

RESEARCH ARTICLE

A Comparison of Online Trust Building Factors between Potential Customers and Repeat Customers*

Hee-Woong Kim

Department of Information Systems
National University of Singapore
kimhw@comp.nus.edu.sg

Yunjie Xu

Department of Information Systems
National University of Singapore
disxy@nus.edu.sg

Joon Koh

Samsung Electronics
joon.koh@samsung.com

Abstract

While vendors on the Internet may have enjoyed an increase in the number of clicks on their Web sites, they have also faced disappointments in converting these clicks into purchases. Lack of trust is identified as one of the greatest barriers inhibiting Internet transactions. Thus, it is essential to understand how trust is created and how it evolves in the Electronic Commerce (EC) context throughout a customer's purchase experience with an Internet store. As the first step in studying the dynamics of online trust building, this research aims to compare online trust-building factors between potential customers and repeat customers. For this purpose, we classify trust in an Internet store into potential customer trust and repeat customer trust, depending on the customer's purchase experience with the store. We find that trust building differs between potential customers and repeat customers in terms of antecedents. We also compare the effects of shared antecedents on trust between potential customers and repeat customers. We find that customer satisfaction has a stronger effect on trust building for repeat

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customers than other antecedents. We discuss the theoretical reasons for the differences and the implications of our research.

Keywords: Trust, Online customer, Internet vendor, Purchase experience

Introduction

With the increase in Internet users, the number of clicks on the Web sites of Internet vendors has risen considerably. However, vendors have been disappointed when it comes to converting these clicks into purchases. An estimated 65 percent of Internet shoppers abandon their shopping carts after an initial attempt at navigating a retail Web site (Raymond, 2001). Because of the physical and temporal distance between buyers and sellers, Internet shopping creates uncertainty and increases risk through the delay between purchase and delivery, and the information asymmetry between the two parties. In the presence of such risk and uncertainty, lack of trust has been identified as one of the greatest barriers inhibiting Internet transactions (Cheskin, 1999; Hoffman et al., 1999). Researchers have argued that trust affects the purchase intention of potential customers (Gefen et al., 2003a,b; Jarvenpaa et al., 2000) and repeat customers (Garbarino and Johnson, 1999), and the loyalty of repeat customers (Gefen, 2002; Singh and Sirdeshmukh, 2000). It is regarded as one of the most important prerequisites for the success of Electronic Commerce (EC) (Hoffman et al., 1999).

According to the social exchange theory (Blau, 1964), which views the social exchange between two parties from an intangible cost-benefit perspective, one of the most basic trust-building tenets is the experience that the subject has with the trustee. Trust is constantly modified in the process of exchange between two parties over time (Jones and George, 1998; Lewicki et al., 1998; McKnight et al., 2002b; Molm et al., 2000; Singh and Sirdeshmukh, 2000; Zucker, 1986). In the initial phase of trust development in the Internet shopping context, potential customers tend to be more exploratory with an Internet store. Moreover, the initial trust that exists before any transaction is made could be fragile because it is not based on the store's behavior (McKnight et al., 1998). No matter how much second-hand knowledge a customer has about the store, without real transaction experience, such knowledge alone is unlikely to lead to stabilized trust. Trust is stabilized only when the customer is no longer actively looking for further evidence or reason for placing confidence in the trustworthiness of the Internet store (Jones and George, 1998; Lewis and Weigert, 1985). Customers who have purchase experience with an Internet store can be more confident in their trust belief because they have accumulated evidence of the store's trustworthiness through direct experience. In this way, trust evolves with the customer's purchase experience with the Internet store from initial trust to stabilized trust.

Though the literature has proposed trust as a dynamic concept, little research has been done to compare the nature of trust at different stages over time. In the context of Internet shopping, the majority of prior research (e.g., Jarvenpaa et al., 2000; Gefen, 2000; McKnight et al., 2002b; Grazioli and Jarvenpaa, 2000) investigated only the initial trust of potential or new customers. Some studies (Belanger et al., 2002; Bhattacharjee, 2002; Gefen, 2003b; Lee and Turban, 2001) considered a mix of the initial trust of potential customers and the trust of repeat customers, but did not investigate the potential difference in trust building between them. A deeper understanding of what factors foster trust building for potential customers and repeat customers, respectively, and how the two sets of factors may differ, remains elusive in the Internet shopping context.

As the first step in studying the dynamics of online trust building, this research aims to compare online trust building in an Internet store between potential customers and repeat customers from the variance research perspective. Trust building means the formation of trust belief, which includes the factors as well as the process. However, this study adopts a cross-sectional comparison approach and focuses on examining the factors rather than the process. Specifically, this study seeks to answer two research questions: (1) *What factors foster trust in an Internet store for potential customers and repeat customers, respectively?* (2) *How do such factors differ in their significance to trust?* This study contributes to the trust literature by providing an understanding of how trust in an Internet vendor is built differently for potential customers and repeat customers. This study also contributes to the propagation of EC by examining trust building, which leads potential customers to make their initial purchase and the repeat customers to repurchase and develop loyalty.

This paper is organized as follows. The next section presents the conceptual framework of trust building over a customer's purchase experience. The theoretical research models and hypotheses follow. We then describe our research methodology. After interpreting the empirical results, we compare trust building between potential customers and repeat customers. We discuss the theoretical reasons for the differences and conclude the paper with the implications of our findings and directions for future research.

Conceptual Framework

Trust as a social phenomenon has been studied in the psychology, sociology, economics, marketing, and management literature. Psychologists define trust as a personal tendency to trust others (Rotter, 1971). Social psychologists define trust as cognition about the trustee (Rempel et al., 1985). Sociologists define trust as a characteristic of the institutional environment (Zucker, 1986). Some management researchers conceptualize trust as a belief about certain traits of the trustee, or as an attitude toward the trustee (Mayer et al., 1995; McKnight et al., 1998). In the marketing field, trust is defined as a psychological state comprising intention to accept vulnerability based on one's positive expectations of the intentions or behaviors of another (Singh and Sirdeshmukh, 2000), or willingness to rely on an exchange partner (Ganesan, 1994). In EC research, trust has been conceptualized as a set of beliefs about an Internet vendor (Bhattacharjee, 2002; Gefen et al., 2003a; McKnight et al., 2002a). Following previous trust research (Gefen et al., 2003a; Kumar et al., 1995), this study defines trust as the belief that the other party will behave in a dependable manner in an exchange relationship.

It has also been suggested that trust evolves as the buyer-seller relationship develops from mere awareness to conducting transactions. Jones and George (1998) characterized trust evolution process as initial trust, trust stabilization, and trust dissolution, while Singh and Sirdeshmukh (2000) classified trust into pre-encounter trust and post-encounter trust, depending on the encounter experience between buyer and seller. Initial trust, to a large degree, corresponds to pre-encounter trust, while stabilized trust and dissolved trust correspond to post-encounter trust. Different levels of experience with an Internet store are expected to give a customer different amounts of knowledge and evidence for trust. Potential customers may trust a store based only on indirect or partial experience, such as browsing its Web site, while repeat customers may rely on additional evidence such as transaction experience (e.g., service quality and customer satisfaction). Such transaction experience is not available to potential customers when they form their trust perception about the vendor.

Similar to the classification of pre-encounter trust and post-encounter trust, this study classifies trust in an Internet store into two types, based on the availability of purchase experience to individual customers: potential customer trust and repeat customer trust. Potential customer trust refers to the initial trust that a potential customer has in an unfamiliar trustee. The period during which a customer visits and explores an Internet store's Web site without any transaction experience with the store is within the domain of potential customer trust. Repeat customer trust refers to the trust that a repeat customer has in a familiar trustee after having transaction experience with it.

Zucker (1986) proposed three modes of trust building: characteristic-based, institution-based, and process-based. In characteristic-based trust building, trust is tied to social similarities between exchange partners, such as race and origin. This mode is more applicable to personal relationships between individuals than to the relationship between an online customer and an Internet vendor. In institution-based trust building, trust is tied to formal social structures such as the legal system, professional association, or other types of third-party assurance; it generalizes beyond a given transaction and specific sets of exchange partners. In process-based trust building, prior experience becomes a source of trust. While Zucker's (1986) modes of trust building do not focus on the dynamics of trust development between dyads, it does offer a classification of evidences on which people base their trust.

How would such evidences (e.g., institutional assurance, direct experience) be interpreted to form trust belief? Doney and Cannon (1997) proposed the psychological reasoning processes through which trust antecedents are interpreted to form trust. According to Doney and Cannon (1997), in the buyer-and-seller relationship the reasoning processes include the calculative, prediction, capability, intentionality, and transference processes. The calculative process of trust building means that the trustor calculates the costs and/or rewards of the other party cheating or staying in the relationship. The prediction process relies on the trustor's (e.g., buyer's) ability to forecast the trustee's (e.g., seller's) behavior. The capability process involves determining the trustee's ability to meet its obligations based on one's direct experience with the trustee or evidence of the trustee's ability to fulfill its promise. The intentionality process involves evaluating the trustee's motivation based on the trustee's behavior that indicates concern for the trustor. The transference process suggests that trust can be transferred from one source to another. The combination of these two frameworks – Zucker's trust-building modes and Doney and Cannon's psychological processes of trust-building - offers a guideline for us to identify the relevant trust antecedents in the EC context.

Based on Zucker and Doney and Cannon, we identify the factors that invoke online trust building for potential and repeat customers, respectively. Table 1 summarizes the factors and the related psychological reasoning. While it would be interesting and valuable to study the longitudinal development in specific customers' online trust, this study is cross-sectional in nature. We focus on differences in the constitution of trust evidence rather than on the changes in importance of a specific trust antecedent over a time period.

What are the evidences people use to form trust online? Internet shopping involves trust not simply between the customer and the vendor, but also between the customer and the transaction medium – the Internet environment (Lee and Turban, 2001; McKnight et al., 2002b; Shankar et al., 2002). For potential customers, because of the unavailability of completed purchase experience, the institutional mode of trust building (Zucker, 1986) can be an important way to build trust. For repeat customers, however, in addition to the institutional basis of trust, personal experience offers additional evidence; this corresponds to Zucker's (1986) process mode of trust building.

