security as they become more experienced online. Moreover, Harris and Goode (2004) proposed that trust is positively and directly linked with satisfaction and that this relationship was strongly supported. Based on the findings of previous research, this study proposes the following hypothesis:

H₇: Satisfaction has a positive effect on trust

Since there are diverse types of consumers in the marketplace, businesses need to appeal to the less trusting customers by providing an abundance of information that is relevant to the shopping experience—product price, shipping costs, and transaction methods—in an upfront and clear manner (Lanford, 2006). Lanford (2006) insisted that observational research provides valuable qualitative data, aiding our understanding not only of the process of how consumers shop online, but also, according to Chung and Kwon (2009), of the role that trust plays in that process. Li, Hess, and Valacich (2008) proposed and tested a model of trust bases and social influence. They also assessed the relative effects of trusting beliefs, attitudes, and intentions on initial trust formation. Their findings provide both practical and academic implications for implementing information systems that are significantly linked to cognitive and calculative bases of trust.

An interesting finding of Teo and Liu (2007) is that similar results were obtained across three cultures—the United States, Singapore, and China—in the context of consumer trust in e-commerce. Their study showed that reputation and the technical certification of an online provider, along with users' propensity to trust, are positively related to consumer trust. Their work also suggests that trust is positively related to attitude and negatively correlated with perceived risk. Kim et al. (2004) recognized a set of factors that may significantly impact Internet consumers' loyalty

and determined whether loyalty to virtual online communities may impact users in terms of their purchasing loyalty. They noticed that integration and the fulfillment of needs turned out to be another fundamental factor that impacts user loyalty. Consequently, it seems that there may exist a positive relationship between trust and loyalty in tourism electronic commerce. Furthermore, Harris and Goode (2004) suggested that satisfaction should be directly associated with loyalty, strongly corroborating their theories in online-tourism businesses. Our review of previous research suggests that perceived trust has a significant effect on customer loyalty, and satisfaction also has a positive effect on loyalty in tourism e-commerce. Based on the findings of previous research, this study proposes the following hypotheses:

H₈: Trust has a positive effect on loyalty

H₉: Satisfaction has a positive effect on loyalty

With the above hypotheses based on the findings of previous research, this study proposes a conceptual model (see Fig. 1). This model postulates that navigation functionality, perceived security, and transaction cost have positive effects on trust and satisfaction, which in turn influence loyalty. This model also posits that satisfaction has a positive effect on trust.

3. Methods

3.1. Measurements

A preliminary list of measurement items was initially developed after reviewing the electronic commerce and tourism literature (Chen, 2006; Kim & Lim, 2005; Lim & Kim, 2006; Suh & Han, 2003; Wu & Chang, 2005, 2006; Yoon, 2002). This procedure generated 24 items.

A questionnaire was developed in English and then translated into Korean language by researchers. To verify the accuracy of the translation, the questionnaire was then translated back to English by native Koreans who were proficient in both the English and Korean languages. The two versions were compared, and certain discrepancies were addressed. During this process, the researchers tried to ensure consistency between the Korean and the English versions of the survey.

Then, these items were presented to e-commerce and e-tourism professionals to see if any further items could be identified and whether they were likely to be appropriate for the purpose of evaluating tourism e-commerce and trust. This procedure resulted in two further items being added to the list of measurements.

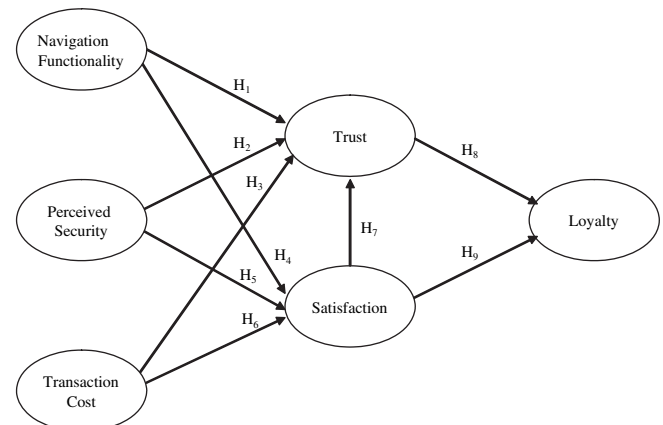


Fig. 1. Proposed research model.

