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# Determinants Influencing Consumers' Trust and Trust Performance of Social Commerce and Moderating Effect of Experience

Sanghyun Kim and Mi-Jin Noh
School of Business Administration, Kyungpook National University,
701-702 Sankyuk-dong, Puk-ku, Daegu, South Korea

**Abstract:** The main purpose of this study is to investigate the effects of various antecedents of trust in Social commerce (s-commerce) (reputation, size, information quality and communication) on consumers' trust. In addition, the study examines the moderating effects of consumers' s-commerce experience on the relationships between these trust antecedents and trust and the effect of trust on trust performance. The results based on a sample of 466 s-commerce users and structural equation modeling with SmartPLS 2.0 indicate significant effects of all trust antecedents; significant moderating effects of consumers' s-commerce experience and a positive effect of trust on trust performance and suggest a new theory for IS research. In addition, the results have important implications for s-commerce firms wishing to develop consumers' trust as well as effective business models.

**Key words:** s-commerce, experience, trust, trust performance, consumers' trust, business models

## INTRODUCTION

The business model of electronic commerce (e-commerce) has evolved because of the rapid development of technologies and services, including the rise of Social Networking Sites (SNSs). Recently, Social commerce (s-commerce), a new online business model incorporating SNSs, has attracted considerable attention from e-commerce researchers. s-commerce users employ SNSs as a main communication channel for sharing their shopping experiences and product/service information (Stephen and Toubia, 2010). In addition, s-commerce users make informed group purchases and obtain the lowest prices by exchanging reliable opinions/information on products and services as well as on s-commerce firms which reflects a unique advantage of s-commerce.

Recent years have witnessed the rapid growth of s-commerce firms in Korea. As of 2011, there were more than 300 registered s-commerce firms and the size of the s-commerce market was approximately USD 300 million (Kim, 2011). However, many of these firms were small and lacked sufficient resources and as a result, they had some negative effects (e.g., poor service, fraud, delayed refunds and inaccurate information) on consumers and the s-commerce market as a whole. That is, consumers' trust in s-commerce decreased and some users became victims of fraud by unscrupulous s-commerce firms. This indicates a need for focusing on consumers' trust in s-commerce.

Previous studies of various forms of e-commerce (Gefen, 2000) have suggested that the level of trust plays a critical role in consumers' decision to buy or avoid products and services on the Internet. Kim and Kim (2010) claimed that a positive relationship between online firms and consumers is not possible without trust. Although e-commerce is still growing through the evolution of technologies and business models, e-commerce users remain concerned about various issues related to trust, including information quality, security, credibility and exchange/refund policies.

Building consumers' trust is more important for s-commerce firms than for other online firms because s-commerce relies on SNSs, whose users create content and share it with other users. Therefore, if an s-commerce firm develops strategies to build consumers' trust, it may have more opportunities to grow as a stable and sustainable online firm. Jarvenpaa *et al.* (2000) claimed that e-commerce firms are not likely to realize their economic potential if consumers do not trust them. This indicates that various issues surrounding online consumers' concerns arising from a lack of trust or distrust play a crucial role in e-commerce, particularly in s-commerce (Kim *et al*., 2011).

However, no study has investigated users' behaviors regarding to trust in s-commerce, particularly the effects of the major characteristics of s-commerce (its reputation, size, information quality and communication) on consumers' trust which in turn can influence trust

**Corresponding Author:** Sanghyun Kim, School of Business Administration, Kyungpook National University, 701-702 Sankyuk-dong, Puk-ku, Daegu, South Korea Tel: +82-53-950-5877 Fax: +82-53-950-6247

performance. Because s-commerce is a new online business model and a growing phenomenon, there is a need for a better understanding of the key factors influencing consumers' trust in s-commerce. In addition, consumers who trust e-commerce may not necessarily trust s-commerce. Bansal and Chen (2011) claimed that consumers are more likely to trust e-commerce sites than s-commerce sites. In this regard, an analysis of the variables that may have significant effects on consumers' trust in s-commerce should provide the IS community with useful insights.

The present study's approach to s-commerce is unique in that the proposed research model has important implications for explaining the effects of various antecedents of consumers' trust in s-commerce on the formation of trust in the context of s-commerce, a new business transaction paradigm. In addition, no study has examined the effects of these trust antecedents on trust from the perspective of consumers. In this regard, the major purpose of this study is to investigate the effects of various antecedents of trust in s-commerce (reputation, size, information quality and communication) on trust and the effect of trust on trust performance. In addition, the study empirically evaluates the moderating effects of consumers' s-commerce experience on the relationships between these trust antecedents and trust.

## LITERATURE REVIEW

**Previous research on s-commerce:** Despite the rapid growth of services based on social networks, including s-commerce and social shopping, few studies have examined s-commerce, particularly the effects of various characteristics of s-commerce on consumers' trust in s-commerce and the relationship between trust and trust performance in the context of s-commerce. In addition, previous studies have typically focused on the technical and conceptual aspects of s-commerce. For example, Stephen and Toubia (2010) examined the implications of the economic value of social networks of sellers in a large s-commerce marketplace and found that s-commerce symbolizes a customer-oriented online marketplace composed of individual stores connected through networks of sellers and customers in which customers use the networks to move from one shop to another by using hyperlinks.

