Self-Perception-Based Versus Transference-Based Trust Determinants in Computer-Mediated Transactions: A Cross-Cultural Comparison Study

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ABSTRACT: This study examines the impact of culture on trust determinants in computer-mediated commerce transactions. Adopting trust-building foundations from cross-culture literature and focusing on a set of well-established cultural constructs as groups of culture (Type I and Type II), this study develops a theoretical model of self-perception-based versus transference-based consumer trust in e-vendors, and empirically tests the model using cross-cultural data. The results show that transference-based trust determinants (i.e., "perceived importance of third-party seal" and "perceived importance of positive referral") are more positively related to consumer trust in e-vendors in a Type II (i.e., collectivist–strong uncertainty avoidance–high long-term orientation–high context) culture than in a Type I (i.e., individualistic–weak uncertainty avoidance–low long-term orientation–low context) culture. Unlike the initial hypothesized expectations, self-perception-based trust determinants (i.e., perceived security protection, perceived privacy concern, and perceived system reliability) do not show stronger roles to consumer trust in e-vendors in a Type I culture than in a Type II culture, although the stronger negative effect of perceived privacy concerns is observed on consumer trust in e-vendors in a Type I culture than in a Type II culture. Theoretical contributions for e-commerce cross-culture literature and implications for multinational online business managers are discussed.

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KEY WORDS AND PHRASES: cross-cultural comparison, culture impacts, self-perception-based trust, transference-based trust, trust in e-vendor, Type I and Type II cultures.

AS INTERNET SHOPPING BECOMES PROGRESSIVELY more global and as the Internet increases at an exponential rate in terms of the number of cross-national interactions between Internet vendors (e-vendors) and consumers, it becomes important to understand the existence and nature of cultural differences on trust in e-commerce [49, 64]. Cultures are very different. Companies that want to do international business on the Web consider the impact of culture on the online consumers' behaviors on the Web and the understanding and use of Web interface and content. When people make a decision (e.g., online purchase decision), for example, the recommendations from friends and family play a more important role in a tightly coupled social community than in a loosely coupled social community, because the group norm and members' opinions of the securely linked social community strongly influence their decisions [4]. Furthermore, there are differences in perceptions of trust and the way in which it was conceptualized and formed across different cultures [62, 86]. Prior studies (e.g., [22, 51]) suggest that cultural dimensions (i.e., individualism–collectivism and uncertainty avoidance) affect consumers' willingness to trust e-vendors and to accept uncertainty, which are inevitable parts of e-commerce transactions. Thus, it is important to investigate the effects of trust determinants across cultures. However, little research has examined the impact of culture on trust in an e-commerce context, especially cultural influences on trust determinants.

Grabner-Krauter and Kaluscha [35] conducted a meta-analytic review of the empirical literature on trust in electronic commerce to provide a cumulative analysis of results. Based on their synopsis of empirical findings, they suggested several promising avenues. The cross-cultural effects on consumers' trust are avenues for future study, for reasons similar to those stated above. Some studies (e.g., [34, 36, 92]) have done work in the area of the cultural effect on trust, but most dealt with the cultural effect in a non-e-commerce context. Although few studies (e.g., [49, 84]) focus on the cultural influences on trust in an e-commerce context, there are several limitations (i.e., limited number of determinants, no trust determinants, biased cultural homogeneity, and no strong cultural differences in the results).

Thus, this paper seeks to address the gap in research to date and tests cross-cultural validation of trust determinants. The purpose of this study is threefold: (1) to propose a theoretical model of e-vendor trust antecedents in an e-commerce context across cultures, (2) to test the proposed model empirically using cross-cultural data, and (3) to provide some insight to multinational Internet business managers from a cross-cultural perspective. More specifically, this study intends to focus on the following two research questions: What kinds of determinants will play a significant role in explaining trust in e-commerce, depending on cultural differences? Is there a significant difference in the effect of several determinants of trust in e-commerce, depending on cultural differences?

Literature Review

Antecedents of Trust

Several researchers have tried to categorize antecedents or determinants of consumer trust [6, 21, 54, 55, 70, 96, 97]. Zucker [97] proposes three major methods of building trust: process based (e.g., reputation, experience), characteristic based (e.g., disposition), and institutional based (e.g., third-party certification). Drawing from theories of several disciplines, Doney and Cannon [21] and Doney et al. [22] identify five distinct cognitive processes and noncognitive processes for developing trust in business relationship contexts.[1] Barney and Hansen [6] and Lewis and Weigart [63] define the three levels of customer trust—strong trust, semistrong trust, and weak trust. Bhattacherjee [11] proposes three key dimensions of trust—trustee's ability, benevolence, and integrity—based on a review of cross-disciplinary literature on dimensions of trust. Mayer et al. [67] define trust as a behavioral intention based on the expectations of another person. Based on this definition, they propose a model of dyadic trust in organizational relationships that includes characteristics of both the trustor and trustee which influence the formation of trust. The three characteristics included in the model, representing the perceived trustworthiness of the trustee, are benevolence, integrity, and ability.

Adopting the multilevel characteristic model illustrating the antecedents and consequences of consumers' trust in marketing [77], Kim and his colleagues [55] propose a process-oriented, multidimensional trust formation model for online exchanges. The six dimensions of the model are consumer behavioral, institutional, information, product, transaction, and technology dimensions. Kim et al. [53] suggest a comprehensive trust-based consumer decision-making model that has four categories of trust antecedents (i.e., cognition based, affect based, experience based, and personality oriented) that influence consumer trust and the sense of risk toward electronic commerce entities.

Under the assumption that trust may be transferred between different kinds of proof sources, Stewart [90, 91] develops and tests a cognitive model of the trust transfer process, arguing that trust is transferred across hypertext links based on the perceived interaction and similarity of the linked organizations, and that institution-based trust is transferred from the traditional shopping channel to a Web-based organization based on evidence that the Web-based organization has a physical store. She finds that the perceived relationship caused by a hypertext link leads to positive effects for the less reputable of the linked organizations, but negative effects for the more reputable organization [91].

Cultural Differences in Trust

National culture influences individual and organizational trust development processes [22]. The concept of culture is a multidimensional construct. Hofstede [44] revealed the five cultural dimensions—individualism/collectivism, uncertainty avoidance, power distance, masculinity/femininity, and long-/short-term orientation on life. The Hofstede cultural framework has not only received strong empirical support [89] but

also has been recognized as the most influential culture theory among social science researchers [81]. More recently, Hofstede [45] cites 140 studies that show strong evidence for the validity and usefulness of his cultural dimensions.