Table 1 Models of Online Trust Building and the Relevant Factors			
Modes of trust building		Factors invoking potential customer trust	Factors invoking repeat customer trust
Process	Calculative	Reputation	Reputation
	Prediction	NA	Customer satisfaction
	Capability	Web site quality (information quality, system quality)	Service quality (reliability, responsiveness, assurance), Web site quality, Customer satisfaction
	Intentionality	Web site quality (information quality)	Service quality (empathy), Web site quality (information quality), Customer satisfaction
	Transference	Reputation	Reputation
Institutional		Structural assurance	Structural assurance

Potential customers tend to be more exploratory with an Internet store, carrying out tasks like product search, comparison shopping, and terms negotiation (e.g., the evaluation of service policies). At this stage, potential customers can experience only the Web site quality of an Internet store, but not its service quality. McKnight et al. (2002b) identified Web site quality as a significant antecedent of trust belief about an Internet store. A Web site may provide diverse information such as product details, price, delivery information, and return policy and conditions. Such information may reveal the trustworthiness of the vendor to customers. Customers may also partially estimate the ability of the vendor based on the system quality of the Web site. Evaluating a site's information-based and system-based qualities, customers estimate whether the vendor is trustworthy or not, which implies that Web site quality invokes the capability process of trust building. In addition, potential customers may interpret the Web site information (e.g., service policy) and attempt to determine the vendor's intentions (vendor's concern for customers) in the exchange, which implies invoking the intentionality process of trust building. However, Doney and Cannon (1997) argued that the prediction process requires "repeated and broader experience," which makes it inapplicable in the potential customer mode.

A vendor can signal its trustworthiness by building a good reputation. Reputation is a main characteristic of a vendor's trustworthiness (Doney and Cannon, 1997; Jarvenpaa et al., 2000). Since reputation represents third-party or public opinion of the vendor, it must be transferred from the third party or the public to potential customers, influencing them to build trust in the vendor. Thus, reputation invokes the transference process of trust building. In particular, when a customer has little or no direct experience with the vendor, third-party opinion about the trustworthiness of the vendor can be a major source of information for trust building. Even repeat customers estimate the trustworthiness of the vendor from its reputation (Doney and Canon, 1997). Vendors of good reputation who engage in untrustworthy behavior will ruin their reputation and forfeit the investment they have made in building it (Ganesan, 1994; Ippolito, 1990; Rao et al., 1999). Consequently online customers may calculate and infer that a reputable vendor has no reason to ruin its reputation by having untrustworthy customer exchanges, which implies invoking the calculative process of trust building.

The perceived safety of the Internet transaction environment, which may be assured by institutional structures such as legal and technological safeguards, is an important factor in trust building (McKnight et al., 2002a, b). Thus, legal and technological safeguards are important not only for potential customers but also for repeat customers in Internet shopping. This structural assurance covers not only a specific set of exchange partners and a given transaction, but the general Internet shopping environment. Trust building based on structural assurance corresponds to the institution-based trust proposed by Zucker (1986).

Repeat customers, as system users, have comprehensive experience with the Web site of a vendor; as well as have full transaction experience with the store. Therefore, they are able to evaluate both Web site quality and service quality. Previous research has found that both Web site quality and service quality exert direct effects on trust belief about an Internet store (Gefen, 2002; McKnight et al., 2002b). As customers learn more about the vendor through experience, they develop confidence that the vendor's behavior can be predicted as estimated from the Web site. For example, they may realize that the product information given at the Web site is indeed correct or that the service policies are indeed honored. Web site quality may continue to invoke the capability and intentionality processes of trust building for repeat customers, as at the pre-purchase stage.

Service quality has several dimensions, including reliability, responsiveness, assurance, and empathy (Devaraj et al., 2002; Gefen, 2002). *Empathy* means the degree to which an Internet vendor attends to, understands, and adapts to the needs of individual customers. The empathy dimension of service quality may invoke the intentionality process of trust building. The other dimensions of service quality represent the vendor's ability to meet the customer's expectations, which means invoking the capability process of trust building in the customer.

A full transaction experience from both the buyer and the system user perspectives also influences customer satisfaction. Customer satisfaction is an affective state that is the emotional reaction to a transaction experience (Spreng et al., 1996). It has been argued that satisfaction reflects a vendor's ability to meet a customer's expectations in the past, while trust is the customer's attitude toward the trustee (Mayer et al., 1995; McKnight et al., 1998) and belief that the same quality service will be delivered in the future (Selnes, 1998; Singh and Sirdeshmukh, 2000). Experiencing the positive affective state causes one to have more positive perceptions about the trustee, and results in a heightened experience of trust (Jones and George, 1998). Singh and Sirdeshmukh (2000) also asserted that satisfaction as a summarization of the trustor's previous experience in turn affects post-encounter trust, which is the trustor's belief in the future behavior of the trustee. Thus, customer satisfaction enables the trustor to believe that the trustee will behave in a trustworthy and expected way, which means invoking the prediction process of trust building. In addition, customer satisfaction is evaluated based on evidence of the vendor's ability to meet customer expectations, such as service quality. Therefore, satisfaction also invokes the capability process of trust building.

In addition to the effects of full experience on repeat customer trust, the reputation of the vendor may continue to invoke the calculative process and the transference process of trust building for repeat customers, as at the pre-purchase stage. This is because reputation continues as a signal or "hostage" in a customer's hands. Similarly, assurance from institutional structures about the Internet transaction environment may also continue to invoke institution-based trust building for repeat customers because assurance from institutional structures continues to serve as the foundation and context of a transaction.

Research Models and Hypotheses

Based on the modes of online trust building and the relevant trust building factors identified in Table 1, Figure 1 illustrates our respective research models for potential customers and repeat customers. The two models share reputation, structural assurance, and Web site quality as common antecedents. We add service quality and customer satisfaction over the whole purchase experience to the model for repeat customers only. We will further justify each hypothesis in more detail.

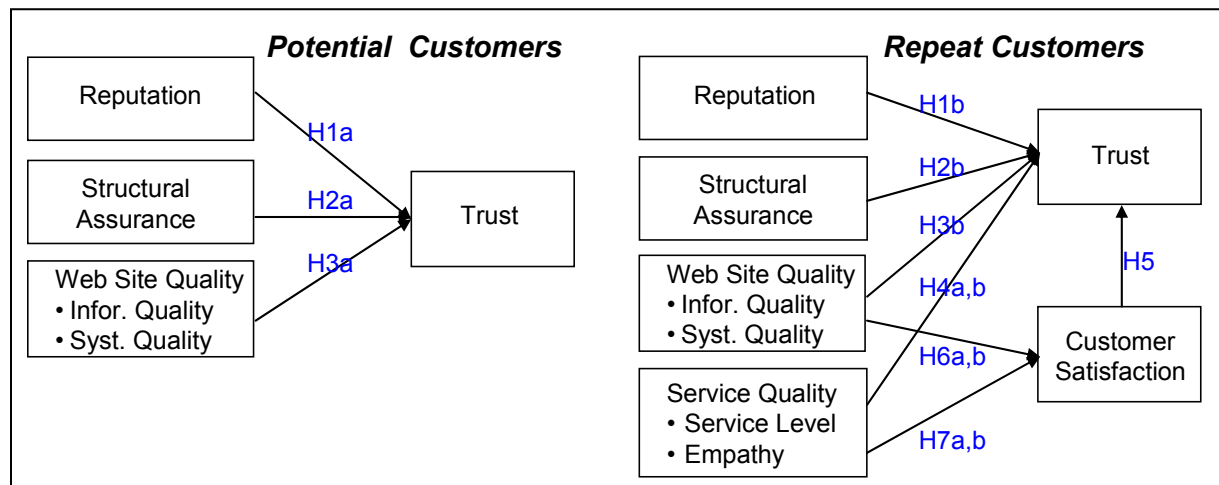


Figure 1. Research Models

Following Fombrum and Riel (1997), we define reputation as a collective representation of a vendor's past actions and results that summarizes the vendor's ability to deliver valued outcomes to multiple stakeholders. Reputation is thus an evaluation of the vendor's past performance and behavior by third parties. Online customers look for information that allows them to distinguish between trustworthy vendors and untrustworthy ones. A solution to this information problem is to find a signal about a vendor's trustworthiness. The signaling theory posits that signals are the observable actions or strategies chosen by a seller to credibly convey unobservable qualities, and these should be costly so that low-quality competitors will not be able to emulate them (Kirmani and Rao, 2000; Spence, 1973). Reputation is such a signal of unobservable trustworthiness because it is built on prior expensive investment (Shapiro, 1983). Low-quality vendors would find it difficult to imitate the good reputation of another vendor. Reputation as a signal is available to both potential and repeat customers. Indeed, reputation has been suggested as a key antecedent of the trustworthiness of a company for potential customers (Jarvenpaa et al., 2000; McKnight et al., 2002b) and repeat customers (Doney and Cannon, 1997). Hence, we hypothesize:

H1(a,b): Reputation is positively related to trust for customers (potential customers^a, repeat customers^b).

The Internet medium can be regarded as a type of computer-mediated communication (CMC) technology that can be used in a customer-vendor relationship. CMC is characterized as having a low degree of social presence. The social presence theory (Short and Christie, 1976) posits that a limited medium capacity reduces the intimacy and immediacy felt between parties because of the lack of "social cues" such as gestures and facial expressions. The low social

presence of CMC therefore increases uncertainty and lowers the safety perception of a transaction in the EC environment (Kumar et al., 1995). When social presence is low, institutional assurances, such as regulations and policies, are in demand to create a safe and secure transaction environment (Shapiro, 1987). Thus, it has been suggested that institutional trust is fundamental to building trust between customers and sellers in an impersonal economic environment without familiarity (Zucker, 1986).

Institution-based trust refers to an individual's belief that structural conditions are present in the transaction environment to enhance the probability of achieving a successful outcome in the exchange relationship. Perceptions of the structural characteristics of the Internet, such as safety and security, can influence trust in a specific vendor (Keen et al., 1999). As a major component of institution-based trust, structural assurance is defined as the legal and technological safeguards perceived by individual customers (McKnight et al., 2002a). For example, if an individual believes that legal regulations protect him/her from Internet fraud and that technological safeguards guarantee Internet security, he/she will perceive high structural assurance in Internet shopping whether he/she is a repeat customer or a potential customer. Thus, structural assurance helps lower uncertainty and enhances the safety perception of a transaction with an Internet vendor, which may in turn encourage a customer to trust in the vendor, regardless of whether the customer has any purchase experience with the Internet vendor. Cheskin (1999) also identified safeguard assurance as an antecedent of trust. Hence, we hypothesize:

H2(a,b): Structural assurance is positively related to trust for customers (potential customers^a, repeat customers^b).