Weijun and Lin (2011) provided the current research trend and some background information on s-commerce through document and comparative analyses. In addition, they summarized the definitions and characteristics of s-commerce, analyzed several cases of s-commerce and explored its future development, providing a basic understanding of s-commerce. In addition, they claimed that information quality, communication and viral marketing are the major characteristics of s-commerce and play important roles in consumers' trust.

In addition to descriptive and opinion studies, empirical studies have investigated the factors influencing social shopping and SNSs. For example, Hsiao *et al.* (2010) investigated the antecedents and consequences of trust in social shopping and proposed a comprehensive framework for analyzing the effects of two sub-concepts of trust-trust in product recommendations and trust in websites-on consumers' intention to purchase products from a website. They considered a number of variables and found that the website's reputation, quality and institutional assurance have significant effects on consumers' trust in social shopping.

Lin and Lu (2011) proposed an integrated theoretical framework for researchers by combining motivation theory with network externalities to interpret the reason why individuals continue to join SNSs and demonstrated that the framework shows good explanatory power for predicting individuals' intention to continue using SNSs, providing a new direction for future research. Although, previous studies have examined social media and shopping, there remains a need for identifying the key variables that can help explain the formation of trust and trust performance in s-commerce because trust has become a topic of special interest in the context of s-commerce.

**s-commerce experience:** Previous studies of technology adoption have regarded individuals' experience as a key determinant of individual differences (Igbaria *et al.*, 1995). For example, previous marketing research has suggested that consumers' previous experience with a similar technology/service is one of the major factors influencing their attitudes toward and trust in a new technology/service (Dabholkar, 1996). Previous IS studies have provided similar findings in terms of the relationship between consumers' experience and their behavior toward the use of e-commerce.

In general, previous studies of technology acceptance have examined the effects of consumers' experience on the relationships between subjective norms and perceived usefulness/use intentions (Venkatesh and Morris, 2000) and provided consistent findings: The effects of subjective norms on perceived usefulness or use intentions weaken over time because individuals gain a better evaluation of the benefits and costs associated with the use of a particular technology.

However, no study has examined the role of consumers' s-commerce experience and how this

experience influences other variables and trust in s-commerce, indicating a need for an in-depth analysis of the moderating effects of consumers' s-commerce experience on the relationships between various antecedents of trust in s-commerce and trust (Weijun and Lin, 2011). Because s-commerce is a new online business model, it remains a major source of concern for many online consumers. Thus, consumers' online experience may play a crucial role in enhancing the formation of trust in the context of s-commerce.

**Trust:** Trust has been studied in many contexts in social sciences and thus, previous studies have provided different definitions of trust. For example, Schurr and Ozanne (1985) defined trust as confidence in the opponent's intention to develop a faithful business relationship and the reliability of his or her words or appointments. Mayer *et al.* (1995) defined trust as an expression for enduring damage from the opponent's action and Doney and Cannon (1997) suggested that it is confidence in the opponent. Given various definitions of trust, previous studies (Kim *et al.*, 2011) have generally suggested that trust provokes cooperative acts, catalyzes systems such as networks and reduces conflicts between organizations and unnecessary costs.

Some studies have used the term "online trust" to describe trust in online business. However, it remains unclear whether all forms of online trust can be understood through a single definition. Therefore, Corritore *et al.* (2003) defined online trust as an individual's preference for a specific website for transactions or information and identified four dimensions of credibility related to consumers' online trust: honesty, expertise, predictability and reputation. Despite the importance of consumers' trust in online firms, most online firms, including e-commerce/s-commerce firms, have difficulty building this trust. Chang and Chen (2008) claimed that trust in any type of e-commerce, including s-commerce, may induce interactions between sellers and buyers and that this can increase consumers' trust in online firms. In addition, Gefen (2000) examined the role of trust in the context of online bookstores and suggested that trust is a major determinant of consumers' purchase intentions. Other studies (Kim *et al.*, 2008) have provided similar findings, verifying that consumers' trust in websites plays a crucial role in their purchasing decisions. Given the important role that trust plays in online business, previous studies (Chau *et al.*, 2007; Flavian *et al.*, 2006; Kuan and Bock, 2007) have suggested some major antecedents of online trust. For example, the major characteristics of websites include their information quality, service quality, perceived usefulness and design (Bart *et al.*, 2005; Cheung and Lee, 2006; Koufaris and Hampton-Sosa, 2004). Consumers' trust in an online firm is influenced by factors such as the firm's reputation, scale and offline existence (Jarvenpaa *et al.*, 2000; Walczuch and Lundgren, 2004) and such factors have a positive relationship with trust in online environments (Chen, 2006).