Based on Hofstede's framework, Strong and Weber [92] examine the theory that trust is culturally determined. They conclude that differences in trust exist globally between cultures. Griffith et al. [36] designate the United States and Canada as Type I cultures with "individualistic–small power distance–weak uncertainty avoidance" characteristics to contrast with Type II culture countries (Chile and Mexico) with "collectivistic–large power distance–strong uncertainty avoidance" characteristics. Although no significant difference in the strength of the trust–commitment relationship is found between Type I and Type II cultures, the study discovers that Type I cultures have a higher possibility of forming a trusting relationship with other Type I cultures, rather than with Type II cultures.

A seven-nation survey was conducted by Huff and Kelly [47] to examine whether a firm's national culture has an impact on its internal and external trust propensities. The data were collected from bank managers of six Asian nations and two U.S. states. The results somewhat support the findings of Griffith et al.'s [36] study, that managers in the United States demonstrate a higher level of external trust than managers from Asia. The collectivism among the Asian countries in the study (China, Korea, Taiwan, etc.) may therefore be deemed as a liability when firms from these countries try to compete on a global scale.

McAllister [68] differentiates between two broad foundations upon which trust is built in organizational settings—cognition and affect. Cognition-based trust is built on the knowledge of role performance, whereas affect-based trust is built on the emotional bonds between partners. Based on the contrasting role of cognition-based versus affect-based trust in the two different cultures, Chen et al. [17] propose that cognition-based trust is more positively related to cooperation in an individualist culture, whereas affect-based trust is more positively related to cooperation in a collectivist culture.

A number of e-commerce trust studies [18, 32, 56, 83, 85, 93] empirically test the effect of trust on behavior intention (i.e., willingness to purchase) and find that trust has a significantly positive effect on the intention to purchase. However, only a handful of studies [34, 49, 64, 84] to date have aimed at the effect of national culture on trust in computer-mediated electronic commerce transactions. Incorporating Hofstede's three cultural dimensions (i.e., individualism/collectivism, power distance, and long-term orientation) out of five along with the theory of planned behavior, Pavlou and Chai [84] conduct an empirical study to explain e-commerce adoption across cultures using data from consumers in the United States and China. The results of the study support the theory that cultural differences play a significant role in consumers' e-commerce adoption. Lim et al. [64] identify two national culture dimensions (i.e., individualism/collectivism and uncertainty avoidance) and their interaction that influence Internet shopping rates across countries. They also find that trust mediates the relationship between cultural differences and Internet shopping adoption decisions.

Jarvenpaa et al. [49] use Hofstede's dimensions to compare Internet trust in individualistic and collectivistic cultures to conduct a study on a cross-cultural validation of an Internet consumer trust model. They find that consumers in different cultures may have differing expectations of what makes a Web merchant trustworthy. Although no strong cultural effects are found regarding the antecedents of trust, their study ignites examinations of cultural differences in the antecedents of trust and the levels of trust in the context of e-commerce. Doney et al. [22] propose a model of national culture and the development of trust. From the perspective of national culture, the model describes five distinct cognitive processes (i.e., calculative process, prediction process, capability process, intentionality process, and transference process) for developing trust in business contexts. The model also identifies four other factors (i.e., intermediate institutions, organizational, relational, and individual) affecting the development of trust through cognitive and noncognitive processes. In the paper, however, they mainly focus on more rational, cognitive trust-building processes. They do not address cultural factors that may have a direct effect on the level of trust through the noncognitive trust-building processes in a society [22].

A careful reading of the diverse trust antecedents and their category literature provides insight that trust is either built by self-perceptions based on direct experience or interactions with a trustee or transferred from a trusted entity to another entity with which the trustor has little or no direct experience or interactions. Because the primary focus of this paper is to examine the effect of national culture on trust antecedents in computer-mediated commerce transactions, out of the many categories of trust antecedents, this study mainly concentrates on the two broad trust-building foundations (i.e., self-perception-based versus transference-based trust-building processes). The concept of a transference-based trust-building process is somewhat similar to that of institutional-based, weak trust, and affect-based trust-building processes proposed by Zucker [97], Barney and Hansen [6], and Kim et al. [53], respectively. The other self-perception-based or self-interest-based trust-building process is related to the cognitive trust-building process proposed by Doney et al. [22], in some sense. The self-perception-based and transference-based trust are strongly supported as trust antecedent categories by several national culture studies [17, 22, 27, 68].

Theory Development and Research Model

Cultural Dimensions

According to Hofstede, national culture is "the interactive aggregate of common characteristics that influence a human group's response to its environment" [42, p. 21]. Culture is defined as "the collective programming of mind which distinguishes one national group or category of people from another" [44, p. 5]. To assist in differentiating national cultures, Hofstede [42, 43, 44] developed an index model that identifies five primary cultural dimensions: individualism (IDV), power distance index (PDI), masculinity (MAS), uncertainty avoidance index (UAI), and long-term orientation

(LTO).[2] The model was generated through the most extensive examination of cross-national values ever undertaken, with 116,000 respondents across 40 countries [81].

Individualism refers to the degree to which a culture reinforces individual (as opposed to collective) achievement and relationships. Individualists define the self as an autonomous entity independent of groups, whereas collectivists define the self in terms of its connectedness to others in various in-groups. In *individualistic* cultures, the needs, values, and goals of individuals take precedence over those of the group, whereas in *collectivistic* cultures, the needs, values, and goals of the group take precedence over those of the individual [37]. High levels of collectivism will foster greater communications, cooperation, and harmony within the society. Members of a collectivist culture tend to share similar opinions and beliefs, working toward a feeling of harmonious interdependence [36]. Markus and Kitayama [65] used the terms *independence* and *interdependence* instead of the terms *individualism* and *collectivism* to represent diverging views of self that are often related to or derived from the two contrasting cultural orientations. The independent view of self is grounded in a belief in individual primacy where the self is considered unique and autonomous, whereas the interdependent view is influenced by the social unit (i.e., family, group, community) and gives primary consideration to maintaining harmony. Thus, in more collectivist cultures, decisions are influenced by the group norm and members' opinions. The high Hofstede's IDV score indicates a culture with a more individualistic attitude and relatively loose bonds with others. A low IDV ranking (i.e., a high collectivism ranking) indicates a more collectivist culture with close ties between individuals.

Uncertainty avoidance refers to the degree to which people tend to desire more formal (structured) over informal (unstructured) arrangements. Cultures with high uncertainty avoidance attempt to formulate ways (e.g., laws, rules, regulations, and standards) of controlling risk. The high UAI indicates that the country has a low tolerance for uncertainty and ambiguity. A low UAI ranking indicates the country has less concern about ambiguity and uncertainty and has more tolerance for a variety of opinions.

Long-term orientation refers to the degree to which society does or does not embrace long-term devotion to traditional values [42]. The high long-term-oriented cultural types might evaluate plans in terms of customs, traditions, or history. A high LTO ranking indicates that the culture subscribes to the values of long-term commitments and respect for tradition. In these cultures, change can occur less rapidly as compared to a culture with a low LTO, because long-term traditions and commitments become impediments to change. Thus, in high-LTO cultures, business may take longer to develop, particularly for an "outsider."