Online customers need to access the Web site of an Internet vendor for transactions or information gathering. In the way that an offline retail storefront is a signaling mechanism (Ippolito, 1990), the Web site of an Internet vendor may signal the unobservable trustworthiness of the vendor. According to a facet of the signaling theory, customers infer the quality of an Internet vendor from the vendor's Web site. In particular, new customers who interact with the Web site of an Internet store for the first time will make strong inferences about the attributes of the vendor from what they first experience at the site, evaluate the vendor's concern for customers, and then estimate the vendor's trustworthiness. Repeat customers as well as potential customers may estimate whether a vendor is trustworthy or not based on their evaluation of the Web site. In addition, they may interpret information available at the Web site to determine the vendor's intentions and infer its trustworthiness. Thus, Web site quality has been argued to be an antecedent of an online customer's trust in an Internet vendor (McKnight et al., 2002a). There are two different aspects to Web site quality: Web information quality and Web system quality (McKinney et al. 2002). Hence, we hypothesize:

H3(a,b): Web site quality (information quality^a, system quality^b) is positively related to trust for both potential customers and repeat customers.

In their transactions with an Internet vendor, online customers experience the services provided by the vendor, from which they may infer its quality. According to the social exchange theory (Blau, 1964), trust is built up when the trustee behaves in a manner that is acceptable and in accordance with the trustor's expectations. Since quality service is generally expected by customers from their transactions with a vendor, high quality service has been argued to be an antecedent of an online customer's trust in an Internet vendor (Gefen, 2002). Service quality can be measured using the SERVQUAL model (Parasuraman et al., 1988), which is based on five underlying dimensions: tangibles, reliability, responsiveness, assurance, and empathy.

Because tangibles deal with the appearance of physical facilities and online stores do not have physical facilities, consistent with Devaraj et al. (2002), we do not consider the tangible dimension in online service quality. In addition, previous research (Gefen, 2002) has found that SERVQUAL dimensions are loaded on empathy and a combined factor (reliability, responsiveness, and assurance) in the Internet shopping context. Gefen (2002) also found that the combined factor of service quality has a significant relationship with trust. We call the combined factor *service level* in this study. Hence, we hypothesize:

H4(a,b): Service quality (service level^a, empathy^b) is positively related to trust for repeat customers.

Following previous research (Spreng et al., 1996), we define customer satisfaction as an affective state that is the emotional reaction to a transaction experience with an Internet vendor. We also define trust as the belief that the other party will behave in a dependable manner in an exchange relationship. According to the social exchange theory (Blau, 1964), it may be argued that trust is built when the trustee behaves in a manner that is acceptable and in accordance with the trustor's expectations. Customers generally expect satisfaction from their transactions with a vendor, so following the social exchange theory, if the expectation is met, satisfaction can lead to trust. According to the disconfirmation theory (Oliver, 1980), satisfaction serves to shape post-experience attitude. Satisfaction reflects a customer's feelings about a vendor's ability to meet past expectations, while trust is the customer's attitude toward the future behavior of the trustee (Mayer et al., 1995; McKnight et al., 1998). Satisfaction leads to the belief that the same quality service will be delivered in the future (Selnes, 1998; Singh and Sirdeshmukh, 2000). Thus, customer satisfaction from prior experience leads to trust for repeat customers. Hence, we hypothesize:

H5: Online customer satisfaction is positively related to trust for repeat customers.

We suggest that customer satisfaction is influenced by the dual roles of an online customer as Web site user and buyer. For potential customers, it is not reasonable to expect overall customer satisfaction – since they have no purchase experience with the vendor, potential customers can evaluate satisfaction only from the system user perspective (McKinney et al., 2002). For repeat customers, the Web site is not only a channel for gathering information, but also a means to successful transactions. When the Web site is used for a complete transaction process, it is regarded as part of the purchase experience. The transaction performance perception of the online customer influences customer satisfaction. Therefore, the immediate outcome for repeat customers in using the Web site lies in satisfaction from the overall purchase experience. Hence, we hypothesize:

H6(a,b): Web site quality (information quality^a, system quality^b) is positively related to online customer satisfaction for repeat customers.

Online customers also expect quality service from the vendor. It is commonly noted that service quality is a critical prerequisite for establishing and sustaining satisfying relationships with customers. Indeed, service quality has been found to be an important indicator of customer satisfaction (Anderson and Sullivan, 1993; Spreng and Mackoy, 1996). Therefore, perception of high quality service leads to customer satisfaction. Hence, we hypothesize:

H7(a,b): Service quality (service level^a, empathy^b) is positively related to online customer satisfaction for repeat customers.

We can expect the various antecedents of repeat customer trust – *reputation*, *structural assurance*, and *customer satisfaction* – to exert different effects on trust building. This expectation is based on the theory of attitude-behavior consistency (Fazio and Zanna, 1981). Although we view trust as a belief in this study, trust has also been viewed as an attitude (Mayer et al., 1995; McKnight et al., 1998). The theory of attitude-behavior consistency posits that direct experience exerts a stronger effect on attitude and cognition formation than indirect experience. Fazio and Zanna (1981) provided two major reasons for the difference in strength between direct and indirect experience. First, direct experience makes real and crucial information about the vendor available to the customer, while an indirect experience cannot. Second, there is a crucial difference in the information processing related to direct and indirect experiences. Since direct experience involves behavior with a vendor, the experience itself is salient to the customer. In contrast, indirect experience that comes from word-of-mouth or a newspaper, involves a referrer, thus it is the referrer or medium that is salient to the potential customer. Similarly, structural assurance, which implies customers' beliefs about the legal and technological safeguards in the Internet shopping environment, is mainly influenced by second-hand information from the media. In line with the theory of attitude-behavior consistency, we can expect *customer satisfaction* resulting from direct transaction experience with an online vendor to be more salient than second-hand information (*reputation*) about the vendor or belief about the transaction environment (*structural assurance*). Singh and Sirdeshmukh (2000) also mentioned that repeat customers rely more strongly on their direct purchase experience (e.g., satisfaction) than on second-hand information (e.g., reputation) to form their trust because direct experience provides real and crucial evidence about the trustworthiness of a vendor. Hence, we hypothesize:

H8: Compared to *reputation* and *structural assurance*, *customer satisfaction* has a stronger effect on trust building for repeat customers.

Unlike repeat customers, potential customers lack direct experience with the Internet vendor. It is known that trust is fragile at the start of any exchange because it is built with little evidence of trustworthy behavior (McKnight et al., 1998). Potential customers make inferences about an Internet vendor mainly from its Web site and second-hand information (e.g., reputation). According to the signaling theory, inferences play a key role in evaluating the vendor (Kirmani and Rao, 2000; Spence, 1973) under conditions where customers possess asymmetric information. As behavioral evidence accumulates through transaction experience, it replaces the illusions of second-hand information and Web site impression (e.g., information quality and system quality). According to the theory of attitude-behavior consistency, customers then rely more strongly on their direct transaction experience (e.g., satisfaction). In addition, according to the cognitive dissonance theory (Festinger, 1957), repeat customers may downplay second-hand information, Web site impression, and transaction environment issues (e.g., structural assurance) if they value *satisfaction* with a vendor more than these other factors in building trust. For this reason, it is expected that the four shared antecedents (*reputation*, *structural assurance*, *information quality*, and *system quality*) exert different effects on trust building between potential customers and repeat customers. McKnight et al. (2002b) also posited that trust-building factors for potential customers may be less salient than the effects of a customer's experience with the vendor over time. Hence, we hypothesize:

H9(a,b,c,d): Each of the four shared antecedents (*reputation*^a, *structural assurance*^a, *information quality*^c, *system quality*^d) has a weaker effect on trust building for repeat customers than for potential customers.

Research Methodology

Instrument development

We develop two questionnaires based on the research models – one for potential customers and one for repeat customers – by adopting and adapting existing validated scales and experimental procedures whenever possible. We adapt the construct of reputation from Doney and Cannon (1997) and Grazioli and Jarvenpaa (2000). We adopt the construct of structural assurance from McKnight et al. (2002a). We adopt the scale of Web site quality from McKinney et al. (2002). To measure service quality, we adapt the perception-only instrument of service quality from Devaraj et al. (2002) and Gefen (2002). To measure customer satisfaction, we adopt Spreng et al.'s (1996) overall satisfaction scale, which consists of four items: *satisfied*, *pleased*, *contented*, and *delighted*. As for the trust construct, we use a one-dimensional construct to minimize complexity. We note that a multi-dimensional construct covering ability, integrity, and benevolence has been proposed (Mayers et al., 1995). However, in the transactional context, only one dimension has been identified by Doney and Cannon (1997). We adapt the trust scales from Grazioli and Jarvenpaa (2000) by adding one ability-related item. The questionnaires use the seven-point Likert scale (1 = strongly disagree, 7 = strongly agree).

Two Information Systems (IS) researchers and one marketing scholar review the instrument and check its face validity. As a pre-test, we discuss the questionnaires in focus-group interviews of 15 people, some having Internet shopping experience and others not. We obtain feedback about the length of the instrument, the format of the scales, content, and question ambiguity. In addition, we ask the respondents to identify any factors not on the questionnaires that they consider important in their judgment of the trustworthiness of an Internet store. We then conduct a pilot test with more than 100 samples and examine this data for completeness of responses, reliability, and construct validity. Subsequently, we make some changes to the questionnaires and finalize the list of items for each construct shown in Appendix A.

Data collection

Most of the leading product categories in Internet shopping, such as tickets and music CDs, involve “low touch” and “no-touch” services (Lynch et al., 2001). We choose an Internet bookstore because books belong to such a category and they have less variation in quality compared to other products. The Internet bookstore we choose, has about 120,000 customers visiting online daily, and sells about 15,000 books every day. It is relatively small and is not a well-known online bookstore like Amazon.com or Barnes & Noble. We collect empirical data for this study via an Internet survey because we are interested in gathering data only from only potential customers and repeat customers of the online bookstore in real-world settings.

For two weeks, we collect data for the study through the book store's Web site, which has mounted banner on its front page to publicize the survey. Respondents access the survey Web site from the store's homepage. To improve the response rate, we offer \$5 to 200 respondents by lottery as incentive. The first page, of the survey provides two menus for questionnaire selection: one for potential customers and the other for repeat customers. The page clearly explains who potential customers are and who repeat customers are. To ensure that potential customers browse the website, we ask them to find a book that interests them and note its price before answering the questions. Through navigating the Web site in search of an interesting book, they will perceive the information and system quality of the site.