Previous studies of s-commerce have suggested that some characteristics of s-commerce may have considerable influence on consumers' trust. For example, Weijun and Lin (2011) claimed that the unique characteristics of s-commerce include participation, intercommunication, convergence, lubrication, user segmentation and connectivity and that these characteristics play critical roles in the formation of trust. In addition, Hsiao *et al.* (2010) used the term "social shopping" to describe s-commerce and conducted an empirical analysis of various factors influencing trust in terms of product recommendations and trust in websites. They found that a website's perceived reputation, quality and institutional assurance have significant positive effects on consumers' trust in the website. This implies that trust in s-commerce may be influenced by many external variables and indicates a need for further analysis.

**Trust performance:** Previous studies have considered trust as a mediator of the relationship between behavioral intentions and individual characteristics, online environments and information technology (Gefen and Straub, 2004) and investigated various aspects of trust (e.g., trust in websites, trust in products and sellers' and buyers' trust) to better understand individuals' specific behaviors (Teo and Liu, 2007). Such behaviors include individual attitudes, intentions and the adoption of certain products and services in the context of online business. In addition, Pavlou and Gefen (2004) suggested that consumers' trust has a significant effect on trust performance, particularly on their purchase intentions in internet shopping.

The relationship between trust and trust performance has been examined in various contexts. For example, Sarker *et al.* (2011) explored the theoretical relationships between trust, communication and member performance in virtual teams and proposed additive, interaction and mediation models to explain the role of trust in its relationship with communication and to investigate the relationship between trust and trust performance in virtual teams. They suggested that, among the three models, the mediating model best explains the effects of collaboration between trust and communication on trust performance. Yoon (2002) tested a model for the antecedents

(transaction security, website properties, search functions and personal variables) and consequences (purchase intentions) of consumers' trust in the context of online environments and found that trust in the website has a significant effect on online purchase intentions.

Chang and Chen (2008) examined the effects of various online environmental cues on consumers' purchase intentions toward an online retailer and the mediating effect of their trust in the retailer and found that the website's quality and brand image have considerable influence on consumers' trust and thus their purchase intentions. However, most studies have focused on existing online business models (e.g., e-commerce) to explain the relationship between trust and purchase intentions. Because trust is more important in s-commerce than in other forms of e-commerce because of the nature of SNSs, there is a need for an empirical analysis of the effects of trust on purchase intentions in the context of s-commerce.

## RESEARCH MODEL AND HYPOTHESES

**Research model:** Figure 1 shows the proposed research model with the hypotheses. The model highlights the importance of the constructs representing the antecedents of trust, including s-commerce firms' reputation, size, information quality and communication. In addition, the model proposes consumers' s-commerce experience as a moderator of the relationships between these trust antecedents and trust.

The research model is based not only on the literature review but also on informal interviews with several s-commerce users for their opinions on the key determinants of consumers' trust in s-commerce. The interview results indicate that an s-commerce firm's reputation, size, information quality and communication methods are important factors influencing consumers' trust in the firm. Therefore, the research model includes the antecedents of trust as the main part of the investigation into the key factors influencing consumers' trust in s-commerce and experiences as a moderating effect that strength the relationship between the antecedents of trust and trsut.

### Hypothesis development

**Trust antecedents:** The first variable for the antecedents of consumers' trust in s-commerce is the s-commerce firm's reputation which is defined in this study as the level of consumers' trust that an s-commerce firm would have by being honest with its customers. The level of consumers' trust increases when firms have a good reputation or image (Doney and Cannon, 1997). Because many s-commerce firms are new, consumers may place great emphasis on their reputation because this indicates their ability to perform well.

Koufaris and Hampton-Sosa (2004) claimed that consumers' perception of the reputation of an online firm plays a key role in the formation of their trust in the online firm. Thus, an e-commerce website's reputation can have considerable influence on consumers' trust in the website. In addition, consumers often share information on the reputation of online firms and thus, an online firm's reputation can be an important factor influencing consumers' trust in the firm (Teo and Liu, 2007; Chen, 2006). Previous studies of e-commerce (Casalo *et al*., 2007; Janda *et al*., 2002; McKnight *et al*., 2002) have verified the relationship between an e-commerce firm's reputation and consumers' trust in the firm. This indicates that consumers may use an s-commerce firm's reputation as a reasonable variable for evaluating their trust in the firm when purchasing products or services through s-commerce sites. In this regard, the following hypothesis is proposed:

- **Hypothesis 1 (H1):** An s-commerce firm's reputation has a positive effect on consumers' trust in the firm

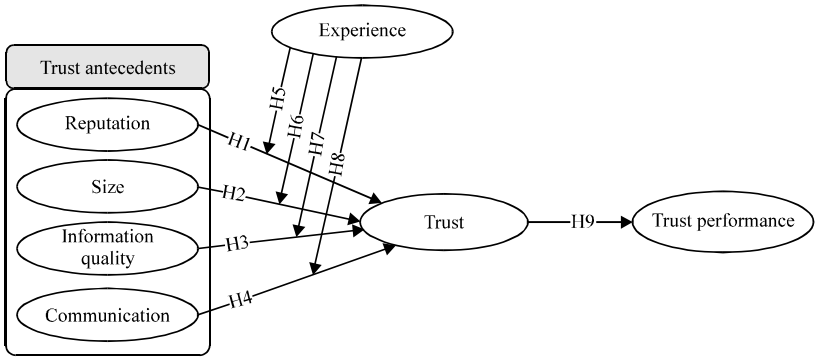


Fig. 1: The proposed research model with hypotheses, H1-H9: Hypothesis

The second variable is the size of the s-commerce firm which is defined in this study as the extent to which consumers perceive an s-commerce firm to be large in terms of its assets and market share. Consumers are more likely to believe firms that are large in all aspects and this belief can facilitate online transactions because consumers expect them to be less risky (Lu *et al*., 2006). Jarvenpaa *et al*. (2000) suggested that the size of an e-commerce firm is an important factor influencing consumers' trust in the firm. That is, average consumers believe that large firms are likely to be more reliable than small and medium-sized ones.