Although the Hofstede dimensions are the most widely used, they have been criticized for equating nation with culture and for falling short of describing all important aspects of national cultures [7, 25]. To enhance this present study of the effects of national culture on trust antecedents, therefore, a second dominant culture theory proposed by Hall [38, 39] and Hall and Hall [40] is included. Hall [38, 39] and Hall and Hall [40] differentiated "high context" and "low context" national cultures mainly focused on communication aspects, an important part of the innovation adoption process [25]. *Context* refers to how individuals and their society seek information and

knowledge. People from high-context cultures (e.g., Japanese, Chinese, Italians, Latin Americans, Arabs, Africans, Koreans, Southeast Asians, etc.) obtain information from personal information networks such as friends, business acquaintances, and relatives, whereas people from low-context cultures (e.g., Swiss, Austrians, New Zealanders, South Africans, Americans, Canadians, etc.) seek information about decisions from direct information sources such as watching, reading, reports, and databases [25].

Because culture is not directly observable, but is inferable from a national group or category of people, this study examines the effect of national culture on trust determinants implicitly, using two sets of data collected from two countries that have a distinct national culture—the United States and South Korea (Korea hereafter). In other words, instead of measuring cultural dimensions directly from individuals, in this study, national culture is operationalized using dimensions and scores provided by Hall [38, 39], Hall and Hall [40], and Hofstede [42, 43, 44].

As McCoy et al. [69] point out, the original instrument of Hofstede [42] cannot be used to test individual-level relationships, and should be used only at the national level because the measurement items address the standpoint of how the respondents believe most people think, not how they think as an individual. Therefore, the works by Hall [38, 39], Hall and Hall [40], and Hofstede [42, 43, 44] are meaningful comparisons between national cultures for this study, since the unit of comparison analysis of this study is at the national level, rather than at the individual level.

Compared with the world average Hofstede's scores, the United States has higher IDV and MAS, and lower PDI, UAI, and LTO scores. By contrast, Korea has lower IDV and MAS scores than those of the United States and the world average. It has, however, higher PDI, UAI, and LTO scores than those of the United States and the world average (see Figure 1). Interestingly, Korea's Hofstede's scores are nearly opposite to those of the United States across all five cultural dimensions.[3] Therefore, the choice of the United States and Korea as the two samples can be justified, because the two countries have some similarities in the maturity of their e-commerce and information technology innovation, and at the same time have significant differences in cultural characteristics.

For this study, combining the national cultural types (i.e., "individualistic–weak uncertainty avoidance–low long-term orientation" versus "collectivist–strong uncertainty avoidance–high long-term orientation") from Hofstede's study [42, 43, 44] and the context dimension of national culture (i.e., "low context" versus "high context") from Hall [38, 39] and Hall and Hall [40], two types of cultures (i.e., Type I and Type II) are identified. Table 1 summarizes the key characteristics of each national culture type with cultural dimensions and some typical countries categorized by each type. The information in Table 1 validates the fact that the United States and Korea well represent the Type I and Type II cultures, respectively.

Self-Perception-Based Versus Transference-Based Trust

How do Type I and Type II cultures influence trust determinants in e-commerce? Adopting the cognitive trust-building processes of the model of national culture [22],

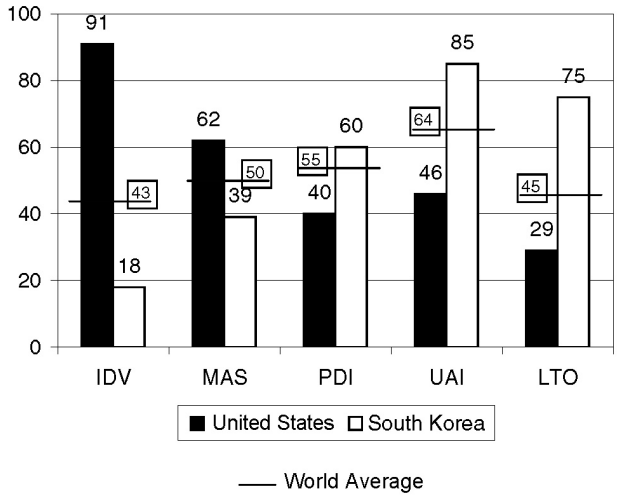

Figure 1. Comparison of Hofstede's Scores
Source: www.geert-hofstede.com/hofstede_dimensions.php.

and categorizing the transference trust-building process [22], institutional-based trust production [97], weak trust [6], and affect-based trust-building process [53] as one group of trust-building processes, this study develops two broad trust-building foundations (i.e., self-perception-based versus transference-based trust) as groups of trust determinants related to national cultures.

Self-perception-based trust is formed by self-perception and self-interest through direct experience or direct interactions with a partner, taking into account the trustee's performance and accomplishments. The basis of self-perception-based trust is mainly cognitive reasoning [68]. For instance, if an individual is truly impressed with a trustee's professional and educational training, experience, and role performance, the individual would tend to develop self-perception-based trust. *Transference-based trust,* in contrast, is built—actually, transferred—from a trusted "proof source" [22]. The proof source could be another individual (e.g., a friend), group (e.g., family), or organization (e.g., intermediate institution). Stewart argues that trust transfer occurs "when a person (the trustor) bases initial trust in an entity (a person, group, or organization referred to as the target) on trust in some other related entity, or on a context other than the one in which the target is encountered (e.g., a different place)" [90, p. 6]. An individual trusting a trustee who is recommended by someone whom he or she already trusts would be an example of transference-based trust. Transference-based trust is largely influenced by general assessments or evaluations from other proof sources toward a trustee such as reputation, word of mouth, and third-party review.