The final sample comprises 1,804 responses. However, we discard multiple responses from the same respondents (74 cases). In addition, subjects who overlooked the reverse order of two reputation items (378 cases). For example, they gave the “good reputation” (REP1) and “bad reputation” (REP5) items the same value such as 6 (7=strongly agree) at the same time. That leaves 1,352 responses (74.9 percent) usable. Among them, 161 are potential customers and 1,191 are repeat customers. We use randomly selected sample (n = 605) from among repeat customers in the tests, and use the remaining (n = 586) as a hold-out sample for confirmation testing. According to Gefen et al. (2000), the required minimal sample size for LISREL testing is 150 cases. For this reason, our sample size is good enough for the following analyses. Table 2 shows the demographics of the respondents. We find that there is no significant difference between the two customer groups in terms of gender, age, Internet experience, and profession. About 65 percent of respondents are females in both the potential and the repeat customer groups. The respondents are relatively young: about 80 percent of both potential and repeat customers are between 20 and 39 years old (potential customers: mean = 26.9, s.d. = 7.8; repeat customers: mean = 28.4, s.d. = 7.6). In terms of Internet experience, the respondents are quite experienced, with 49 percent of potential customers and 58 percent of repeat customers having between four and six years of Internet experience (potential customers: mean = 5.8, s.d. = 2.4; repeat customers: mean = 5.5, s.d. = 2.3). About 48 percent of repeat customers have bought books from the Internet store between one and six times (mean = 11.4, s.d. = 13.4). While all repeat customers have online shopping experience, only 86 percent of potential customers have Internet shopping experience. In terms of profession, about 80 percent of potential and repeat customers are employed people, housewives, or students.

Data Analysis and Results

We then carry out data analysis in accordance with a two-stage methodology (Anderson and Gerbing, 1988) using LISREL. The first step in the data analysis is to establish the convergent and discriminant validity of the constructs. We test the measurement model separately on the two customer groups using Principal Components Analysis (PCA) and Confirmatory Factor Analysis (CFA). For the repeat customers group, we use the hold out sample (n=586) for PCA and the remaining sample (n=605) for CFA and hypothesis testing. In the second step, the structural models are examined based on the cleansed measurement models for the two customer groups.

Principal components analysis

In the first phase, we examine the data from the two customer groups using PCA with Varimax rotation (Appendix B). In the case of potential customers, we identify a total of five factors with eigenvalue greater than 1.0. All constructs explain 81.4 percent of the total variance. However, the second item of information quality (INFQ2) is dispersed over factors. The fifth item of reputation (REP5) also has low factor loading (lower than 0.5). Except for these two items, all other items of the constructs are loaded on distinct factors. When compared across factors, the items are loaded highest on their own factors. We drop the two items from further analysis in both the case of potential customers and the case of repeat customers.

In the case of repeat customers, we identify a total of eight factors, with seven factors having an eigenvalue greater than 1.0, and one factor having an eigenvalue of 0.96. While the eigenvalue of the last factor is lower than 1.0, the scree plot (Hair et al., 1998) indicates that the eight factors are appropriate. The eighth factor is then manually included for PCA. All constructs explain 75.5 percent of the total variance. The SERVQUAL items are loaded on two factors as

expected: (1) a combined factor, *service level*, reflecting reliability, responsiveness, and assurance, and (2) *empathy*. However, the fifth item (REP5) of *reputation*, and the second (REL2), third (REL3), and fourth (REL4) items of *service level* show low factor loading (lower than 0.5). The last item of *service level* (ASU3) is also dispersed over factors. The first item (EMP1) of *empathy* shows low factor loading (lower than 0.5). The second item (INFQ2) of *information quality* is dispersed over factors. Except for these six items, a comparison across factors shows that the remaining items are all loaded highest on their own factors. We drop the six items from further analysis in both the case of potential customers and the case of repeat customers.

Table 2 Descriptive Statistics of the Respondents' Characteristics					
Measure	Item	Potential customers		Repeat customers	
		Frequency	Percentage	Frequency	Percentage
Gender	Female	101	62.7	409	67.6
	Male	60	37.3	196	32.4
Age (years)	< 20	22	13.7	68	11.2
	20 – 29	80	49.7	272	45
	30 – 39	48	29.8	223	36.9
	> 39	11	6.8	42	6.9
Internet experience (years)	< 1	4	2.5	10	1.7
	1 – 3	22	13.7	87	14.4
	4 – 6	79	49.1	350	57.9
	7 – 9	40	24.8	129	21.3
	> 9	16	9.9	29	4.8
Purchase experience with the bookstore	1 – 3	0	0	157	26
	4 – 6	0	0	137	22.6
	7 – 9	0	0	49	8.1
	> 9	0	0	262	43.3
Internet shopping experience	Yes	139	86.3	605	100
	No	22	13.7	0	0
Profession	Employee	64	39.8	247	40.8
	House wife	23	14.3	97	16
	Professional	5	3.1	32	5.3
	Self- employed	1	0.6	9	1.5
	Student	52	32.3	162	26.8
	Others	16	9.9	58	9.6
Total		161	100	605	100

Confirmatory factor analysis

We conduct CFA analysis by creating a LISREL path diagram. We first apply the following indices and standards to assess model fit: goodness-of-fit index (GFI) and normed fit index (NFI) greater than 0.90, adjusted goodness-of-fit index (AGFI) greater than 0.80 (Gefen et al., 2000), comparative fit index (CFI) greater than 0.90, and root mean square of approximation (RMSEA) lower than 0.08 for a good fit and lower than 0.05 for an excellent fit (Brown and Cudeck, 1991; McKnight et al., 2002a).

The measurement model in the CFA is revised by dropping, one at a time, items which share a high degree of residual variance with other items, according to recommended methodological procedures (Gefen et al., 2000; Anderson and Gerbing, 1988). The purpose of this step is to purge items that obviously violate unidimensionality as suggested by Anderson and Gerbing (1988) and Gefen et al. (2000). We drop five items: the fifth item (INFQ5) of *information quality* shares a high degree of residual variance with INFQ4 and SYQ4 for both potential customers and repeat customers; the fourth item (SYQ4) of *system quality* shares a high degree of residual variance with SYQ1, SYQ3, SYQ5, and REP3 in both the case of potential customers and the case of repeat customers; the fifth item (RES1) of *service level* shares a high degree of residual variance with *empathy*, ASU1, ASU2, and RES2 in the case of repeat customers; the sixth item (RES2) of *service level* shares a high degree of residual variance with *information quality*, *system quality*, SA1, REL1, RES1, RES3, ASU1, and ASU2 in the case of repeat customers; and the first item (EMP1) of *empathy* shares a high degree of residual variance with *information quality*, *system quality*, *service level*, EMP4, and ASU4 in the case of repeat customers. For consistency, we drop the five items from further analysis in both the case of potential customers and the case of repeat customers. After dropping these items, the CFA shows acceptable model fit except in GFI: for potential customers, GFI = 0.87, NFI = 0.96, AGFI = 0.83, CFI = 0.99, and RMSEA = 0.057; and for repeat customers, GFI = 0.90, NFI = 0.98, AGFI = 0.88, CFI = 0.99, and RMSEA = 0.050.

Convergent validity is the degree to which the items of a given construct are measuring the same underlying latent variable. Convergent validity is assessed using three criteria. First, standardized path loadings, which are indicators of the degree of association between the underlying latent factor and each item, should be greater than 0.7 and statistically significant (Gefen et al., 2000). Second, composite reliabilities, as well as Cronbach's alphas, should be larger than 0.7 (Nunnally, 1978). Third, the average variance extracted (AVE) for each factor should exceed 50 percent (Fornel and Lacker, 1981). As shown in Table 3, all path loadings are greater than 0.7 except the fourth item of customer satisfaction (0.68), and all of them are significant for both customer groups. The reliability measures are all above 0.8, and the AVEs are all above 0.5. Thus, convergent validity is established.

Discriminant validity means the degree to which the measures of two constructs are empirically distinct. In our study, we assess discriminant validity with Constrained Confirmatory Factor analysis as suggested by Anderson and Gerbing (1988). For every pair of factors, ordinary CFA is done first. After that, the correlation is set to unity (1.0), and the model is tested again. We use χ^2 difference test to compare the results between the constrained model and the original model. Discriminant validity is established if the χ^2 difference is significant. Based on this approach, we conduct pair-wise constrained tests on the two customer groups. The χ^2 differences are found to be all significant, which implies that the χ^2 of the original CFA with its latent variables is significantly better than any possible union of any two latent variables. Hence, discriminant validity is established.

Table 3 Results of Convergent Validity Testing										
Item	Potential Customers					Repeat Customers				
	Std. Loading	T-value	AVE	Composite Factor Reliability	Alpha	Std. Loading	T-value	AVE	Composite Factor Reliability	Alpha
REP1	0.93	15.61	0.85	0.96	0.96	0.9	28.13	0.81	0.94	0.94
REP2	0.97	16.6				0.92	29.52			
REP3	0.93	15.56				0.94	30.5			
REP4	0.85	13.37				0.84	25.54			
SA1	0.74	10.52	0.68	0.89	0.88	0.75	21.05	0.7	0.9	0.9
SA2	0.88	13.71				0.87	26.29			
SA3	0.89	13.96				0.88	26.84			
SA4	0.79	11.64				0.83	24.24			
INFQ1	0.76	10.93	0.68	0.86	0.86	0.73	19.86	0.63	0.84	0.83
INFQ3	0.88	13.58				0.83	23.69			
INFQ4	0.82	12.09				0.82	23.12			
SYQ1	0.82	12.3	0.71	0.91	0.9	0.75	21.09	0.68	0.89	0.89
SYQ2	0.91	14.6				0.91	28.27			
SYQ3	0.89	14.1				0.84	25.01			
SYQ5	0.73	10.56				0.79	22.59			
TR1	0.84	12.96	0.81	0.96	0.96	0.83	24.62	0.75	0.94	0.94
TR2	0.94	15.83				0.87	26.63			
TR3	0.88	13.98				0.88	27.42			
TR4	0.93	15.48				0.89	27.6			
TR5	0.91	14.92				0.86	26.42			
REL1	NA					0.79	22.88	0.61	0.86	0.87
RES3						0.77	21.87			
ASU1						0.74	20.48			
ASU2						0.77	21.77			
EMP2	NA					0.84	24.93	0.77	0.91	0.91
EMP3						0.92	28.63			
EMP4						0.87	26.54			
CS1	NA					0.87	26.49	0.72	0.91	0.89
CS2						0.9	28.05			
CS3						0.92	29.1			
CS4						0.68	18.5			

Hypothesis testing

We present the descriptive statistics and the correlations between all variables in Table 4. In addition, this study ascertains the differences between potential customers and repeat customers on the means of constructs by adopting an independent two samples test. Potential customers and repeat customers differ significantly on four of the five common constructs of the study. Compared to repeat customers, potential customers naturally trust the Internet store less: potential customers are less familiar with the store, and so may view the store as less reputable compared to repeat customers. Also, potential customers consider the Web site quality to be lower because they have less experience with the Web site compared to repeat customers. However, individuals in the two groups have similar perception levels of structural assurance. Structural assurance levels did not differ between potential and repeat customers because structural assurance is about the Internet as a whole rather than the Web site of the store.