Previous studies have verified the effects of firm size on trust. For example, Doney and Cannon (1997) claimed that consumers' trust in an online firm is determined based on the size of the firm because this size fosters their trust. An online firm's size is indicated not only by its physical or financial capability but also by its website because large firms are more likely than small and medium-sized ones to have well-designed and well-developed websites that encourage online transactions (Teo and Pian, 2003). Pavlou (2003) claimed that consumers are more likely to trust major firms because of their strong financial capability. These findings indicate that large online firms are more likely to provide a wide range of products and services through well-organized websites and thus that consumers' perception of the size of an s-commerce firm may influence the formation of their trust in the firm. In this regard, the following hypothesis is proposed:

- **Hypothesis 2 (H2):** The size of an s-commerce firm has a positive effect on consumers' trust in the firm

Information quality is defined in this study as the extent to which an online firm provides consumers with accurate and complete information on a real-time basis. Kim *et al*. (2008) claimed that online consumers are highly dependent on information provided by websites because they have limited sources for information on products and services. Therefore, consumers are more likely to trust websites providing accurate and timely information than those that do not. In addition, websites providing high-quality information on products and services are likely to be accepted as reliable online firms (Liao *et al*., 2006).

Information quality may be more important for s-commerce firms than for other types of e-commerce firms because s-commerce users create and post information on products and services. Consumers share their s-commerce experience by using functions such as feedback, bulletin boards and Q and A boards, among others. Thus, an s-commerce site that provides consumers with accurate, understandable and real-time information may obtain their trust which in turn can induce consumers to purchase from the site or recommend it to others. In this regard, the following hypothesis is proposed:

- **Hypothesis 3 (H3):** An s-commerce site's information quality has a positive effect on consumers' trust in the site

Communication is another antecedent of consumers' trust in s-commerce and is defined in this study as formal and informal processes through which consumers create content and share it with others for mutual understanding (Moon and Lee, 2008; Rogers, 1986). Many forms of communication (e.g., emails, opinion boards and FAQ boards) play important roles in fostering consumers' trust in online environments. Moorman *et al*. (1992) suggested that animated conversations play an essential role in building successful relationships between consumers and firms and have positive effects on consumers' trust.

Kim and Joo (2001) claimed that one of the most important and unique features of internet shopping is its ability to facilitate interactions between consumers and between buyers and sellers anytime, anywhere. Thus, communication plays an important role in activating online communities. Park and Kang (2003) found that outcomes of various communication features offered by online firms (e.g., experience/information sharing among consumers) can have a significant positive effect on the level of consumers' trust. The effect of communication on consumers' trust may be stronger in s-commerce than in other forms of e-commerce because s-commerce is based mainly on interactions between consumers who depend on others' opinions and experiences when making purchasing decisions. In this regard, the following hypothesis is proposed:

- **Hypothesis 4 (H4):** An s-commerce site's communication features have a positive effect on consumers' trust in the site

**The moderating effect of consumers' s-commerce experience:** Consumers' experience with an emerging technology or an online business model (including online services) refers to the level of their satisfaction with the adoption of a new technology or online business model (Igbaria *et al*., 1995). s-commerce users with a satisfactory experience with a new technology or an online firm in the past may trust that technology or firm and have positive attitudes toward the use of the latest technologies and online firms (Zmud, 1979). On the other hand, if a consumer's previous experience with an online firm is not favorable, then the consumer's attitudes toward the firm may depend on other factors.

When deciding on whether and how much to trust a new technology or online firm, consumers find cues from trust related factors and acquire high or low confidence based on their previous experience with other technologies or online firms. Thus, consumers' online experience may moderate the relationships between various antecedents of trust in online firms and trust. Previous studies (Pizzutti and Fernandes, 2010) have found that consumers' previous online experience moderates the relationships between various trust antecedents and trust in online purchases and suggested that consumers' online experience can be positive (good, pleasant and valuable) or negative (bad, unpleasant and valueless). A positive experience can mitigate normally negative effects on consumers' trust (Tax *et al*., 1998).