People in an individualistic culture (i.e., Type I) are more likely to seek information by themselves from direct and formal sources, they are somewhat separate from social context, and they view themselves as independent. Therefore, self-perception-based trust determinants, which are mainly related to consumers' self-cognitive reasoning [68] based on the self-perception and self-interest through direct experiences and

Table 1. Type I and Type II National Culture Characteristics

Cultural constructs	Type I	Type II
Individualism versus collectivism	High IDV score Goals, needs, values of collectives are subordinated to those of individuals Separate from social context, constant, and stable Internal, private (abilities, thoughts, feelings) Independent view of self Loosely coupled social network Relative preference for short-term, "shallow" relationships Decisions are weakly influenced by the group norm and members' opinions	Low IDV score Goals, needs, values of individuals are subordinated to those of collectives Connected with social context, flexible, and variable External, public (statuses, roles, relations) Interdependent view of self Tightly coupled social network Relative preference for long-term, "deep" relationships Decisions are strongly influenced by the group norm and members' opinions
Weak uncertainty avoidance versus strong uncertainty avoidance	Low UAI score High tolerance for uncertainty and a variety of opinions People prefer informal arrangements of controlling risk	High UAI score Low tolerance for uncertainty and ambiguity People prefer structured arrangements of controlling risk
Low long-term versus high orientation	Low LTO score Less focus on traditions, customs, or history Emphasize values such as personal steadiness, stability	High LTO score Evaluate plans in terms of traditions, customs, or history Emphasize values such as persistence, ordering relationships, thrift, loyal, trustworthiness

(continues)

Table 1. Continued

Cultural constructs	Type I	Type II
Low context versus high context	Low context scale score People seek information about decisions from direct and formal information sources Interpretation of messages rests on the written or spoken word content	High context scale score People obtain information from personal information networks Interpretation of messages rests on contextual cues
Typical countries[1]	United States (91, 46, 29, 3) Australia (90, 51, 31, 5) Canada (80, 48, 23, 3) Denmark (74, 23, NA, 4) Finland (63, 59, NA, 3) Netherlands (80, 53, 44, 5) New Zealand (79, 49, 30, 2) Norway (69, 50, 20, 4) South Africa (65, 49, NA, 2) Sweden (71, 29, 33, 1) United Kingdom (89, 35, 25, 4)	Korea (18, 85, 75, 10) Brazil (38, 76, 65, 13) Chile (23, 86, NA, 13) Colombia (13, 80, NA, 12) Greece (35, 112, NA, 14) Japan (46,[2] 92, 80, 16) Mexico (30, 82, NA, 13) Pakistan (14, 70, 0, 12) Portugal (27, 104, NA, 14) Taiwan (17, 69, 87, 10) Turkey (37, 85, NA, 14)

Notes: NA = not available. [1] The numbers after country names present the IDV, UAI, LTO, and Context scale scores from Hofstede [42, 43, 44, 45] and Morden [78] studies. IDV, UAI, and LTO values are considered high if they are above the world average score, otherwise they are considered low. Context scale scores are considered high if they are above the half, otherwise they are considered low. [2] Even though the IDV score of Japan is slightly higher than the world average score, Japan is classified as Type II because other characteristics clearly fit in the Type II national culture.

interactions with an e-vendor (e.g., ease of use of Web interface, security, and privacy protection policies, Web information quality, etc.), are more valued in a Type I culture than in a Type II culture. By the same token, members of a collectivist culture (i.e., Type II) are more likely to share similar opinions and beliefs, and are less tolerant of varying opinions. Therefore, transference-based trust determinants such as third-party referrals and recommendations from friends and family are more valued in collectivist cultures than self-perception-based trust determinants, which are valued more in individualist cultures. Drawing from the relationship between self-perception-based and transference-based trust determinants, I propose the following:

Proposition 1: There will be stronger positive and negative effects of self-perception-based trust determinants on consumer trust in e-vendors in the Type I culture than in the Type II culture.

Proposition 2: There will be stronger positive effects of transference-based trust determinants on consumer trust in e-vendors in the Type II culture than in the Type I culture.

As presented, the primary goal of this study is to examine the impact of culture on trust determinants in computer-mediated commerce transactions from information systems (IS) or e-commerce perspectives. Among the trust antecedents that previous e-commerce studies identified, perceived security protection, concern for privacy, and system reliability are selected as determinants of self-perception-based trust because they are directly influenced by the selling party, especially its Web site, and its transaction systems. Third-party seals, referrals, and recommendations are selected as determinants of transference-based trust because they are trusted "proof sources" [22] that go beyond a regular direct business or professional relationship with the selling party.

Several studies [58, 72, 73] have identified that the perceptions of privacy, security, and fair handling of information from other sources vary across cultures because of the global nature of computer-mediated transactions. This is another justification to select the five trust determinants in this study. Figure 2 illustrates the research model with hypotheses on the relationships between trust determinants and trust in an e-vendor.

Perceived security protection (security protection) refers to a consumer's perception that the e-vendor will fulfill security requirements, such as authentication, integrity, encryption, and nonrepudiation. Consumers have to send confidential information (e.g., credit card information) to e-vendors over the Internet to make an Internet transaction. Without an appropriate level of security protection, as the number of these transactions increases, the number of security attacks would increase as well. Thus, online consumers' perception regarding security affects trust in the e-vendor [74].

Privacy is defined as the rights of individuals and organizations to determine for themselves how, when, and to what extent the information about them is to be permitted for others to use [95]. Along with security, consumer's privacy concern is another key determinant of consumer trust in e-commerce [41]. In this study, *perceived privacy concern (privacy concern)* refers to a consumer's perception of the likelihood

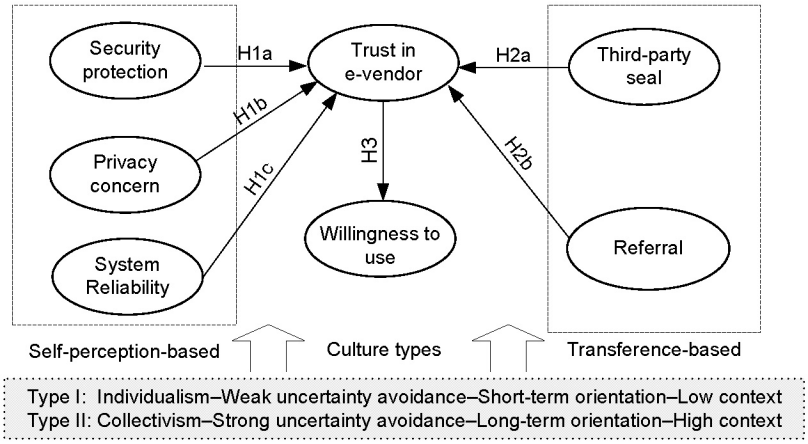

Figure 2. Self-Perception-Based and Transference-Based Trust Determinant Model

or intention of e-vendors' unauthorized use or disclosure of his or her confidential information, which is collected during e-commerce transactions. Privacy issues come from concerns such as unauthorized sharing of personal information, spam from the online retailer, and disclosure of the customer's shopping behavior patterns [74]. For these reasons, online consumers are generally wary of providing personal, sensitive, or confidential information when they make a transaction [95] on a Web site. Thus, a higher degree of privacy concern is likely to decrease consumer trust in an e-vendor, and, in turn, to reduce purchase intentions [60].