Twenty-six items in the measurements with six constructs were selected through these procedures.

Furthermore, a pretest was conducted using two groups of 40 people each, totaling 80 people. One group was comprised of those who shop online for tourism products and services, taken from a broader pool of general consumers who participated in in-person interviews. The second group featured those who shop online for tourism products and services, recruited from the panel of an online market research firm. During the pretest, each group strictly eliminated respondents who had not purchased tourism products or services online. Based on the pretest, a factor analysis was conducted (Blunch, 2008; Carver & Nash, 2006; Hair, Black, Babin, Anderson, & Tatham, 2006). Nine items were eliminated because they featured inappropriate wording or because they failed to exhibit dimensionality and inter-correlation validity. Some items that seemed ambiguous were reworded for clarity. This procedure further refined the measurement items, resulting in a final list of 17: navigation functionality (5 items), perceived security (4 items), transaction cost (5 items), and trust (3 items). In addition, we included 4 items of satisfaction and 4 items of loyalty.

The survey was administered in Korean to those who had experienced online shopping for tourism products and services. Validity of dimensionality and inter-correlation were examined by the exploratory factor analysis in the pretest and the confirmatory factor analysis after data were collected from the main Internet survey.

3.2. Operational definition of variables

3.2.1. Navigation functionality

The variable of navigation functionality in this study was operationalized with five items as suggested by previous research (Pi et al., 2007; Taylor & England, 2006; Yoon, 2002). These items included clear search-related words, useful help functions, high-level online technology, overall operational efficiency, and speedy transmission of words and images (see Table 3).

3.2.2. Perceived security

The variable of perceived security in this study was operationalized with four items as suggested by previous research (Chellappa & Pavlou, 2002; Flavian & Cuinaliu, 2006; Kim & Lim, 2005; Suh & Han, 2003; Yenisey et al., 2005). These items were stated as “Using credit cards to purchase online-tourism products is safe,” “In general making payments online is risk free,” “My privacy would be guaranteed online,” and “Online-tourism companies can be trusted to safeguard my personal information.”

3.2.3. Transaction cost

The variable of transaction cost in this study was operationalized with five items as suggested by previous research (Bunduchi, 2005; Hann & Terwiesch, 2003; Lim & Kim, 2006; Rabinovich et al., 2007; Teo & Yu, 2005). These items were stated as “Online shopping is an economical transaction,” “Online purchasing can save money as compared to offline purchasing,” “E-commerce can provide more discount than offline purchasing,” “Online shopping is the right choice when price and other expenses are considered,” and “Considering the cost of e-commerce, I get reasonable quality and service.”

3.2.4. Perceived trust

The variable of perceived trust in this study was operationalized with three items as suggested by previous research (Chen, 2006; Chung & Kwon, 2009; Fam et al., 2004; Kim et al., 2009; McCole, 2002; Wu & Chang, 2005, 2006). These items included the

reliability and trustworthiness of tourism online sites, and the integrity of tourism online sites (see Table 3).

3.2.5. Satisfaction

The variable of satisfaction in this study was operationalized with four items as suggested by previous research (Bai et al., 2008; Cyr et al., 2008; Kim et al., 2006; Kim & Lim, 2005; Lee et al., 2008; Lim & Kim, 2006). These items were stated as “Overall, I was satisfied with this online commerce,” “The online-tourism site information content met my needs,” “It was easy to buy the tourism product I chose,” and “I was satisfied with online buying when compared to offline buying.”

3.2.6. Loyalty

The variable of loyalty in this study was operationalized with four items as suggested by previous research (Cyr et al., 2008; Harris & Goode, 2004; Jin et al., 2007; Kim et al., 2004; Kim & Lim, 2005; Lim & Kim, 2006). These items were stated as “I am loyal to purchasing online-tourism products,” “For buying tourism products, online purchasing is a primary choice,” “I will choose online transactions for tourism products even if alternative transaction options are available,” and “I prefer online shopping to any other transaction methods.” All the items from the six constructs were measured with a 5-point Likert scale anchored by 1 = *strongly disagree* and 5 = *strongly agree*.