Jin and Park (2006) investigated the moderating effect of consumers' online purchase experience on the relationships between various attributes of online stores and trust. Previous studies have suggested that the relationships between various factors facilitating trust and consumers' trust can change based on consumers' previous experience. However, although previous studies have examined the effects of trust-building factors such as service quality, customer bonding, website design, communication and reputation on trust (Gounaris and Venetis, 2002), no study has investigated trust-building cues by considering the antecedents of trust in s-commerce. In addition, the moderating effect of consumers' previous experience should be examined in the context of trust in s-commerce because s-commerce is a new service and thus has not been examined extensively in social sciences. Therefore, it should be interesting to examine consumers' s-commerce experience as a moderator of the relationships between various antecedents of trust in s-commerce and trust. In this regard, the following hypothesis is proposed:

- **Hypothesis 5 (H5):** A consumer's s-commerce experience moderates the relationship between an s-commerce firm's reputation and the consumer's trust in the firm
- **Hypothesis 6 (H6):** A consumer's s-commerce experience moderates the relationship between an s-commerce firm's size and the consumer's trust in the firm
- **Hypothesis 7 (H7):** A consumer's s-commerce experience moderates the relationship between an s-commerce site's information quality and the consumer's trust in the site
- **Hypothesis 8 (H8):** A consumer's s-commerce experience moderates the relationship between an s-commerce site's communication features and the consumer's trust in the site

**Trust and trust performance:** Online transactions require the minimization of consumers' anxiety and uncertainty concerning the virtual space. Therefore, consumers' trust in a certain type of online business (e.g., e-commerce, m-commerce and s-commerce) may be the most important factor in business success. Previous studies have demonstrated that if e-commerce firms can convince a consumer to trust them, then the consumer may show favorable behavior in terms of purchase intentions (Jang, 2005; Kim *et al*., 2009).

Trust has been examined in various contexts, including psychology, marketing and sociology. Therefore, a number of definitions of trust have been proposed, causing some confusion and hindering knowledge accumulation (Lu *et al*., 2006). Mayer *et al*. (1995) provided the most widely used definition of trust: "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (p. 712). Based on existing definitions of trust, the present study defines trust as the inclination of s-commerce users to trust the capacity, charity, honesty and predictableness of a seller based on their beliefs.

Several studies (Doney and Cannon, 1997) have claimed that trust has a positive effect on trust performance, particularly purchase intentions. Consumers' trust in online firms is an important antecedent of their purchasing decisions and is a key factor influencing their purchase intentions (Jang, 2005). Kuan and Bock (2007) examined the major factors influencing online trust performance in the context of e-commerce and found that online trust has a positive effect on online purchase intentions.

In addition, other studies have concluded that the more a consumer trusts an online firm, the more likely the consumer is to show purchase intentions toward the online firm (Lu *et al*., 2006; McKnight *et al*., 2002). However, no study has examined this relationship in the context of s-commerce, although trust is an important issue in s-commerce because of its nature, that is, the use of SNSs as a main source of information and experience sharing. In this regard, the following hypothesis is proposed:

- **Hypothesis 9 (H9):** Trust has a positive effect on trust performance

## MATERIALS AND METHODS

**Sample:** A sample of s-commerce users in Korea was considered to test the proposed model. Because of the

number of these users increased sharply in recent years, they represented a large and diverse population, increasing the validity of the results. Multidimensional survey methods (e.g., online, offline, telephone and email methods) were used to collect data. A total of 476 responses were obtained and among these, 10 were discarded because of missing or nonapplicable data. Thus, a total of 466 responses were used to analyze the measurement and structural models. Before the survey, the respondents were provided with some examples explaining the purpose of the survey and the concept of s-commerce.

The respondents represented a diverse group and their ages ranged from 19 to 55 (average age = 35.7). A majority of the respondents were female (52.8%). All the respondents were s-commerce users and had various occupations; 19.1% were students; 23.4%: office workers, 15.9%: technicians, 12.9%: professionals, 24.0%: self-employed workers and 4.7%: others.

They used well-known s-commerce sites for various purposes: 56.4, 53.0 and 44.6% used Coupang, Tickmonster and Groupon, respectively. More than half of the respondents (55.4%) used s-commerce to purchase event tickets (e.g., movies, concerts and performances). A majority of the respondents (64.6%) were s-commerce users for 12-24 months. Table 1 shows the characteristics of the respondents.

Table 1: Characteristics of respondents

| Demographic categories | Frequency | Percentage |
|---|---|---|
| **Age** | | |
| <20 | 66 | 14.2 |
| 20-29 | 104 | 22.3 |
| 30-39 | 168 | 36.1 |
| 40-49 | 74 | 15.9 |
| ≥50 | 54 | 11.6 |
| **Gender** | | |
| Male | 188 | 40.3 |
| Female | 278 | 59.7 |
| **Occupation** | | |
| Student | 89 | 19.1 |
| Office worker | 109 | 23.4 |
| Technician | 74 | 15.9 |
| Professional | 60 | 12.9 |
| Self-employed | 112 | 24.0 |
| Others | 22 | 4.7 |
| **s-commerce sites used (multiple responses)** | | |
| Groupon | 208 | 44.6 |
| Coupang | 263 | 56.4 |
| Wemakerprice | 95 | 20.4 |
| Tickmonster | 247 | 53.0 |
| Others | 36 | 7.7 |
| **Items purchased from s-commerce sites (multiple responses)** | | |
| Event ticket | 258 | 55.4 |
| Beauty/health | 95 | 20.4 |
| Travel | 176 | 37.8 |
| Fashion | 84 | 18.0 |
| Electronic appliance | 43 | 9.2 |
| Others | 29 | 6.2 |
| **Length of s-commerce use** | | |
| <6 months | 42 | 9.0 |
| ≥6,<1 year | 109 | 23.4 |
| ≥1,<2 years | 192 | 41.2 |
| ≥2 years | 123 | 26.4 |
| Total responses | 466 | 100.0 |