In order to survive in today's competitive market, online sellers continuously upgrade to the latest technologies. The main reason for this is to present to their consumers a steady and reliable system where every bit of pertinent information will be available to the consumer, at just a click away. This also generates an impression of competency of the seller, and, consequently, consumers tend to trust the seller. As a technical dimension to support electronic commerce, *perceived system reliability (system reliability)* considers key factors such as speed and availability of access, the frequency of errors at different levels, the accuracy of the transaction record, and the rate of service failure during transactions. For example, a site may not totally fail but access to the site may become so slow that a sale is lost. This is not a direct failure, but may be classified as an indirect failure. Even under an indirect failure, consumers' trust regarding that site may be negatively affected. Thus, perceived system reliability in this study refers to the consumer's perception that a Web vendor system is always available and fast, that it makes few errors at all levels, that the transaction record is correct, and that services will not fail during a transaction.

From the culture perspective, a broad understanding of IS privacy, security, and system reliability is not simply technical phenomena but issues embedded in social and cultural contexts [23]. Individuals who have been brought up within a similar social norm and belief system (i.e., culture) may have different perceptions on security, privacy, and system reliability features of e-commerce systems than individuals

within a different culture. For example, sharing a personal password with friends and coworkers is considered as part and parcel of being a "team player" in some cultures, but it is strictly unacceptable in some other cultures. Thus, even if security, privacy, and system reliability have become more and more important for any consumers from any countries in today's global e-commerce environments, the effects of perceived security protection, privacy concern, and system reliability on trust-building processes may differ from culture to culture.

Because perceiving security mechanisms and features in e-vendors' Web sites (e.g., security Web interface, security and privacy protection policies, etc.) is a consumer's self-cognitive reasoning process to protect his or her personal security and privacy through a more reliable e-commerce transaction, perceived security protection, privacy concern, and system reliability are more valued in a Type I culture than in a Type II culture. Drawing from the arguments of self-perception-based trust with culture types and the definition of transference-based trust determinants above, the following three hypotheses are proposed to assess the first proposition:

> *Hypothesis 1a: There will be a stronger positive effect of perceived security protection on consumer trust in e-vendors in a Type I culture than in a Type II culture.*
>
> *Hypothesis 1b: There will be a stronger negative effect of perceived privacy concern on consumer trust in e-vendors in a Type I culture than in a Type II culture.*
>
> *Hypothesis 1c: There will be a stronger positive effect of perceived system reliability on consumer trust in e-vendors in a Type I culture than in a Type II culture.*

Recently, a wide variety of third-party assurance seals were introduced to help foster trust in electronic commerce. The basic idea is that when Internet customers see the seal on a given site and they perceive that it is important for their e-commerce transactions, it increases trust in that Web site. As an intermediate institutional factor of transference-based trust antecedent, *perceived importance of third-party seal (third-party seal)* refers to the degree of a consumer's concern about the assurance of Internet vendors by third-party certifying institutions (e.g., banks, accountants, consumer unions, and computer companies). The purpose of a seal is to assure consumers that a Web site discloses and follows its operating practices, that it handles payments in a secure and reliable way, that it has certain return policies, and/or that it complies with a privacy policy that says what it can and cannot do with the collected personal data [16, 59, 87]. Thus, when an ordinary consumer finds a third-party seal on an e-vendor's site, he or she can recognize that the e-vendor has openly agreed to disclose its information gathering and dissemination practices, and that its disclosure is backed by credible third-party assurance [8], which will affect the consumer's trust in the e-vendor so that the consumer feels comfortable completing the transaction.

Perceived importance of positive referral or recommendation (referral) refers to a consumer's degree of concern about referral or recommendation from social and relational sources (e.g., friends, family, and professional review comments, etc.). Referral

is another important transference-based trust determinant influencing a consumer's trust in an e-vendor. Consumers are likely to obtain recommendations or opinions about e-vendors from other social and relational sources to reduce the potential risk associated with a purchase decision. These opinions can include an evaluative aspect (i.e., experiences and evaluations) and a conative aspect (i.e., recommendations), which directly affect the consumer's trust in the e-vendor [94].

The empirical evidence of the effect of referrals, including word of mouth, has been presented in diverse purchase situations from small and inexpensive to large and expensive products and services [3]. According to a word-of-mouth referral study conducted by Money et al. [75] in a cross-national setting (the United States versus Japan), companies in Type II cultures (i.e., Japanese) use more word-of-mouth referral sources than those in Type I cultures (i.e., American). The result of the referral study supports the second proposition of this study.

Considering the discussions on the relationship between non-self-perception-based trust and culture types and the definition of transference-based trust determinants above, we can expect stronger positive effects of transference-based trust determinants on consumer trust in a Type II culture than in a Type I culture. Thus, the following two hypotheses are proposed to validate the second proposition:

Hypothesis 2a: There will be a stronger positive effect of perceived importance of third-party seals on consumer trust in e-vendors in a Type II culture than in a Type I culture.

Hypothesis 2b: There will be a stronger positive effect of perceived importance of referral on consumer trust in e-vendors in a Type II culture than in a Type I culture.

Trust and Intention to Use the E-Vendor's Web Site

Willingness to use, or intention to use, an e-vendor Web site refers to the consumer's intention to engage in electronic commerce transactions with a selling entity through its Web site [32]. According to the theory of reasoned action [1], volitional behavior is determined by intentions. An individual's behavioral intention (e.g., willingness to use) is the most critical predictor of his or her behavior (e.g., completion of transaction). By extrapolating from the theory of reasoned action, a consumer's trust in an e-vendor can be viewed as a belief that creates a positive attitude toward the purchase behavior, which in turn would lead to transaction intentions [48, 85]. The effect of a consumer's trust on the intention to use or purchase has been empirically supported in many studies on e-commerce [30, 70, 83]. Therefore, even if there is a different effect on the level of trust across cultures, the effect of trust on the online consumer's intention to use is significant both in a Type I culture and in a Type II culture. Therefore, it is hypothesized that

Hypothesis 3: There will be strong positive effects of trust on the online consumer's intention to use the e-vendor's Web site across the Type I and Type II cultures.

Research Methodology and Data Collection

FOR THE CROSS-CULTURE VALIDATION OF THE MODEL and to test the hypotheses in a cross-cultural setting, data were collected from a group of students at public universities in the northeastern United States and South Korea. The United States represents a Type I culture, while Korea has a Type II culture characterized by strong and intimate social relationships among members of that society [36]. For the Korean sample, the English questionnaire was translated into Korean by a Korean-American professor who had significant knowledge of e-commerce issues in both countries. After that, a Korean IS professional who received a graduate degree from a university in the United States compared both questionnaires for a validity check. Based on his comments, the Korean version of the questionnaire was revised. In addition, because American third-party seals (e.g., TRUSTe, BBBOnLine) were not familiar to Koreans, as an example of a third-party seal, a Korean seal (i.e., eTrust) issued by the Korea Institute for Electronic Commerce (KIEC) was used in the Korean version of the questionnaire. Students participated in the study voluntarily for extra credit. They were asked to visit any business-to-consumer (B2C) e-commerce Web site to shop for an item of their choice. A total of 249 responses were collected from the U.S. survey and 212 from the Korean survey. After eliminating incomplete responses, a total of 246 U.S. and 199 Korean samples were used to test the proposed model.