3.3. Data collection method

The quota sampling method was employed in our study. A quota sampling method using official census data from the [Korean Statistical Information Service \(2009\)](#) was employed to calculate the appropriate numbers of Korean respondents in each age and gender category (see Table 1 for more details). Males and females represented 50.3% and 49.7%, respectively. Age groups were as follows: 31.1% ages 20–29, 34.9% ages 30–39, and 34.0% ages 40–49. There are several reasons for excluding those over 50. First, the Internet usage rates and online shopping rates for those over 50 are very low. Second, it is rare to see individuals over 50 purchasing tourism products online, which made it difficult to recruit sufficient subjects for the survey in this age category.

We chose to employ a professional Internet market research firm called Embrain, which ranks 1st among Korean Internet market research firms. This firm possesses the largest panel of 490,000 users among Korean Internet research firms, whereas other Internet research firms retain panels ranging from 200,000 to 300,000. This firm represents the largest market share of 36.7% of Korean Internet market research firms. Embrain recruits consumers from telephone and mobile phones, voluntary participation, recommendation by panel members, and offline (street) promotion. Their registration process involves three steps (Embrain,

Table 1

Quota sampling process in terms of gender and age.

		Sampling (n = 340)	
		Population ^a (%)	Sample (%)
Gender	Male	50.3	49.1
	Female	49.7	50.9
	Total	100.0	100.0
Age	20–29	31.1	36.8
	30–39	34.9	33.8
	40–49	34.0	29.4
	Total	100.0	100.0

^a Korean Statistical Information Service (2009).

Table 2
Demographic characteristics of respondents.

	Characteristics	Frequency	%
Gender	Male	167	49.1
	Female	173	50.9
Age	20–29	125	36.8
	30–39	115	33.8
	40–49	100	29.4
Education	Middle and high school	29	8.5
	2 year college	46	13.5
	University	213	62.6
	Graduate school	52	15.3
Marital status	Single	152	44.7
	Married	188	55.3
Income	1.00–1.99 million Won ^a	39	11.5
	2.00–2.99 million Won	70	20.6
	3.00–3.99 million Won	86	25.3
	4.00–4.99 million Won	69	20.3
	More than 5 million Won	76	22.4
Occupation	Professional	56	16.5
	Businessperson	30	8.8
	Services	16	4.7
	Office worker	110	32.4
	Civil servant	18	5.3
	Homemaker	37	10.9
	Student	57	16.8
	Others	16	4.7
Total		340	100

^a 1 US\$ = 1350 Korean Won as of April 23, 2009.

2009): 1) verification of real name by inputting ID; 2) verification of communication channel using e-mail, phone number, and address; and 3) verification of registered persons through Korea Investors Service, Inc., confirming by telephone that they voluntarily registered by themselves. Thus, they are all Internet users.

Embrain involves three processes when they conduct online research: 1) sampling process – samples are selected from nationwide panels with representativeness. Upon login, notice of survey is given to relevant panels only. ID is verified by resident registration number and password. Survey notice is sent promptly using the company's bulk e-mail and SMS mailing system; 2) accuracy of survey process – best-fit respondents are selected by sampling questionnaire. Multiple choice and page rotation function is employed. Insincere respondents who completed the questionnaire too fast and checked in the same pattern for the purpose of reward only are prevented by system solution. If they provide false responses three times they would be deprived of membership; and 3) credibility of survey process – the results are verified using the existing information. The survey result DB is managed to prevent the same panel from participating in a similar survey for a certain time period.

From November 3 to December 5, 2008, the main survey was administered to 490,000 Korean internet users recruited by the aforementioned company, after consulting with design practitioners from that company. The age groups were automatically populated to match the proportion of users in their 20s, 30s, and 40s (NIDAK, 2009).