**Measures of research variables:** Survey items were developed to measure each variable based on previous research. However, each item was modified to include s-commerce as the technology to be assessed. For example, the items for an s-commerce site's reputation, size and information quality were adapted from several studies (Doney and Cannon, 1997; Jarvenpaa *et al*., 2000). The items for other constructs in the research model were developed by modifying and amalgamating measures from several studies (Kim *et al*., 2008; Vatanasombut *et al*., 2008). All items were measured using a seven-point Likert-type scale ranging from "strongly disagree" (1) to "strongly agree" (7). The respondents indicated the extent to which they agreed with each item based on this scale.

## RESULTS

**Analysis of the measurement model:** Before the structural model was tested, the validity of the measurement model was tested using the Partial Least Squares (PLS) technique with SmartPLS 2.0. The PLS technique was appropriate for this study because the main objective of the study was to determine the predictive validity of the specified paths, not to establish the best-fitting causal model. In addition, another advantage of using the PLS technique was that it was used to test the measurement and structural models simultaneously.

Based on Barclay *et al*. (1995) suggestion, the measurement model was evaluated based on item reliability, internal consistency and discriminant validity. Item reliability was evaluated through item or factor loadings. Sufficient item reliability requires loadings of individual items exceeding 0.7 for their proposed factors (Chin, 1998). The results indicate that two items (rep3 and iq2) had loadings less than this threshold. Thus, these items were omitted based on the methodological procedure (Gefen *et al*., 2000) and item reliability was reevaluated. As shown in Table 2, all items exceeded the threshold for the refined model, indicating that the survey items were adequate for measuring each variable individually.

Internal consistency was evaluated by analyzing Cronbach's alpha which is the most widely used measure for testing internal consistency in social sciences. Nunnally (1979) suggested that the minimum acceptable alpha is 0.7 for each item. The results indicate that Cronbach's alpha for each construct ranged from 0.80 to 0.92, exceeding the threshold and thus demonstrating sufficient internal consistency. Table 2 shows the results for item reliability and internal consistency for both the original and refined measurement models.

Table 2: Results for item reliability and internal consistency

| | Original model | | | Refined model | | |
|---|---|---|---|---|---|---|
| Construct | Weight | Loading | Cronbach's alpha | Weight | Loading | Cronbach's alpha |
| **Reputation** | | | | | | |
| rep1 | 0.225 | 0.784 | 0.84 | 0.237 | 0.789 | 0.89 |
| rep2 | 0.234 | 0.800 | | 0.253 | 0.810 | |
| rep3 | 0.371 | 0.417 | | - | - | |
| rep4 | 0.201 | 0.758 | | 0.256 | 0.778 | |
| **Size** | | | | | | |
| siz1 | 0.423 | 0.760 | 0.80 | 0.423 | 0.760 | 0.80 |
| siz2 | 0.327 | 0.810 | | 0.327 | 0.810 | |
| siz3 | 0.282 | 0.746 | | 0.282 | 0.746 | |
| siz4 | 0.239 | 0.822 | | 0.239 | 0.822 | |
| **Information quality** | | | | | | |
| iq1 | 0.226 | 0.758 | 0.79 | 0.267 | 0.787 | 0.85 |
| iq2 | 0.254 | 0.422 | | - | - | |
| iq3 | 0.450 | 0.884 | | 0.498 | 0.879 | |
| iq4 | 0.392 | 0.892 | | 0.370 | 0.899 | |
| **Communication** | | | | | | |
| com1 | 0.233 | 0.829 | 0.83 | 0.253 | 0.831 | 0.83 |
| com2 | 0.195 | 0.796 | | 0.197 | 0.798 | |
| com3 | 0.377 | 0.912 | | 0.368 | 0.884 | |
| com4 | 0.390 | 0.789 | | 0.351 | 0.768 | |
| **Experience** | | | | | | |
| ex1 | 0.357 | 0.748 | 0.86 | 0.360 | 0.755 | 0.86 |
| ex2 | 0.514 | 0.853 | | 0.517 | 0.859 | |
| ex3 | 0.428 | 0.824 | | 0.429 | 0.835 | |
| **Trust** | | | | | | |
| tru1 | 0.318 | 0.789 | 0.88 | 0.318 | 0.789 | 0.88 |
| tru2 | 0.241 | 0.849 | | 0.241 | 0.849 | |
| tru3 | 0.342 | 0.862 | | 0.342 | 0.862 | |
| tru4 | 0.330 | 0.874 | | 0.330 | 0.874 | |
| **Purchase intention** | | | | | | |
| pi1 | 0.351 | 0.880 | 0.92 | 0.354 | 0.881 | 0.92 |
| pi2 | 0.299 | 0.854 | | 0.299 | 0.850 | |
| pi3 | 0.350 | 0.912 | | 0.350 | 0.920 | |
| pi4 | 0.467 | 0.841 | | 0.467 | 0.841 | |