The research instrument used to measure the constructs was developed following the three stages suggested by Moore and Benbasat [76]—item creation, scale development, and instrument testing. In the first stage, item creation, existing measurement items were reviewed for the study. Most of the instruments were adapted from previous research and modified to fit the context of this research. Some new instruments were developed based on the results of a literature review on the topics. Regarding the trust measurement items, even though we generally accept the three characteristics (i.e., benevolence, integrity, and ability) representing the perceived trustworthiness of the trustee, this study unintentionally adopted the consumer trust scales from previous research [29, 49] which uses a single scale. As Gefen [31] discussed, empirically, past studies found that these three beliefs sometimes mix and sometimes do not. In some cases of online shopping [21, 29, 31, 34, 70], the three belief characteristics are reported as one dimension.

For the second stage, scale development, a panel of experts (professors and IS professionals) reviewed the instrument to ensure the content validity and to identify ambiguous items of the instruments created in the first step. After the questionnaire was pilot tested, necessary changes were made to improve both the content and clarity of the questionnaire. As recommended by Bentler and Chou [10], each construct was measured by at least three observable indicators. All constructs were measured using multiscaled items.[4] The items were written in the form of statements or questions. Most of the scales used seven-point Likert scales with end points such as strongly disagree/strongly agree, extremely unlikely/extremely likely, and not at all confident/completely confident.

Demographic details of the 246 (U.S.) and 199 (Korean) respondents are summarized in Table 2. According to the mean values of the two samples, there are no big differences in terms of age and gender.

Table 2. Characteristics of Respondents

Characteristics	United States	Korea
Age	21.07*	21.87
	(2.36)	(2.21)
Gender		
Male (frequency; percent)	142; 57.7	112; 56.3
Female (frequency; percent)	104; 42.3	87; 43.7
Hours per day on the Web (Web searches,	2.50	2.80
browsing, checking e-mail, chatting, etc.)	(1.29)	(3.8)
Hours per day on computer (including	3.14	3.54
time spent on the Web)	(1.41)	(2.6)
Self-rating on computer skill	5.31	4.06
(1 = novice/7 = expert)	(1.04)	(1.23)
Self-rating on Internet skill (e.g., searching,	5.52	4.66
browsing, finding information, etc.)	(0.99)	(1.65)
(1 = novice/7 = expert)		

Notes: * Mean; standard deviations are shown in parentheses; n = 246 (United States) and 199 (Korea).

Data Analyses and Results

Testing the Mean Values

To ensure the comparison of two different cultural groups, *t*-tests were conducted first for the mean values of the constructs between U.S. and Korean data sets. The results of the *t*-tests are summarized in Table 3. As seen in the results, the mean scores of all constructs between the U.S. and Korean data are significantly different at the 0.001 level. Interestingly, all the mean values of the self-perception-based trust determinants (security protection, privacy concern, and system reliability) and trust in e-vendor of the U.S. sample are higher than those of the Korean sample whereas all the mean values of the transference-based trust determinants (third-party seal and referral) of the Korean sample are higher than those of the United States.

Testing the Measurement Model

The structural equation modeling (SEM) approach was used to analyze the data for both the measurement model and structural model. SEM is a statistical methodology that takes a confirmatory (i.e., hypothesis-testing) approach to the analysis of a structural (i.e., causal relationship) theory [14]. To ensure the appropriateness of the instrument, it was tested for content validity, reliability, construct validity, and convergent validity of measurement model before the structural model testing. Because all constructs in this study are reflective, the assessment of the measurement model includes the estimation of internal consistency for reliability, and convergent and discriminant validity [19]. The present research used both partial least squares (PLS-Graph version

Table 3. Results of Independent Sample *t*-Tests

	U.S. sample		Korean sample					
Constructs	Mean	Standard deviation	Mean	Standard deviation	Mean differences	Standard deviation	*t*-statistic	*p*-value
Security protection	5.273	0.983	3.673	0.875	1.600	0.088	18.092	0.000***
Privacy concern	4.070	1.413	2.673	1.052	1.397	0.120	11.675	0.000***
System reliability	5.585	0.971	4.211	0.998	1.318	0.076	14.816	0.000***
Third-party seal	4.376	1.220	4.782	1.311	–0.406	0.119	–3.416	0.001***
Referral	4.177	1.444	4.802	0.986	–0.625	0.119	–5.239	0.000***
Trust in e-vendor	5.058	0.964	3.740	0.655	1.318	0.080	16.562	0.000***
Willingness to use	5.354	1.164	3.749	1.038	1.605	0.105	15.313	0.000***

*** significant at the 0.001 level.

3.0.1060) and AMOS 6.0 to test the measurement model because PLS-Graph and AMOS can be regarded as complementary. PLS-Graph reports composite reliability and average variance extracted (AVE) for content validity and discriminant validity. Based on covariance analysis, like LISREL, AMOS is more confirmatory in nature and it provides various overall goodness-of-fit indices (GFI) to assess model fit for convergent validity [14]. Furthermore, AMOS has multiple group analysis.

The internal reliability of the measurement models was tested using Cronbach's alpha and Fornell's composite reliability [26]. The Cronbach reliability coefficients of all variables were higher than the minimum cutoff score of 0.70 [82]. Composite reliability should be greater than the benchmark of 0.7 to be considered adequate [26]. All composite reliabilities of constructs have a value higher than 0.7, indicating adequate internal consistency. All constructs have an AVE of at least 0.5 [26]. The Cronbach's reliability alpha, the composite reliability, and the calculated AVE of all constructs have values higher than the suggested criteria. The AVE can also be used for evaluating discriminant validity.[5] The AVE for the construct should be higher than the variance shared between the construct and other constructs in the model [26].

Following the procedures outlined by Bollen [12], we conducted two confirmatory factor analyses (CFAs) (one for the United States and the other for Korea) using AMOS 6.0 to assess the convergent and discriminant validity of trust determinants. The trust determinant constructs (i.e., security protection, privacy concern, system reliability, third-party seal, and referral) were modeled as first-order, correlated factors. By looking at the interconstruct correlations, we can assess whether or not the constructs are too highly correlated. Figures 3 and 4 show the results of the first-order CFAs of the U.S. and Korean model, respectively.

The two CFAs were evaluated using GFIs that provide empirical evidence of the degree of correspondence between the proposed model and the standardization data [52]. The root mean square error of approximation (RMSEA) index takes into account the error of approximation in the population, of which values range from 0 to 1 with zero indicating no error. The GFI results of the two CFAs are reported in Figures 3 and 4. The normed fit index (NFI), Tucker–Lewis index (TLI), comparative fit index (CFI), GFI, and adjusted goodness-of-fit index (AGFI) surpass the suggested value for a good model. The values of the RMSEA of both models are lower than 0.06 [46].