Table 4 Descriptive Statistics and Correlations

1) Potential customers									
Variable	Mean	S.D.	TRUST	REP	SA	INFQ			
REP	4.91	1.15	.586**						
SA	4.19	1.21	.296**	.377**					
INFQ	5.08	1.03	.610**	.593**	.394**				
SYQ	4.98	1.1	.522**	.465**	.350**	.695**			
2) Repeat customers									
Variable	Mean	S.D.	TRUST	CS	REP	SA	INFQ	SYQ	SL
CS	5.63	1.07	.721**						
REP	5.15	1.1	.561**	.472**					
SA	4.29	1.26	.342**	.300**	.362**				
INFQ	5.37	0.97	.562**	.492**	.475**	.388**			
SYQ	5.27	1.07	.538**	.502**	.467**	.336**	.637**		
SL	5.28	0.99	.668**	.586**	.532**	.373**	.589**	.599**	
EMP	4.73	1.25	.501**	.443**	.458**	.383**	.550**	.469**	.646**

** : $p < 0.01$

(Note) CS: Customer satisfaction, REP: Reputation, SA: Structural assurance; INFQ: Information quality; SYQ: System quality, SL: Service level, EMP: Empathy

Next, we examine the structural models. In the case of potential customers, the normed χ^2 (χ^2 to degrees of freedom) is 1.53, which is below the desired cut-off value of 3.0 (Gefen et al., 2000). RMSEA is 0.057, indicating a good fit. Root Mean-square Residual (RMR) is 0.044, which is lower than the desired cut-off value of 0.05. GFI (0.87) is below the recommended threshold, but AGFI is 0.83, which is above the cut-off value of 0.8. The other fit indices are all satisfactory: CFI = 0.99, NFI = 0.96, and the non-normed fit index (NNFI) = 0.99. These results suggest that the structural model for the potential customers group adequately fits the data.

In the case of repeat customers, the normed χ^2 is 2.50. RMSEA is 0.050 and RMR is 0.038, which indicates a good fit. All fit indices are also satisfactory: GFI = 0.90, AGFI = 0.88, CFI =

0.99, NFI = 0.98, and NNFI = 0.98. These results suggest that the structural model for the repeat customer group also adequately fits the data.

Figure 2 shows the standardized LISREL path coefficients and the overall fit indices. In the case of potential customers, *reputation* and *information quality* are found to be significant to trust, explaining 52 percent of trust variance. However, *structural assurance* and *system quality* are found to be insignificant. For repeat customers, *reputation*, *information quality*, *service level*, and *customer satisfaction* are found to be significant to trust, explaining 73 percent of trust variance. However, *system quality* and *empathy* are found to be insignificant. Also, *system quality* and *service level* are found to be significant to *customer satisfaction*, explaining 47 percent of satisfaction variance while *information quality* and *empathy* are found to be insignificant. Thus, Hypotheses 1, 3a, 4a, 5, 6b, and 7a are supported. Additionally, we include demographic factors into the model as control variables; they include age, gender, Internet experience, and purchase experience with the bookstore. In both customer groups, there is no significant relationship between the control variables and trust.

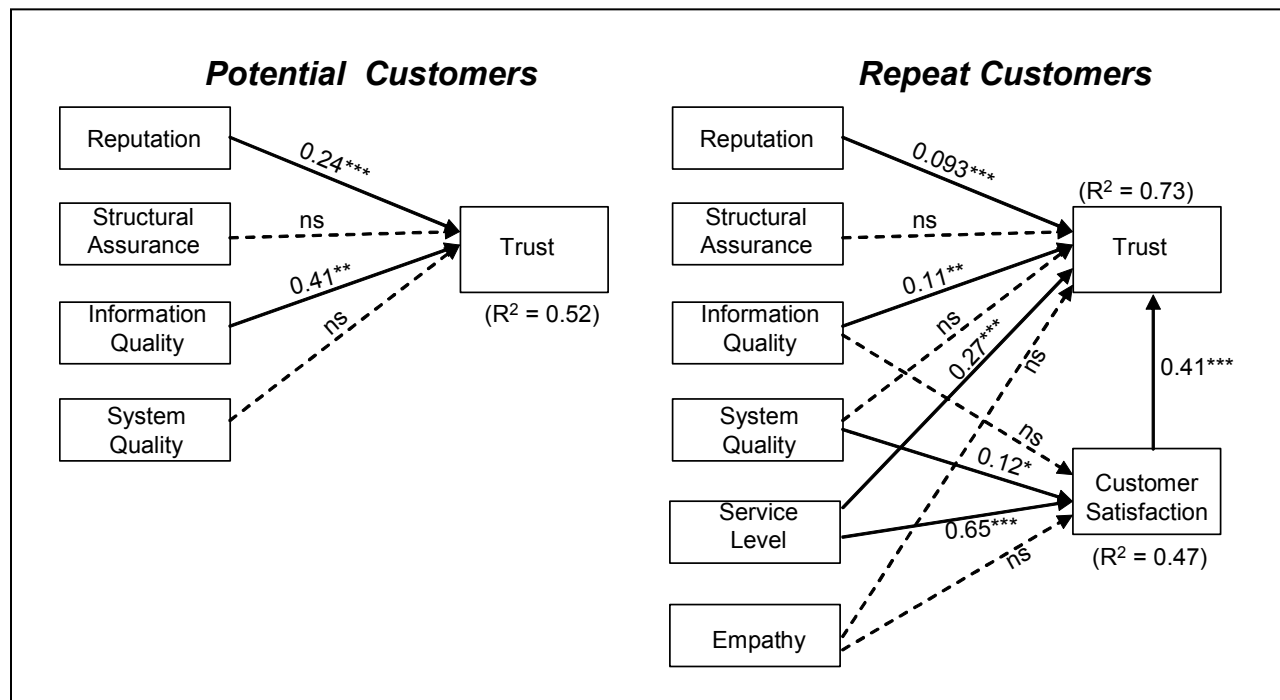


Figure 2. Standardized LISREL Solution

(a) Potential customers: normed $\chi^2 = 1.53$, RMSEA = 0.057, RMR = 0.044, GFI = 0.87, AGFI = 0.83, NFI = 0.96, CFI = 0.99
 (b) Repeat customers: normed $\chi^2 = 2.50$, RMSEA = 0.050, RMR = 0.038, GFI = 0.90, AGFI = 0.88, NFI = 0.98, CFI = 0.99
 ns: insignificant at the 0.05 level, **: $p < 0.01$, ***: $p < 0.001$

Since the correlations among the variables are high and significant (refer to Appendix C for the correlation tables), the nonsignificance of some hypotheses could be due to collinearity among constructs. Highly collinear variables can distort testing results substantially. The most widely used approach for detecting collinearity is to measure variance inflation factors (VIF) and the condition number (Mason and Perreault, 1991). In this approach, VIF values and condition indices are extracted. A maximum VIF greater than 10 signals harmful collinearity (Marquardt, 1970), and condition indices greater than 30 indicate moderate to strong dependencies (Blesh et al., 1980). We find that our VIF values are lower than 10 and the condition indices are less

than 30. Therefore, multicollinearity is not likely to distort testing results substantially in our research.

To examine the different effects of the three antecedents (*customer satisfaction*, *reputation*, and *structural assurance*) on repeat customer trust, we employ the constraint test as suggested by Byrne (1998) and Hoskisson et al. (2002). In the first step, the base model, which is the original single-group model, is fitted. In the second step, the structural paths of the two antecedents (*customer satisfaction* and one of the other antecedents) to *trust* are set as equal. If the constrained model produces significantly lower fitting than the base model, we can assume the two antecedents are of unequal effect on purchase intention. Table 5 summarizes the constrained test results. The significant increases in χ^2 indicate that the path coefficient between *customer satisfaction* and *trust*, and the path coefficients between each of the other two antecedents and *trust*, are significantly different. The values of path coefficients indicate that *customer satisfaction* is more strongly related to repeat customer trust than are the other two antecedents. Thus, Hypothesis 8 is supported.

Variables for equality constraint	Base model		Constrained model		χ^2 test		
	χ^2	df	χ^2	df	$\Delta(\chi^2)$	$\Delta(df)$	Significance
CS=Reputation	1033	438	1085.06	439	52.02	1	p = 0.000
CS=Structural assurance	1033	438	1132.24	439	99.2	1	p = 0.000

Note: CS = Customer satisfaction

To examine the different effects of the shared antecedents (*reputation*, *structural assurance*, *information quality*, and *system quality*) on *trust* between the two customer groups, we revise the research model for repeat customers by removing *service quality* and *customer satisfaction*. In the revised model, three factors have significant relationships with repeat customer trust ($R^2 = 0.50$): *reputation* ($\beta = 0.23$, $p < 0.001$), *structural assurance* ($\beta = 0.028$, $p > 0.05$), *information quality* ($\beta = 0.27$, $p < 0.001$), and *system quality* ($\beta = 0.15$, $p < 0.001$). We then employ the constraint test suggested by Byrne (1998). In the first step, the individual models for both potential and repeat customers are simply included into one LISREL program, with the group number set to two. This model is called the base model. The two sub-models are estimated jointly with their own dataset. In the second step, with the same combined model, equality constraint is imposed. We constrain the structural path between an antecedent and trust to the same value across the two groups. If the constrained model produces significantly lower fitting in χ^2 as compared to the base model, we should not assume the antecedent to have the same effect on the two groups. We repeat this process for each shared antecedent. Table 6 shows the constrained test results. All of the four antecedents show nonsignificant increases in χ^2 , which means that the path coefficients are not significantly different between the two groups. Therefore, Hypotheses 9 a, b, c, and d are not supported.