There were several methods by which appropriate individuals were identified to take our survey. First of all we asked respondents the question “Have you ever bought tourism products or services online?” in the offline pretest. On the other hand, in the Internet pretest and main survey, the Internet research firm employed the screening question “Please click the number of activities with multiple choices which you have experienced during the past one year.” One of the choices included purchasing tourism products and

services online. If someone did not click the number for purchasing tourism products and services online, then the respondent would automatically be excluded from completing the survey. This system prevents unqualified persons who don't have the experiences and just want rewards from participating. Furthermore, we provided the definition of tourism products and services in the beginning of the main survey from the Internet research firm. In our survey, the tourism products and services also included airline tickets, hotels, and transportation reservations. However, we didn't indicate cruise purchases for the following reasons. First, before starting the survey, we interviewed two CEOs from leading online-tourism companies and on/offline tourism companies in Korea. Two CEOs stated that, in general, most Koreans tend to buy low- or medium-priced tourism products and services online, but they do not buy high-priced products online. For more expensive tourism products and services, consumers are likely to search for information and compare quality and prices through Internet websites and then call or visit the company to make the actual purchase (according to the CEOs, approximately 70% of customers do this). Purchasing a cruise online is a very rare case because it is very expensive and less popular in Korea.

Second, if answers seemed invalid—for example, multiple questions answered by clicking the same number or obvious patterns in the response clicks—then the respondent was automatically barred from the Internet survey. Third, when a respondent failed to answer a question, the survey engine refused to proceed to the next question until the omitted question had been completed. Fourth, respondents were not allowed to participate in the survey more than 4 times in a single month, and each respondent was tracked by his or her real name and membership ID. As an incentive, every respondent who completed the survey was given a chance to make a donation to support a charity of his or her choice. One of our researchers joined the online survey firm's panel as a respondent to see how the surveys were working in practice.

Respondents were asked to rate the extent to which they agreed with each item on the scale. A total of 340 responses were collected and coded for analysis using SPSS version 16.0 and AMOS version 6.0.

Table 2 presents the characteristics of the respondents. There were slightly more females (50.9%) than males (49.1%). The major proportion of the respondents (36.8%) was aged between 20 and 29, followed by ages between 30 and 39 (33.8%) and ages between 40 and 49 (29.4%). There were more married (55.3%) than single respondents (44.7%), and significant university-level or higher education (77.9%). The average monthly income per household was 3.22 million Korean Won (approximately US\$2500).

4. Analysis and results

4.1. Measurement model

Overall measurement quality was assessed using confirmatory factor analysis (Anderson & Gerbing, 1992). Although measurement quality is sometimes assessed factor by factor, each multiple-item indicator was considered simultaneously to offer the most meaningful test of convergent and discriminant validity. As shown in Table 3, six items with low factor loadings of below 0.50 were dropped from further analyses.

All of the loadings exceeded 0.5, and each indicator *t*-value exceeded 8.929 ($p < 0.001$). The χ^2 fit was 244.98 with 137 degrees of freedom ($p < 0.000$). The goodness-of-fit index (GFI) was 0.929, the adjusted goodness-of-fit index (AGFI) was 0.902, the root mean square residual (RMSR) was 0.023, the normed fit index (NFI) was 0.912, and the comparative fit index (CFI) was 0.959. All of these statistics confirm the overall measurement quality given the sample size and the number of indicators (Anderson & Gerbing, 1992).

Table 3
Measurement model from confirmatory factor analysis.^a

Constructs and variables	Standardized factor loadings	CCR ^b	AVE ^c
Navigation functionality		0.707	0.447
1. I noticed that search-related words are clear. ^d	–		
2. I noticed that help functions are useful. ^d	–		
3. I noticed the high level of technology online.	0.607		
4. I noticed the overall operational efficiency.	0.731		
5. I noticed the speedy transmission of words and images.	0.663		
Perceived security		0.761	0.517
1. Using credit cards to purchase online-tourism products is safe. ^d	–		
2. In general, making payments online is risk free.	0.620		
3. My privacy would be guaranteed online.	0.782		
4. Online-tourism companies can be trusted to safeguard my personal information.	0.745		
Transaction cost		0.711	0.452
1. Online shopping is an economical transaction.	0.610		
2. Online purchasing can save money compared to offline purchasing.	0.725		
3. e-Commerce can provide more discount than offline purchasing.	0.677		
4. Online shopping is the right choice when price and other expenses are considered. ^d	–		
5. Considering the cost of e-commerce, I get reasonable quality and service. ^d	–		
Trust		0.789	0.652
1. Tourism online sites have integrity. ^d	–		
2. Tourism online sites are reliable.	0.793		
3. Tourism online sites are trustworthy.	0.822		
Satisfaction		0.827	0.546
1. Overall, I was satisfied with this online commerce.	0.800		
2. The online-tourism site information content met my needs.	0.738		
3. It was easy to buy the tourism product I chose.	0.640		
4. I was satisfied with online buying when compared to offline buying.	0.767		
Loyalty		0.860	0.606
1. I am loyal to purchasing online-tourism products.	0.808		
2. For buying tourism products, online purchasing is a primary choice.	0.837		
3. I will choose online transactions for tourism products even if alternative transaction options are available.	0.758		
4. I prefer online shopping to any other transaction methods.	0.704		