For the convergent validity assessment, three criteria are applied: (1) individual item lambda coefficients greater than 0.60 [5], (2) a significant (0.05 level) *t*-statistic for each path [33], and (3) each path loading greater than twice its standard error [2]. According to the two CFA results, all of the lambda coefficients of individual items are higher than 0.60 (0.95–0.61); each path has significant *t*-statistics at the 0.05 level; and each path loading is greater than twice its associated standard error (0.038–0.171). Thus, the convergent validity among the constructs is supported.

For the discriminant validity, if the interconstruct correlations among the latent variables are less than 0.60, then discriminant validity is established [15]. If any one of the interconstruct correlations is higher than 0.60, however, two additional analyses were conducted: (1) a constrained discriminant validity test [88], and (2) an alternative χ^2 difference test [33].[6] The results of two CFAs show that all interconstruct cor-

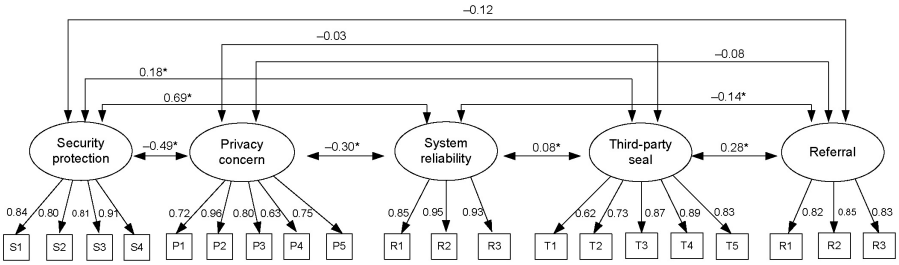

Figure 3. Results of Confirmatory Factor Analysis (U.S. data)
Notes: $\chi^2 = 188.653$, $p = 0.000$, RMSEA = 0.053, NFI = 0.926, TLI = 0.959, CFI = 0.967, GFI = 0.922, AGFI = 0.891; * indicates significant ($p \leq 0.05$) correlations.

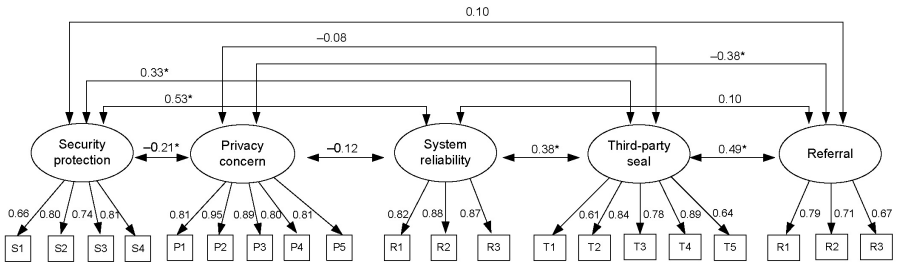

Figure 4. Results of Confirmatory Factor Analysis (Korean data)
Notes: $\chi^2 = 165.709$, $p = 0.000$, RMSEA = 0.051, NFI = 0.906, TLI = 0.957, CFI = 0.965, GFI = 0.913, AGFI = 0.878; * indicates significant ($p \leq 0.05$) correlations.

relations are less than 0.60, except the correlations between security protection and system reliability (0.69) of the U.S. data. Thus, two additional tests for discriminant validity were conducted. The constrained discriminant validity test showed that the χ^2 difference was significant ($\Delta\chi^2 = 14.250$, Δdf [degrees of freedom] = 1, $p < 0.005$). Next, the alternative model, combining two constructs (security protection and system reliability) into one variable, was run. The χ^2 difference was significant ($\Delta\chi^2 = 209.897$, Δdf = 4, $p < 0.005$). Moreover, all of the model fit indices worsened in this case (RMSEA = 0.099, NFI = 0.844, TLI = 0.858, CFI = 0.882, GFI = 0.829, AGFI = 0.768). Thus, both tests confirmed that although the original model fit was not optimal, combining elements of the alternative model did not improve fit. Based on the test results for content validity, reliability, construct validity, and convergent validity of measurement models using PLS-Graph and AMOS, we can confirm that there is no evidence indicating that the measurements of the study are problematic.

Testing the Structural Model Using Multigroup Analysis

Because the major goal of the study is to examine the impact of different cultures on trust determinants in electronic commerce, multigroup SEM analysis[7] is used for comparing the path coefficients of the structural model. Testing of hypotheses related

to multigroup invariance starts with scrutiny of the measurement model. Multigroup analysis takes place in three general phases. The first phase is to find a reasonably well-fitting model (i.e., a baseline model) for one group. In the second phase, the model is applied to the other groups to test whether the measurement models are equivalent. In particular, the pattern of factor loadings for each measurement variable is tested for its equivalence across the groups. If the measurement models are drastically different, then it makes no sense to examine the structural models. If they are similar, however, then we can move on to the next phase. The third phase is to test whether the structural models are equivalent. In testing for equivalencies across groups, depending on the model and hypotheses to be tested, sets of constraining parameters are analyzed in a logically ordered and increasingly restrictive fashion [13].

Because the primary interest of the study is to test the structural regression paths across different cultural groups, AMOS multigroup analysis is implemented by running two separate two-group analyses, first with no constraints, and then again with the constraint that the regression weight of the paths for their respective latent variables be the same for both groups. Following the phases as described, two structural models (one for the United States and the other for Korea) were tested in a single analysis using AMOS 6.0 multigroup analysis.

Phase 1: Finding a Reasonably Well-Fitting Model for U.S. Data

Through the measurement model testing, we found that there was no evidence to reject the measurement model. Thus, we used the measurement model to test the originally hypothesized model (as shown in Figure 2). The GFIs of the final best-fitting model for the U.S. sample (U.S. model) are summarized in Table 4 and Figure 5. All of the GFIs of the U.S. model surpass the suggested value for a good model.

Phase 2: Testing the Pattern of Factor Loadings of Measurement Models

The reasonably well-fitting model identified in Phase 1 is applied to the other group (Korean data) to test if the number of factors is equivalent across two different culture groups. According to the AMOS analysis result of the Korean model, the GFIs are very similar to the U.S. model. Both models report the same RMSEA (0.048), which is lower than 0.05 for an excellent fit. All other indices except NFI (0.870) satisfy the suggested value for a good model. Figures 5 and 6 and Table 5 show the results of AMOS analyses of the two groups for comparisons.