Table 6 Constraint Test between the Two Customer Groups							
Variable for equality constraint	Base model		Constrained model		χ^2 test		
	χ^2	df	χ^2	df	$\Delta(\chi^2)$	$\Delta(df)$	Significance
Reputation	635.93	320	635.97	321	0.04	1	p = 0.84
Structural assurance	635.93	320	637.91	321	1.98	1	p = 0.16
Information quality	635.93	320	636.68	321	0.75	1	p = 0.39
System quality	635.93	320	635.94	321	0.01	1	p = 0.92

Discussion

Discussion of findings

This study has identified different sets of online trust-building factors for potential and repeat customers. In the case of potential customers, second-hand information (*reputation*) and partial experience with the vendor (*information quality*) maintain significant relationships with trust. In the case of repeat customers, in addition to second-hand information (*reputation*) and partial experience with the store from the system user perspective (*information quality*), *service level* maintains a significant relationship with trust. In addition, the overall evaluation of a customer's experience with the vendor (*customer satisfaction*) maintains a significant relationship with trust. While *reputation* and *information quality* apply to both potential customers and repeat customers, *service level* and *customer satisfaction* apply only to repeat customers.

While previous research has proposed reputation as an antecedent of initial trust for potential customers (Grazioli and Jarvenpaa, 2000; Jarvenpaa et al., 2000; McKnight et al., 2002b), this study identifies it also as an antecedent of repeat customer trust in this study. According to the signaling theory, an Internet vendor with high reputation that falsely conducts its business stands to lose the investments that it has made in its reputation and future profits because of negative word-of-mouth effects. Thus, we perceive reputation to be a credible signal of trustworthiness of the Internet vendor that would influence trust for both potential customers and repeat customers.

Regarding Web site quality, previous research (McKnight et al., 2002b) has identified site quality, which is a combination of information quality and system quality, to be significant to trust for potential customers. However, our research finds that only information quality is significant to trust for potential customers and repeat customers, while system quality is not. Grazioli and Jarvenpaa (2000) argued that the nature of Internet technology makes it difficult to evaluate the trustworthiness of an Internet vendor from the system quality perspective because it is easy to achieve adequate system quality. Developing a presentable Web site with adequate system quality is not very costly; therefore, an untrustworthy competitor is able to emulate the features. However, a good signal should be costly so that low-quality competitors will not be able to emulate it (Ippolito, 1990). According to information economics, only good signals resolve the consumer's classification problem in the face of potential deception by bad vendors. The Internet bookstore studied in this research sells more than one million different books and the Web site manages more than 20 information items about each book. Compared to developing a

presentable and efficient Web site system, managing and enhancing information quality require much more investment, which cannot be easily emulated by low-quality vendors. In addition, an Internet bookstore is an information-intensive business. The primary concern for customers is transaction-related information rather than the system per se. For this reason, customers may infer the trustworthiness of the Internet vendor from the information quality of the Web site.

We find structural assurance insignificant to trust for potential and repeat customers. This may imply that institution-based trust (Zucker, 1986) is not effective in building the trust of online customers in an Internet vendor. Previous research (McKnight et al., 2002a, b) has also shown inconsistent results on the relationship between structural assurance and trust belief. McKnight et al. (2002b) further suggested that reputation and site quality perceptions are more important trust builders than structural assurance. Thus, although a safe transaction environment provided by structural assurance is a basic condition for Internet shopping, it is not adequate for trust building in our context.

Regarding service quality, we find that only one dimension of service quality – *service level* – has a significant relationship with repeat customer trust, while *empathy* does not. Previous research (Gefen, 2002) has also yielded the same result. The combined factor – *service level* – represents: (1) providing service and delivering products on time as ordered (reliability), (2) responding promptly and accurately to customer needs (responsiveness), and (3) knowledge and courtesy of the Internet vendor (assurance). *Empathy* means the degree to which an Internet vendor attends to, understands, and adapts to the needs of individual customers. Online customers definitely expect to receive the products and services that they have requested on time or promptly from a knowledgeable Internet vendor. However, it seems that they adopt a utilitarian orientation in online shopping and do not care or expect much personalized service from an Internet vendor. This might be due to the characteristic of EC that human interaction between customers and online vendors is very minimal, which makes *empathy* a somewhat less experienced and less important aspect of service quality. Zeithaml et al. (2002) also posited that the empathy dimension is not critical in the transactional aspects of online service. For this reason, *empathy* seems to have an insignificant role in trust building in the Internet shopping context.

We also find that *system quality* and *service level* maintain significant relationships with *customer satisfaction*, while *information quality* and *empathy* do not. *System quality* improves *customer satisfaction* by enhancing shopping convenience. However, *information quality* has an insignificant effect in improving *customer satisfaction* because it may be less relevant to shopping convenience. *Service level* has a significant effect on *customer satisfaction*, while *empathy* does not. The same reasons mentioned above – an insignificant role of *empathy* in trust building in the Internet shopping context – can be applied here.

We find that *customer satisfaction* arising from direct experience exerts a stronger effect on trust building for repeat customers compared to *reputation* and *structural assurance*. This finding conforms to the theory of attitude-behavior consistency (Fazio and Zanna, 1981), which posits that direct experience exerts a stronger effect on attitude and cognition formation than indirect experience. Thus, *customer satisfaction* resulting from direct transaction experience is more salient than second-hand information (*reputation*) and the transaction environment (*structural assurance*).

The weaker effects of *reputation* and *structural assurance* on repeat customer trust in comparison to *customer satisfaction* can also be explained by the cognitive dissonance theory (Festinger, 1957). It is possible for customers to perceive dissonant antecedents regarding the

trustworthiness of a vendor. In such a case, the dissonance between antecedents may be moderated by the importance of each antecedent. Thus, when customers view a vendor as trustworthy through direct experience but its *reputation* or *structural assurance* is dissonant with that evidence, they will downplay the importance of the dissonant factor. In other words, repeat customers value satisfaction and their direct experience with a vendor more than other factors in building trust.

Comparing shared antecedents between potential customers and repeat customers, we do not find any difference in strength in the effects of shared antecedents on trust building. However, the results of the comparison test should be interpreted with caution because the test does not reflect the other two antecedents of repeat customer trust – *service quality* and *customer satisfaction* – which result from direct transaction experience. Therefore, the effect of the shared antecedents for repeat customers is upward biased. Future research is required to explore further the differential effects of the shared factors affecting potential customers and repeat customers.

Limitations of this research

We acknowledge that a number of limitations exist in this study. First, as a cross-sectional study of potential and repeat customers, this study does not capture some implied paths discussed in the previous section. Also, by comparing two separate groups of Web site users, this study does not capture the dynamics of trust across time as the Internet customer would experience it. Nor does it capture data in a dynamic manner that would allow trust-development-over-time hypotheses to be tested. Therefore, the results of this study should be viewed as only preliminary evidence with respect to the varying criteria that predominate the different stages of the trust-building and evolution process. Second, the sample in the study is limited to the potential and repeat customers of a single Internet bookstore. The research needs to be replicated to examine the robustness of the findings across the diverse context of EC. Third, the use of an Internet survey limits this study to a pool of Internet users who browsed the Web site of the selected Internet bookstore for two weeks. Although the Internet bookstore sent e-mails to registered repeat customers to stimulate participation in the survey, there was no way to communicate with potential customers of the bookstore. This may restrict the generalizability of the findings.

Implications

This research offers several implications for theory and practice. From the theory perspective, this study has classified trust in an Internet store into potential customer trust and repeat customer trust, based on the availability of purchase experience with the store to individual customers. While previous research (Jones and George, 1998; Lewicki et al., 1998; Singh and Sirdeshmukh, 2000; Zucker, 1986) proposed trust as a dynamic concept, little has been done to compare the nature of trust at different stages. This study offers a conceptual framework on trust building over a customer's transaction experience, and provides preliminary evidence indicating that potential customer trust and repeat customer trust are determined by different factors.

This study has also tested and discussed the different effects of shared antecedents on trust building between two customer groups based on theoretical reasoning. In addition, our comparison among the antecedents of repeat customer trust has shown that *customer satisfaction* resulting from direct transaction experience is more salient than the other two antecedents: *reputation* and *structural assurance*.

The distinction between potential customer trust and repeat customer trust, and the conceptual framework on trust building over a customer's transaction experience, suggest future research directions. First, past literature proposed that trust that is perceived before the estimation of satisfaction enhances satisfaction by assuring customers that they will not be taken advantage of by opportunistic sellers (Pavlou, 2002). In contrast, this study has examined the effect of customer satisfaction on trust (repeat customer trust) by regarding satisfaction as retrospective and trust as prospective, as suggested by Singh and Sirdeshmukh (2000). Longitudinal studies could examine the sequential effect between them over time more clearly. Second, although potential customer trust and repeat customer trust are likely to be related as well, this study could not test the implied path. Thus, future longitudinal studies could provide more conclusive evidence on the process of trust building and evolution. Third, we may need to examine the relative importance of trust and price in Internet shopping. Previous research noted the importance of both trust and price perception in Internet shopping. However, little has been said about how price perception and trust work in tandem to shape the choice of the potential customer or the decision of the repeat customer, or how the influence of the two factors might be mitigated or enhanced for potential customers and repeat customers. Finally, this research suggests that the re-conceptualization of online service quality is an important issue. Confirming the indications in previous research (Gefen, 2002; Van Dyke et al., 1999), this study has also encountered the unstable dimensionality of the service quality model, SERVQUAL.

From the practice perspective, there are important implications in the findings for EC. The study suggests that two factors are the main drivers of pre-purchase trust building for potential customers: *reputation* and the *information quality* of the store's Web site. Thus, Internet vendors need to put effort into reputation building, such as leveraging the word-of-mouth effect and the level of advertising. In addition, Internet vendors need to enhance the information quality of their Web sites, providing differentiated information for customers. By enhancing their reputation and the information quality of their Web sites, Internet vendors can attract potential customers and increase their transaction intentions through greater initial trust (Gefen et al., 2003a, b; Jarvenpaa et al., 2000).

This study also suggests that there are different facilitators of repeat customer trust building: *reputation*, *information quality* of Web site, *service level*, and *customer satisfaction*. Internet vendors need to put as much effort into enhancing their reputation and the information quality of their Web sites, as in pre-purchase trust building. In addition, this study suggests that Internet vendors need to put more effort into improving their service level and satisfying their customers. The study also suggests that customer satisfaction is mainly influenced by the level of service quality and the system quality of the Web site. By building repeat customer trust, Internet vendors can enhance the loyalty of repeat customers and their re-purchase intentions (Garbarino and Johnson, 1999; Gefen, 2002; Singh and Sirdeshmukh, 2000).