Finally, discriminant validity (the degree to which a given construct is dissimilar to other constructs) was tested by evaluating the Average Variance Extracted (AVE) and correlations between the variables. For sufficient discriminant validity, the square root of the AVE should exceed the values of both horizontal and vertical correlations between variables (Chin, 1998). In Table 3, the figures along the diagonal (in bold type) indicate the square root of the AVE which exceeded the off-diagonal correlations between the constructs, demonstrating sufficient discriminant validity. The results for the measurement model indicate that the survey instrument showed acceptable levels of validity and reliability and therefore, the structural model and hypotheses were evaluated with confidence.

Table 3: AVE scores and correlations between latent variables

| Latent variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Reputation (1) | **0.79** | | | | | | |
| Size (2) | 0.24 | **0.79** | | | | | |
| Information quality (3) | 0.32 | 0.27 | **0.86** | | | | |
| Communication (4) | 0.33 | 0.39 | 0.21 | **0.82** | | | |
| Experience (5) | 0.20 | 0.42 | 0.28 | 0.19 | **0.82** | | |
| Trust (6) | 0.35 | 0.31 | 0.40 | 0.48 | 0.43 | **0.85** | |
| Purchases intention (7) | 0.29 | 0.24 | 0.33 | 0.39 | 0.36 | 0.33 | **0.87** |

Values along the diagonal (in bold type) indicate the square root of the AVE. For discriminant validity, diagonal values should exceed off-diagonal correlations

**Analysis of the structural equation model:** After the measurement model was evaluated, the structural model was formulated using SmartPLS 2.0 to test the proposed casual relationships. The structural model provided two important pieces of information on how well the hypothesized relationships were predicted by the structural model. The first piece was on calculating path coefficients (i.e., standardized beta: $\beta$) which indicate the strength of the relationship between two variables (Wixom and Watson, 2001).The second one was on the squared multiple correlation ($R^2$) for each endogenous variable in the research model. The $R^2$ value explains the percentage of the variance explained by independent variables in the structural model (Barclay *et al*., 1995).

Among the four variables for the characteristics of s-commerce, the s-commerce firm's reputation and size had significant positive effects on trust ($\beta = 0.48$, $p<0.01$; $\beta = 0.51$, $p<0.001$, respectively), providing support for H1 and H2, respectively. In addition, information quality

and communication had positive effects on trust in s-commerce ($\beta$ = 0.39, $p<0.01$; $\beta$ = 0.32, $p<0.001$, respectively), providing support for H3 and H4, respectively.

Consumers' s-commerce experience had significant moderating effects on the relationships between their trust in s-commerce and reputation, size, information quality and communication ($\beta$ = 0.34; $\beta$ = 0.38; $\beta$ = 0.41; $\beta$ = 0.37, respectively) at $p<0.01$, indicating that it was a key factor facilitating these relationships and thus providing support for H5, H6, H7 and H8, respectively. Finally, trust had a positive effect on trust performance ($\beta$ = 0.52, $p<0.001$), providing support for H9. Among the four antecedents of trust, the size of the s-commerce firm was the most important factor influencing the formation of consumers' trust in the firm. This result is consistent with the findings of previous research (Roberts *et al*., 2010).

In terms of the $R^2$ value for each endogenous variable, the four antecedents explained 62.4% of the variance in trust. In addition, trust explained 58.6% of the variance in trust performance. These results indicate that 62.4% of the change in trust was explained by the change of four trust antecedents and 58.6% of the change in trust performance was explained by the change of trust. Figure 2 shows the results for the structural model.

This study investigates the major factors influencing trust in s-commerce and the effect of this trust on trust performance. In particular, the study proposes a research model incorporating various antecedents of trust in s-commerce (reputation, size, information quality and communication). The results indicate that the measurement model showed sufficient reliability and validity for all the variables in the research model. In addition, the results for the structural model verify that all path coefficients were significant.

The results provide new insights into trust in s-commerce. All the proposed hypotheses were supported and the antecedents explained 62.4% of the variance in trust which in turn explained 58.6% of the variance in trust performance. These results are consistent with the findings of previous research (Kim *et al*., 2011) and indicate that an s-commerce user is more likely to trust an s-commerce site whose reputation, size, information quality and communication features satisfy the user. First, the results provide support for H1 (which predicted a positive relationship between an s-commerce firm's reputation and consumers' trust in the firm), suggesting that online consumers understand that purchasing products or services online entail a higher level of risk than offline purchases because of the anonymity of the online environment. Thus, s-commerce users depend on the reputation of s-commerce firms to avoid potential risks (e.g., fraud and no delivery). Therefore, s-commerce users are likely to determine their trust in an s-commerce firm based on its reputation.