^a $\chi^2 = 244.98$, $df = 137$, $p = 0.000$, $GFI = 0.929$, $AGFI = 0.902$, $RMSR = 0.023$, $NFI = 0.912$, $CFI = 0.959$.

^b Composite construct reliability.

^c Average variance extracted.

^d Items were deleted after CFA analysis.

Furthermore, evidence for discriminant validity exists when the proportion of variance extracted in each construct exceeds the square of the Φ coefficients (Fornell & Larcker, 1981). Perceived security was strongly correlated with trust ($\Phi = 0.507$, $\Phi^2 = 0.257$) (see Table 4). The extracted variance estimates for these scales were 0.517 and 0.652, respectively, indicating adequate discriminant validity. Although we were concerned about the discriminant validity of the navigation functionality and satisfaction constructs, the correlation between the navigation functionality and satisfaction was 0.492 ($\Phi^2 = 0.242$). The variance extracted estimates for these scales were 0.447 and 0.546, respectively. Thus, according to our assessment, the measures appear to exhibit acceptable values and validity.

4.2. Testing hypotheses

4.2.1. Overall model results

The data were analyzed using AMOS 6.0. The structural error terms (zetas) for the interactivity variables (navigation

functionality, perceived security, and transaction cost) were allowed to correlate with each other, but not with any other structural error term.

Maximum-likelihood estimates for the various parameters of the overall fit of the model are given in Table 5. The χ^2 fit was 251.57 with 140 degrees of freedom ($p < 0.000$). The GFI was 0.927, the AGFI was 0.901, the RMSR was 0.024, the NFI was 0.910, and the CFI was 0.957. Considering that all the fit indices are successfully met, we can judge that the estimated structural equation model is statistically proper and valid for hypothesis test.

The squared multiple correlations (SMCs; R^2) for the structural equations for trust, satisfaction, and loyalty are 0.637, 0.668, and 0.515, respectively. Over half of the variance ($R^2 = 0.515$) in loyalty was explained by the effects of trust and satisfaction. In the case of trust ($R^2 = 0.637$), even more of the variance was explained by the effects of navigation functionality and perceived security. Further, for satisfaction ($R^2 = 0.668$), the variance was explained by the effects of navigation functionality, perceived security, and

Table 4
Construct inter-correlations, means, and standard deviations.

	1	2	3	4	5	6	Mean	SD
1. Navigation functionality	1.000						3.340	0.555
2. Perceived security	0.267**	1.000					2.728	0.651
3. Transaction cost	0.379**	0.132*	1.000				3.658	0.564
4. Trust	0.457**	0.507**	0.330**	1.000			3.146	0.590
5. Satisfaction	0.492**	0.287**	0.566**	0.518**	1.000		3.527	0.547
6. Loyalty	0.344**	0.300**	0.448**	0.446**	0.588**	1.000	3.457	0.625

* $p < 0.05$, ** $p < 0.01$.

Table 5
Standardized structural estimates and tests of hypotheses.