Conclusion

This study has classified trust in an Internet store into potential customer trust and repeat customer trust, depending on the customer's purchase experience with the store, finding that potential customer trust and repeat customer trust are determined by different sets of factors. We test the different strengths of the various antecedents on repeat customer trust and discuss the different effects of shared antecedents on trust building between the two customer groups based on theoretical reasoning. This study offers important theoretical contributions toward articulating differences in the determinants of trust. While most previous marketing studies

focused on trust building for repeat customers, most prior IS studies focused on initial trust building for potential or new customers. Consequently, our understanding of how trust is built and evolves over time has been limited. To give a more holistic picture, we have taken the first step in studying the dynamics of trust building over the customer's purchase experience in the EC context. Our study also offers an important practical contribution toward the propagation of EC by providing guidelines on how Internet vendors should address their trust problems differently for potential and repeat customers, so as to induce new and repeat online purchases and to encourage customer loyalty.

References

- Anderson, J.C. and Gerbing, D.W., "Structural equation modeling in practice: A review and recommended two-step approach," *Psychological Bulletin* (103:3), 1988, pp. 411-324.
- Anderson, E.W. and Sullivan, M.W., "The antecedents and consequences of customer satisfaction for firms," *Marketing Science* (12:2), 1993, pp. 125-143.
- Belanger, F., Hiller, J.S., and Smith, W.J., "Trustworthiness in electronic commerce: the role of privacy, security, and site attributes," *Journal of Strategic Information Systems* (11), 2002, pp. 245-270.
- Bhattacharjee, A., "Individual trust in online firms: Scale development and initial test," *Journal of Management Information Systems* (19:1), 2002, pp. 211-241.
- Blau, P.M., *Exchange and Power in Social Life*, NY: Wiley, 1964.
- Blesh, D.A., Kuh, E., and Welsh, R.E., *Regression Diagnostics – Identifying influential data & Sources of collinearity*, New York: John Wiley & Sons, Inc., 1980.
- Brown, M.W. and Cudeck, R., Alternative ways of assessing model fit, K.A. Bollen and J.S. Long, eds. *Testing Structural Equation Models*, Sage, Beverly Hills, CA, 1991.
- Byrne, M.B., *Structural equation modeling with LISREL, PRELIS, and SIMPLS: Basic concepts, applications, and programming*, Lawrence Erlbaum Associates, Publishers: NJ, 1998.
- Cheskin Research, *eCommerce Trust Study*, A Joint Research Project by Cheskin and Studio Archetype / Sapien. <http://www.studioarchetype.com/cheskin/>, January 1999.
- Devaraj, S., Fan, M., and Kohli, R., "Antecedents of B2C channel satisfaction and preference: Validating e-commerce metrics," *Information Systems Research* (13:3), 2002, pp. 316-333.
- Doney, P.M. and Cannon, J.P., "An examination of the nature of trust in buyer-seller relationships," *Journal of Marketing* (61), 1997, pp. 35-51.
- Fazio, R.H., and Zanna, M.P., "Direct experience and attitude-behavior consistency," *Advances in Experimental Social Psychology* (14), Academic Press, 1981, pp. 161-202.
- Festinger, L., *A Theory of Cognitive Dissonance*, Stanford University Press, 1957.
- Fombrun, C. and Riel, C.V., "The reputational landscape," *Corporate Reputation Review* (1&2), 1997, pp. 5-14.
- Fornel, C. and Larcker, D., "Evaluating structural equation models with unobservable variables and measurement error," *Journal of Marketing Research* (18), 1981, pp. 39-50.
- Ganesan, S., "Determinants of Long-term orientation in buyer-seller relationships," *Journal of Marketing* (58), 1994, pp. 1-19.
- Garbarino, E. and Johnson, M.S. "The different roles of satisfaction, trust, and commitment in customer relationships," *Journal of Marketing* (63), 1999, pp. 70-87.
- Gefen, "E-commerce: The role of familiarity and trust," *Omega* (28), 2000, pp. 725-737.
- Gefen, D., "Customer loyalty in e-commerce," *Journal of the Association for Information Systems* (3), 2002, pp. 27-51.
- Gefen, D., Karahanna, E., and Straub, D.W., "Trust and TAM in Online Shopping: An Integrated Model," *MIS Quarterly* (27:1), 2003a, pp. 51-90.

- Gefen, D. Karahanna, E., and Straub, D.W., "Inexperience and Experience with online stores: The importance of TAM and Trust," *IEEE Transactions on Engineering Management* (50:3), 2003b, pp. 307-321.
- Gefen, D., Straub, D.W., and Boudreau, M., "Structural Equation Modeling and Regression: Guidelines for research practice," *Communications of the Association for Information Systems* (4:7), 2000, pp. 2-76.
- Grazioli, S. and Jarvenpaa, S., "Perils of internet fraud: An empirical investigation of deception and trust with experienced Internet consumers," *IEEE Transactions on Systems, Man, and Cybernetics – Part A: Systems and Humans* (30:4), 2000, pp. 395-410.
- Hair, J.F., Anderson, R.E., Tatham, R.L., and Black, W.C., *Multivariate Data Analysis*, 5th. edition, Prentice-Hall International, 1998.
- Hoffman, D.L., Novak, T.P., and Peralta, M., "Building Consumer Trust Online," *Communications of the ACM* (42:4), 1999, pp. 80-85.
- Hoskisson, R.E., Hitt, M.A., Johnson, R., and Grossman, W., "Conflicting voices: The effects of institutional ownership heterogeneity and internal governance on corporate innovation strategies," *Academy of Management Journal* (45:4), 2002, pp. 697-716.
- Ippolito, P.M., "Bonding and nonbonding signals of product quality," *Journal of Business* (63:1), 1990, pp. 41-60.
- Jarvenpaa, S.L., Tractinsky, N., and Vitale, M., "Consumer trust in an Internet store," *Information Technology and Management* (1), 2000, pp. 45-71.
- Jones, G.R. and George, J.M., "The experience and evolution of trust: Implications for cooperation and teamwork," *Academy of Management Review* (23:3), 1998, pp. 531-546.
- Keen, P.G.W., Balance, C., Chan, S., and Schrupp, S., *Electronic Commerce Relationships: Trust by design*, Prentice-Hall, Englewoods, Cliffs, NJ., 1999.
- Kirmani, A. and Rao, A.R., "No pain, no gain: A critical review of the literature on signaling unobservable product quality," *Journal of Marketing* (60), April 2000, pp. 66-79.
- Kumar, N., Scheer, L.K., and Steenkamp, J.E.M., "The effects of supplier fairness on vulnerable resellers," *Journal of Marketing Research* (17), 1995, pp. 54-65.
- Lee, M.K.O. and Turban, E., "A trust model for consumer internet shopping," *International Journal of Electronic Commerce* (6:1), 2001, pp. 75-91.
- Lewicki, R.J., McAllister, D.J., and Bies, R.J., "Trust and distrust; New relationships and realities," *Academy of Management Review* (23:3), 1998, pp. 438-458.
- Lewis, J. D. and Weigert, A., "Trust as a social reality," *Social Forces* (63:4), June 1985, pp. 965-985.
- Lynch, P.D., Kent, R.J., and Srinivasan, S.S., "The global internet shopper: evidence from shopping tasks in twelve countries," *Journal of Advertising Research*, May-June 2001, pp. 15-23.
- Marquardt, D.W., "Generalized inverses, Ridge Regression and Biased Linear Estimation," *Technometrics* (12), 1970, pp. 591-612.
- Mason, C.H. and Perreault, W.D., "Collinearity, Power, and Interpretation of Multiple Regression Analysis," *Journal of Marketing Research* (38), August 1991, pp 268-280.
- Mayer, R.C., Davis, J.H., and Schoorman, F.D., "An integrative model of organizational trust," *Academy of Management Review* (20:3), July 1995, pp. 709-734.
- McKinney, V., Yoon, K., Zahedi, F.M., "The measurement of Web-customer satisfaction: An expectation and disconfirmation approach," *Information Systems Research* (13:3), 2002, pp. 296-315.
- McKnight, D.H., Cummings, L.L., and Chervany, N.L., "Initial trust formation in new organizational relationships," *Academy of Management Review* (23:3), 1998, pp. 473-490.
- McKnight, D.H., Choudhury, V., and Kacmar, C., "Developing and validating trust measures for e-commerce: An integrative typology," *Information Systems Research* (13:3), September 2002a, pp. 334-359.