The results provide strong support (the highest path coefficient) for H2 (which predicted a positive relationship between size and trust), suggesting that the size of an s-commerce firm plays a crucial role in building consumers' trust in the firm. Large s-commerce firms in terms of financial capability and the number of employees and offices are more likely to gain consumers' trust. This result is consistent with the findings of previous studies investigating the effects of the size of firms on trust (Roberts *et al*., 2010).

The results provide support for H3 and H4 (positive relationships between information quality and trust and between communication and trust, respectively). This suggests that an s-commerce firm's information quality has considerable influence on consumers' trust in the firm

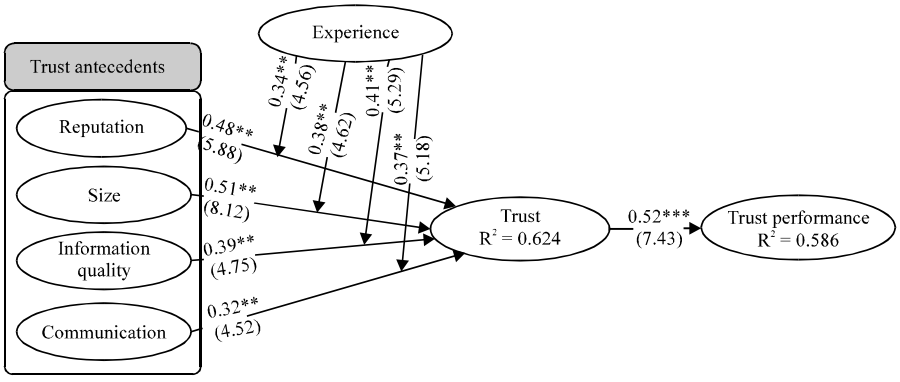


Fig. 2: Structural model; regular numbers are standard coefficient, No. within parenthesis are t-value, **$p<0.01$, ***$p<0.001$, $R^2$: Multiple correlation square

and that s-commerce firms are more likely to gain consumers' trust if they provide correct, useful, reliable and sufficient information on products and services. In addition, the results indicate a positive relationship between communication features and trust, suggesting that various communication features (e.g., feedback, chatting and online assistance) offered by an s-commerce firm can be used to foster consumers' trust in the firm.

Consumers' s-commerce experience had significant moderating effects on the relationships between various antecedents of trust in s-commerce and trust, enhancing these relationships. This suggests that s-commerce users are more likely to have positive experiences with other types of online commerce and thus that these antecedents are critical determinants of the formation of trust in s-commerce. Finally, the results provide support for the relationship between trust and trust performance, suggesting that s-commerce users who trust s-commerce firms are more likely to show trust performance than those who do not. In other words, a low level of trust or distrust is often a barrier to trust performance and discourages consumers from using an unfamiliar e-commerce site until they acquire necessary knowledge to have sufficient trust in the site (Chang and Chen, 2008).

This study highlights the uniqueness of the trust question as it applies to trust and trust performance in the context of s-commerce, thereby presenting the IS community with important contributions and implications. First, this study develops and empirically tests a research model reflecting theoretical advances in online trust in a new technology. In particular, previous studies have not conceptualized the effects of the antecedents of trust in s-commerce on trust. In this way, this study not only validates the research model but also develops some instruments for measuring the constructs. The results provide a new framework for future s-commerce research which should be particularly useful because few studies have explained individuals' attitudes and behaviors in the context of s-commerce.

Second, this study provides a better understanding of some important variables (particularly nontechnical ones) influencing trust in s-commerce to explain the process of trust performance at the individual level (where the antecedents of trust in s-commerce, not technological or social attributes, are evaluated). Third, online firms with a solid understanding of the determinants that have positive effects on trust and trust performance are more likely to transform traditional e-commerce firms into fully trusted s-commerce firms. In addition, those offline or e-commerce firms planning to launch s-commerce sites should take steps to better educate their managers and employees in a manner that recognizes the importance of trust. That is, s-commerce firms need to do a better job fostering consumers' trust in their firms to become more resourceful and thus to gain a competitive advantage over other s-commerce firms.

However, this study has some limitations. First, common method bias which is a main cause of measurement errors that result in misleading conclusions, may be an issue in this study because the data were collected using a self-report method. In addition, the data for the independent and dependent variables were collected simultaneously which causes another measurement error. Second, as in all other studies employing the survey method, the generalizability of the findings may be limited. The data were collected from s-commerce users in only one country. In this regard, future research should consider a wider range of countries to increase the generalizability of the findings. Finally, the proposed research model did not include factors such as the intrinsic or extrinsic value explaining consumers' trust in s-commerce. However, such factors may influence trust and thus, further research should consider a wider range of factors influencing trust and trust performance in the context of s-commerce to provide a better understanding of trust issue in s-commerce.

## CONCLUSION

The results suggest some interesting avenues for future research. First, the research model should be extended to increase the explained variance for trust and trust performance by incorporating other key characteristics such as individual and social characteristics. In addition, future research should examine various factors (e.g., perceived factors) that directly influence trust performance. Finally, future research should consider the moderating effects of other variables (e.g., social norms) on the relationships between various trust antecedents and trust and between trust and trust performance in the context of s-commerce.

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