Path (hypotheses)	Estimates	t-value	Results
<i>Direct effects</i>			
Navigation functionality → Trust (H ₁)	0.228	2.663	Accept
Perceived security → Trust (H ₂)	0.445	6.409	Accept
Transaction cost → Trust (H ₃)	−0.015	−0.143	Reject
Navigation functionality → Satisfaction (H ₄)	0.296	3.783	Accept
Perceived security → Satisfaction (H ₅)	0.183	3.162	Accept
Transaction cost → Satisfaction (H ₆)	0.552	6.611	Accept
Satisfaction → Trust (H ₇)	0.339	2.870	Accept
Trust → Loyalty (H ₈)	0.174	2.332	Accept
Satisfaction → Loyalty (H ₉)	0.593	7.255	Accept
<i>Indirect effects</i>			
Navigation functionality → Trust	0.100	2.174	–
Perceived security → Trust	0.062	2.000	–
Transaction cost → Trust	0.187	2.309	–
Navigation functionality → Loyalty	0.233	4.481	–
Perceived security → Loyalty	0.197	4.104	–
Transaction cost → Loyalty	0.358	6.393	–
Satisfaction → Loyalty	0.059	1.735	–
<i>R²</i>			
Trust: 0.637 (63.7%)			
Satisfaction: 0.668 (66.8%)			
Loyalty: 0.515 (51.5%)			
<i>Fit indices</i>			
χ^2 : 251.57			
df: 140			
p: 0.000			

$\chi^2 = 251.57$, $df = 140$, $p = 0.0000$, $GFI = 0.927$, $AGFI = 0.901$, $RMSR = 0.024$, $NFI = 0.910$, $CFI = 0.957$.

transaction cost. Table 5 presents the resulting standardized parameter estimates and verdicts on our hypotheses.

4.2.2. Testing the hypothesized structural model

Fig. 2 presents the results of the structural equation model. The set of hypotheses H₁, H₂, and H₃ addressed whether navigation functionality, perceived security, and transaction cost influence trust. Navigation functionality (H₁) had a positive effect on trust ($\beta = 0.228$, $t\text{-value} = 2.663$, $p < 0.01$) and perceived security (H₂) had a significant effect on trust ($\beta = 0.445$, $t\text{-value} = 6.409$, $p < 0.01$) (see also Table 5). Therefore, H₁ and H₂ are supported. However, transaction cost (H₃) did not have a positive effect on trust ($\beta = -0.015$, $t\text{-value} = -0.143$, n.s.), thus invalidating H₃.

The hypotheses H₄, H₅, and H₆ addressed whether navigation functionality, perceived security, and transaction cost influence satisfaction. Navigation functionality (H₄) had a significant positive effect on satisfaction ($\beta = 0.296$, $t\text{-value} = 3.783$, $p < 0.01$), and perceived security (H₅) had a positive effect on satisfaction

($\beta = 0.183$, $t\text{-value} = 3.162$, $p < 0.01$). Also, transaction cost (H₆) had a positive effect on satisfaction ($\beta = 0.552$, $t\text{-value} = 6.611$, $p < 0.01$). Therefore, H₄, H₅, and H₆ are supported.

The hypotheses H₇ posited that satisfaction is associated with trust. As expected satisfaction had a significant positive effect on trust ($\beta = 0.339$, $t\text{-value} = 2.870$, $p < 0.01$), thus supporting H₇. Also, H₈ stated that trust is positively associated with loyalty. The result showed that trust has a significant positive effect on loyalty ($\beta = 0.174$, $t\text{-value} = 2.332$, $p < 0.05$); thus, H₈ is supported. Finally as expected, satisfaction had a significant positive effect on loyalty ($\beta = 0.593$, $t\text{-value} = 7.255$, $p < 0.01$), thus supporting H₉.

Additional analyses of indirect effects were conducted to investigate whether navigation functionality, perceived security, and transaction cost affect trust and loyalty through the mediating role played by satisfaction. As shown in Table 5, navigation functionality had a significant indirect, positive effect on trust ($\beta = 0.100$, $t\text{-value} = 2.174$, $p < 0.05$). Perceived security ($\beta = 0.062$, $t\text{-value} = 2.000$, $p < 0.05$), and transaction cost ($\beta = 0.187$, $t\text{-value} = 2.309$, $p < 0.05$) also showed a significant indirect effect on trust. Also, navigation functionality had a significant indirect, positive effect on loyalty ($\beta = 0.233$, $t\text{-value} = 4.481$, $p < 0.01$). Both Perceived security ($\beta = 0.197$, $t\text{-value} = 4.104$, $p < 0.01$), and transaction cost ($\beta = 0.358$, $t\text{-value} = 6.393$, $p < 0.01$) showed significant indirect effect on loyalty. Finally, satisfaction had an indirect, significant effect on loyalty ($\beta = 0.059$, $t\text{-value} = 1.735$, $p < 0.1$).