- McKnight, D.H., Choudhury, V., and Kacmar, C., "The impact of initial consumer trust on intentions to transact with a Web site: A trust building model," *Journal of Strategic Information Systems* (11), 2002b, pp. 297-323.
- Molm, L. D., Takahashi, N., and Peterson, G., "Risk and Trust in Social Exchange: An experimental test of a classical proposition," *American Journal of Sociology* (105:5), 2000, pp. 1396-1427.
- Nunnally Jr., J. C. *Psychometric Theory*. NY: McGraw-Hill, 1978.
- Oliver, R.L., "A cognitive model of the antecedents and consequences of satisfaction decisions," *Journal of Marketing Research* (XVII), November 1980, pp. 460-469.
- Parasuraman, A., Zeithaml, V.A., Berry, L.L., "SERVQUAL: A Multi-item scale for measuring customer perceptions of service quality," *Journal of Retailing* (64:1), 1988, pp. 12-40.
- Pavlou, P.A., "Institution-based trust in interorganizational exchange relationships: the role of online B2B marketplaces on trust formation," *Journal of Strategic Information Systems* (11), 2002, pp. 215-243.
- Rao, A.R., Qu, L., and Ruekert, R.W., "Signaling unobservable product quality through a brand ally," *Journal of Marketing Research* (46), May 1999, pp. 258-268.
- Raymond, J., "No more shoppers interruptus," *American Demographics* (23:5), 2001, pp. 39-40.
- Rempel, J.K., Holmes, J.G., and Zanna, M.P., "Trust in close relationships," *Journal of Personality and Social Psychology* (49:1), 1985, pp. 95-112.
- Rotter, J.B., "Generalized expectancies for interpersonal trust," *American Psychologist* (26:5), 1971, pp. 443-452.
- Selnes, F., "Antecedents and consequences of trust and satisfaction in buyer-seller relationships," *European Journal of Marketing* (32: ¾), 1998, pp. 305-322.
- Shankar, V., Urban, G.L. and Sultan, F., "Online trust: A stakeholder perspective, concepts, implications, and future directions," *Journal of Strategic Information Systems* (11), 2002, pp. 325-344.
- Shapiro, C., "Premiums for high quality products as returns to reputations," *The Quarterly Journal of Economics* (98:4), 1983, pp. 659-680.
- Shapiro, S.P., "The Social Control of Impersonal Trust," *American Journal of Sociology* (93:3), 1987, pp. 623-658.
- Short, J, Williams, E, and Christie, B (1976), *The Social Psychology of Telecommunication*, John Wiley & Sons, New York
- Singh, J. and Sirdeshmukh, "Agency and Trust Mechanisms in consumer satisfaction and loyalty judgments," *Journal of the Academy of Marketing Science* (28:1), 2000, pp. 150-167.
- Spence, M, "Job marketing signaling," *Quarterly Journal of Economics* (87), August 1973, pp. 355-374.
- Spreng, R.A., MacKenzie, S.B., and Olshavsky, R.W., "A Reexamination of the determinants of consumer satisfaction," *Journal of Marketing* (60), July 1996, pp. 15-32.
- Spreng, R.A. and Mackoy, R.D., "An empirical examination of a model of perceived service quality and satisfaction," *Journal of Retailing* (72:2), 1996, pp. 201-214.
- Van Dyke, T.P., Prybutok, V.R., and Kappelman, L.A., "Cautions on the use of SERVQUAL measures to assess the quality of information systems service," *Decision Sciences* (30:3), 1999, pp. 877-891.
- Zeithaml, V.A., Parasuraman, A., and Malhotra, A., "Service quality delivery through Web sites: A critical review of extant knowledge," *Journal of the Academy of Marketing Science* (30:4), 2002, pp 362-375.
- Zucker, L.G., "Production of trust: Institutional sources of economic structure, 1840-1920," *Research in organizational behavior*, Staw, B.M. and Cummings, L.L. (eds), JAI Press, 1986, pp. 53-111.

Appendix A. Operationalization of the model variables

Variable	Item	Description	References
Trust	Trust1	This store is capable of doing its job	Newly added
	Trust2	This store would keep its promises and commitments	Grazioli and Jarvenpaa 2000
	Trust3	This store would care about its customers	
	Trust4	This store would fulfill its job	Newly added
	Trust5	This store is trustworthy	Grazioli and Jarvenpaa 2000
Customer satisfaction	CS1	I am satisfied with my transaction with this store	Spreng et al. 1996
	CS2	I am pleased with my transaction with this store	
	CS3	I am contented with my transaction with this store	
	CS4	I am delighted at my transaction with this store	
Reputation	REP1	People say this store has a good reputation	Doney and Cannon 1997
	REP2	In public opinion, this store is favorably regarded	Newly added
	REP3	People say this store has a good image	Grazioli and Jarvenpaa 2000
	REP4	This store is well respected by people	McKnight et al. 2002b
	REP5*	People say this store has a bad reputation in the market	Doney and Cannon 1997
Structural assurance	SA1	The Internet has enough safeguards to make me feel comfortable using it to transact personal business	McKnight et al. 2002a
	SA2	I feel assured that legal structures adequately protect me from problems on the Internet	
	SA3	I feel confident that encryption and other technological advances on the Internet make it safe for me to do business there	
	SA4	In general, the Internet is now a robust and safe environment in which to transact business	
Information quality	INFQ1	This Web site has information relevant to my needs	McKinney et al. 2002
	INFQ2*	Information at this Web site is easy to understand	
	INFQ3	This Web site has reliable information	
	INFQ4	This Web site has sufficient information	
	INFQ5**	This Web site has useful information	
System quality	SYQ1	This Web site quickly loads all the text and graphics	McKinney et al. 2002
	SYQ2	This Web site is easy to use	
	SYQ3	This Web site is easy to navigate	
	SYQ4**	This Web site is well designed for users	
	SYQ5	This Web site is visually attractive	
Service level	REL1	This store serves me what I ask for	Devaraj et al. 2002
	REL2*	This store performs the service right	Newly added
	REL3*	This store delivers the product which I order	
	REL4*	This store delivers the product on time	Devaraj et al. 2002
	RES1**	This store is responsive to my needs	Newly added
	RES2**	In the case of any problem, this store gives me prompt service	
	RES3	This store promptly addresses any concerns that I have	
	ASU1	This store has answers to all my questions about the product	Gefen 2002
	ASU2	This store has the knowledge to do its job	

	ASU3*	I feel confident about the information and advice given by the store	Devaraj et al. 2002
Empathy	EMP1*	This store recognizes me as a repeat customer (after first-time purchase)	Devaraj et al. 2002
	EMP2	This store gives me individual attention	Gefen 2002
	EMP3	This store addresses my specific needs	Devaraj et al. 2002
	EMP4	This store gives me personal attention	Gefen 2002

*: Dropped from the final analysis after PCA

** : Dropped from the final analysis after CFA

Appendix B. Results of Principal Components Analysis

(1) Potential customers

TRUST1	.856	.181	.206	.038	.092
TRUST2	.846	.231	.247	.238	.128
TRUST3	.802	.156	.214	.292	.104
TRUST4	.839	.253	.202	.254	.096
TRUST5	.810	.219	.294	.251	.076
REP1	.276	.180	.828	.233	.152
REP2	.279	.172	.868	.180	.175
REP3	.260	.155	.837	.234	.211
REP4	.218	.131	.804	.264	.184
REP5	-.111	-.275	<u>-.310</u>	-.021	.174
SA1	.138	.133	.144	.101	.772
SA2	.069	.088	.195	.092	.872
SA3	-.044	.176	.111	.098	.886
SA4	.218	.089	.008	.148	.821
INFQ1	.307	.252	.250	.687	.091
INFQ2	.217	<u>.505</u>	.120	.671	.222
INFQ3	.269	.352	.261	.648	.266
INFQ4	.170	.255	.253	.820	.121
INFQ5	.255	.324	.223	.779	.084
SYQ1	.209	.738	.108	.252	.113
SYQ2	.168	.847	.122	.250	.177
SYQ3	.249	.831	.067	.233	.133
SYQ4	.191	.819	.206	.255	.151
SYQ5	.131	.749	.241	.200	.110

(2) Repeat customers

CS1	.223	.143	.186	.345	.718	.125	.109	.073
CS2	.217	.173	.148	.312	.748	.176	.133	.105
CS3	.236	.163	.145	.308	.762	.149	.113	.095
CS4	.093	.210	.114	.096	.717	.134	.067	.159
TRUST1	.233	.159	.161	.685	.349	.209	.058	.089
TRUST2	.291	.116	.138	.698	.370	.174	.102	.085
TRUST3	.264	.195	.133	.690	.300	.169	.139	.246
TRUST4	.248	.185	.202	.691	.299	.198	.149	.176
TRUST5	.222	.152	.232	.708	.342	.167	.132	.117
REP1	.177	.149	.136	.177	.161	.839	.103	.105
REP2	.164	.182	.137	.196	.154	.839	.110	.122
REP3	.179	.160	.147	.182	.166	.851	.143	.105
REP4	.191	.120	.153	.197	.132	.773	.201	.160
REP5	-.156	-.207	-.167	-.510	-.001	<u>-.316</u>	-.065	.079
SA1	.166	.059	.098	.152	.037	.130	.780	.076
SA2	.108	.070	.112	.056	.058	.092	.869	.110
SA3	.045	.121	.113	.070	.113	.131	.863	.082
SA4	.072	.143	.133	.055	.075	.085	.837	.092
INFQ1	.149	.176	.751	.097	.146	.136	.200	.035
INFQ2	.186	.327	.744	.150	.137	.099	.092	.127
INFQ3	.244	.213	.704	.225	.094	.144	.173	.174
INFQ4	.127	.281	.723	.130	.137	.168	.116	.189
INFQ5	.170	.259	.741	.195	.186	.124	.102	.227
SYQ1	.215	.665	.182	.117	.142	.184	.154	.034
SYQ2	.165	.802	.251	.134	.198	.128	.124	.080
SYQ3	.172	.804	.203	.154	.133	.089	.109	.092
SYQ4	.159	.778	.267	.176	.131	.154	.091	.166
SYQ5	.210	.725	.284	.143	.123	.156	.060	.151
REL1	.510	.350	.155	.272	.228	.042	.094	.274
REL2	<u>.492</u>	.375	.218	.307	.290	.129	.087	.225
REL3	<u>.452</u>	.111	.170	.238	.504	.097	-.006	.011
REL4	.503	.031	.074	.148	<u>.412</u>	.113	-.009	.085
RES1	.777	.179	.133	.188	.194	.137	.097	.139
RES2	.805	.167	.117	.186	.147	.145	.124	.190
RES3	.780	.164	.138	.214	.151	.172	.149	.168
ASU1	.603	.206	.232	.094	.097	.217	.214	.286
ASU2	.588	.265	.338	.224	.147	.241	.114	.132
ASU3	.518	.266	<u>.401</u>	.259	.152	.227	.105	.197
EMP1	.297	.207	.311	.264	.125	.046	-.045	<u>.296</u>
EMP2	.204	.169	.263	.101	.120	.121	.126	.791
EMP3	.374	.133	.209	.102	.115	.148	.168	.766
EMP4	.284	.135	.150	.144	.170	.215	.202	.755

About the authors

Hee-Woong Kim is an assistant professor in the School of Computing at the National University of Singapore. He was invited to the ICIS doctoral consortium (1997) and worked as a post-doctoral fellow in the Sloan School of Management at Massachusetts Institute of Technology.

His papers have been published in *Information & Management*, *Decision Support Systems*, etc. He has presented his papers at ICIS, HICSS, ECIS, and DSI.

Yunjie Xu is an assistant professor at the Department of Information Systems, National University of Singapore, School of Computing. He received his Ph.D. from Syracuse University, NY. He has published in *information retrieval*, and presented his research at ICIS, PACIS, and DSI. His research interests include electronic commerce, online trust, and information retrieval.

Joon Koh is currently working for Samsung Electronics in Korea as a manager for knowledge management and communities-of-practice. He received his Ph.D. degree in MIS from the Korea Advanced Institute of Science and Technology. His work has appeared in *International Journal of Electronic Commerce*, etc. Also, he presented his papers at *ICIS and IRMA conferences*.

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