It is interesting to note that unlike the direct effect (H₃), the indirect effect of transaction cost was statistically significant on trust. This might be attributable to the fact that the indirect effect could be expressed as a shared outcome in which trust was strengthened through combination of satisfaction with transaction cost.

5. Conclusions and implications

5.1. Conclusions

In modern society, most people are discovering online shopping, and some are making very good use of electronic commerce (Tatnall & Lepa, 2001). Companies have enthusiastically used the Internet as a key marketing tool and sales vehicle for their products and services (Smith, 2008). Even though the number of online users has rapidly increased, many people are reluctant to release their personal information to a website as they do not trust e-commerce security.

Few studies on tourism e-commerce have dealt with trust in the online shopping environment for general tourism products and services. Therefore, the objective of this study was to develop a theoretical model of tourism e-commerce that incorporates trust and satisfaction and to empirically test for those constructs that are likely to affect loyalty, which in turn influences purchase intention. The results of this study indicate that eight of nine posited relations among the constructed concepts exhibited significantly positive coefficients and that the research model was therefore generally plausible. Our model suggests that customers will purchase tourism products and services online if the e-commerce website is perceived as trustful.

The navigation functionality metric, which is comprised of operational efficiency, the speedy transmission of words and images, and modern technology, had a significantly positive effect on a site's perceived trustworthiness and reliability. The relationship between these two constructs has been tested in previous studies, and it seems that the significance of this relationship changes from one study to another. Yoon (2002) found that navigation functionality does not impact website trust and reported that online users are minimally concerned with sites' functional attributes. On the other hand, Chen (2006) argued that this

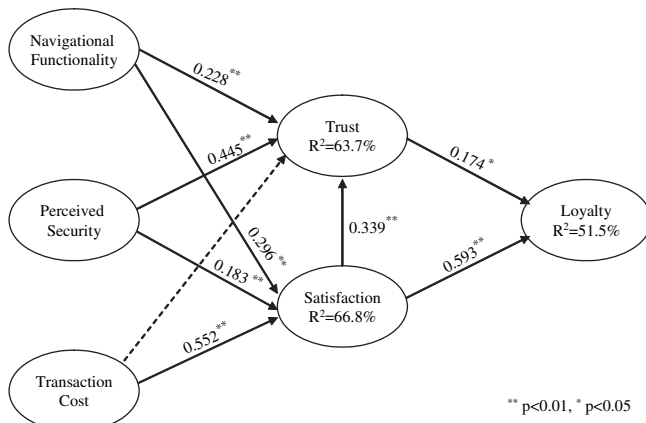


Fig. 2. The estimated structural model.

functionality influences a consumer's overall trust and provides positive moderate support, implying that a higher level of site functionality leads to stronger consumer trust. In our study, navigation functionality also exerted a significantly positive effect on satisfaction (see Table 5). Our findings are consistent with those of past studies in that functionality has significantly positive effects on website satisfaction. Our findings indicate that navigation functionality in the context of online shopping for tourist services is likely to impact consumer trust and satisfaction, which in turn influences purchase intention (Chen, 2006; Hwang & Kim, 2007; Marsh et al., 2000; Sillence et al., 2006; Yoon, 2002). The perception of security as engendered by guaranteed online privacy, safeguarding of personal information, and risk-free payments had a highly significant positive effect on trust. Security also had a significantly positive influence on satisfaction. These and other relationships have been tested in previous studies and our findings are consistent with other reports (Fam et al., 2004; Kim & Lim, 2005; McKnight et al., 2002; Shankar, Urban, & Sultan, 2002; Suh & Han, 2003). Although perceived security had a significantly positive relationship with trust and satisfaction, we were surprised to find that security had a much higher coefficient on trust than did satisfaction. Perhaps perceived security as related to privacy, payments, and personal information has a greater effect on trust when customers are buying tourism products and services online.

The transaction cost was mainly to do with saving money online. We found a highly significant and positive relation with satisfaction but no significant effect on trust. With regard to satisfaction, the results of our study are consistent with those of others (Li et al., 2008; Lim & Kim, 2006; McCole, 2002), but this is not the case with trust. It could be the case that although customers may not trust the online shopping experience, the associated savings result in great satisfaction levels. If a customer intends to buy tourism products and services online on account of cost, ultimately satisfaction mediates the influence of transaction cost and trust exerts some influence.

We found that satisfaction had a significantly positive effect on loyalty. Our findings are consistent with those of previous studies (Bai et al., 2008; Kim et al., 2006; Teo & Liu, 2007). While satisfaction was found to have a particularly significant effect on trust, we note that the relationship between trust and satisfaction often changes from one study to another (Cho, Kwon, & Lee, 2007; Corritore et al., 2003; Kim et al., 2009; Wu & Chang, 2005, 2006; Yousafzai et al., 2003). Past studies have failed to determine whether trust and satisfaction are causally related (Yoon, 2002). In other words, it remains unclear whether consumers are satisfied because they trust online shopping, or if they report improved trust because they are satisfied with Internet shopping.

Our findings indicate that when consumers consider an online purchase, satisfaction is likely to affect their level of trust, which is critical for online shopping (Corbitt et al., 2003; Lanford, 2006). Trust and satisfaction have significantly positive effects on loyalty, which in turn influences consumer behavioral intentions with respect to tourism products and services online (Jones & Leonard, 2008; Kim et al., 2004; Lee et al., 2006; Maswera et al., 2009; McKnight & Chervany, 2001).

5.2. Implication and limitation

Furthermore, research has been very limited regarding the perceived trust encountered by experienced online shoppers for tourism products and services. In this respect, this study aims to examine which factors influence trust and whether trust and satisfaction have an effect on loyalty.

As this study sheds light on identifying the antecedents of trust which also influences on loyalty, our study may contribute to the

theoretical framework for customer trust in the context of online shopping for tourism products and services. The results of this study offer practical implications for marketing managers and practitioners who prepare strategic plans and implement tools to improve the productivity or performance of tourism online shopping through B2C e-commerce. For example, our findings indicate that trust is a predictor of loyalty, which influences a purchasing intention in the case of online shopping. Thus, managers who run tourism e-commerce sites should pay attention to improve customers' level of trust, and marketers of such sites should pay attention to customer satisfaction, which is a mediator of trust. We also note that satisfaction is related to loyalty as a result of navigation functionality, perceived security, and transaction cost.

Many consumers still tend to be reluctant to purchase tourism products and services online, especially the high-priced or luxury invisible tourism products and services since they are likely to be less trustful of e-commerce. Thus, tourism marketers may need to place a high priority on improving the level of customers' trust on online environments. To improve the level of customers' trust, tourism managers may need to provide clients' community site so that customers could exchange their experiences and get useful information on tourism products and services before they make actual purchases. Another important implication for tourism marketers is related to the role of perceived security. From our findings, protection for payments, privacy, and personal information appear to be the most important determinant of trust. Therefore, managers of tourism online companies should pay careful attention to creating a safe environment to protect their clients in terms of perceived security.

The final important implication for tourism marketers is related to the role of transaction cost. We found a highly significant and positive relation with satisfaction, but no significant effect on trust. However, we found a significant positive indirect effect between transaction cost and trust. Therefore, in order to enhance customers' trust in tourism products and services online, the tourism marketer should improve the customer's satisfaction through low transaction costs.

This study has one limitation which is related to the measurement of trust. Analyzing only two items of trust may be insufficient to build a robust model for the role of trust in online shopping for tourism products and services. Future researchers may need to conduct the same study with the inclusion of more trust-relevant items in order to improve the statistical power and to reduce the potential for error in this type of research. Another important limitation of this study is related to the definition for tourism products and services. In this study, the definition is a little broad so that the results may be not suitable to some specific areas. Thus, in future studies, presenting a specific tourism product or service may provide more insightful direction for academic and managerial fields.

Also, future researchers may need to apply multi-group factor analysis in order to explore both low- and high-involvement products. These will vary in terms of online prices for tourism products and services. Marketing managers may be interested in identifying what these differences are since this could help segment online markets in terms of consumer involvement. The two segments may have different tastes in terms of quality, prices, and trust. Furthermore, it is desirable to provide respondents with a more specific time frame in designing the questionnaire so that respondents could better recall their online purchases.

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