Having established the similarity of models across groups, the next step involves testing for the equivalent of factor loading across groups. To test the pattern of factor loading (i.e., factor loading invariance test), AMOS multigroup analysis is conducted by running two separate groups in a single analysis: first with no constraints, and then again with the constraint that the factor loading paths for their respective measurement variables are equal for both groups. Models 1 and 2 in Table 4 show the comparison results of the multigroup analysis. Compared to Model 1 (i.e., no constrained model), Model 2 (i.e., factor loadings constrained equal model) yields a $\Delta\chi^2$ value of 26.388

Table 4. Goodness-of-Fit Statistics for Tests of Structural Paths

Model/model description	χ^2	df	$\Delta\chi^2$	Δdf	*p*-value	Meaning
1. Unconstrained model	1,054.780	446	—	—	—	—
2. Factor loadings constrained equal	1,081.168	465	26.388	19	ns	No difference in measurement models across groups
3. Model 2 with all structural paths constrained equal	1,105.198	471	50.418	25	$p < 0.05$	Inequality in the structural paths across the groups
4. Model 2 with security → trust structural path constrained equal	1,079.507	465	24.727	19	ns	H1a is not supported
5. Model 4 with privacy → trust constrained equal	1,089.848	466	35.068	20	$p < 0.05$	H1b is supported
6. Model 4 with structural path system reliability → trust constrained equal	1,083.848	466	29.068	20	ns	H1c is not supported
7. Model 6 with structural path seal → trust constrained equal	1,094.403	467	39.623	21	$p < 0.05$	H2a is supported
8. Model 6 with structural path referral → trust constrained equal	1,095.853	467	41.073	21	$p < 0.05$	H2b is supported
9. Model 6 with trust → willingness-to-use constrained equal	1,086.271	467	31.491	21	ns	H3 is supported

Notes: $\Delta\chi^2$ = difference in χ^2 values between models; Δdf = difference in number of degrees of freedom between models; ns = not significant.

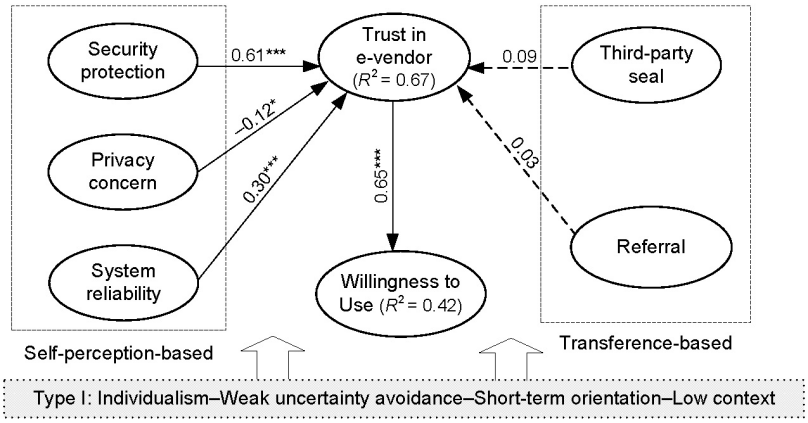

Figure 5. U.S. Model
Notes: χ^2 = 343, df = 216, p = 0.000, RMSEA = 0.048, GFI = 0.899, CFI = 0.967, NFI = 0.916, AGFI = 0.871; * p = 0.05, ** p = 0.01, *** p = 0.001.

with 19 degrees of freedom, which is not statistically significant at the 0.05 probability level. This comparison result shows that all factor loadings for their respective measurement variables are invariant across U.S. and Korean samples.

Phase 3: Testing the Equivalence of Structure Models

Because the two group models show similar goodness-of-fit statistics and all factor loadings are invariant across groups, the equivalence of structure models (i.e., whether the hypothesized structural models are equivalent) across groups can be tested in Phase 3. The general scheme to be followed here is that first we test for the invariance of all structural paths.[8] Given evidence of inequality on all corresponding structural paths across groups, we then test for the equivalent of each structural path separately to pinpoint the nonequivalent regression paths. Table 4 summarizes the results of the series of structural path invariance tests across groups: a summary of χ^2 value, df, χ^2 difference, df difference, and statistical significance of the model related to the analysis involved in testing for equivalence. Having evidence of equality of all corresponding structural paths, the comparison between Models 2 and 3 (i.e., Model 2 with all structural paths constrained equally) yields a statistic significant at the 0.05 probability level, which indicates some inequality in the structural paths across the groups. In other words, one or more regression weights of the paths in the structure model are different between U.S. and Korean data.

To pinpoint these different regression paths, the orderly process of testing for the invariance of regression weight parameters is continued until all hypothesized parameters have been tested. It is important to note that as regression weight parameters are found to be equivalent across groups, their specified equality constraints are retained, cumulatively, throughout the remainder of the invariance-testing process. As reported in Table 4, in Models 4 through 8, the results from this series of tests indicate that the

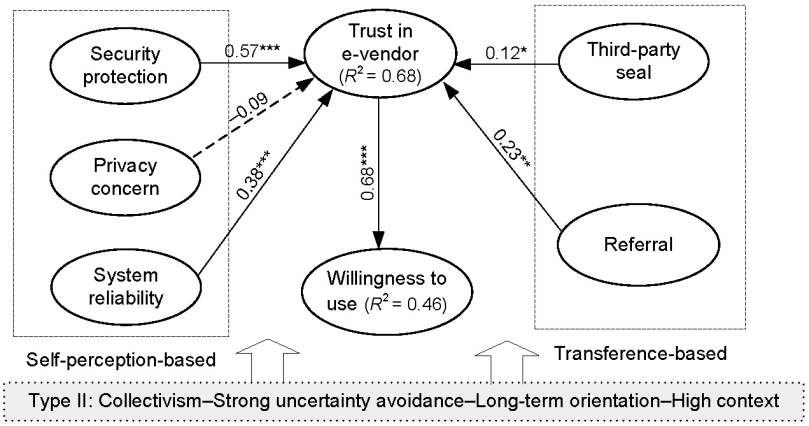

Figure 6. Korean Model
Notes: χ^2 = 317, df = 219, p = 0.000, RMSEA = 0.048, GFI = 0.880, CFI = 0.955, NFI = 0.870, AGFI = 0.849; * p = 0.05, ** p = 0.01, *** p = 0.001.

Table 5. Model Fit Indices

Statistic	Suggested value by studies	U.S. model	Korea model
χ^2		343.056	317.601
df		216	219
χ^2 significance	$p \leq 0.05$	0.000*	0.000*
χ^2/df	< 5.0	1.588*	1.450*
RMSEA	≤ 0.06 [46]	0.048*	0.048*
NFI	> 0.90 [52, 57]	0.916*	0.870
TLI	≥ 0.96 [46]	0.961*	0.948*
CFI	≥ 0.90 [9]	0.967*	0.955*
GFI	> 0.80 [50]	0.899*	0.880*
AGFI	> 0.80 [50]	0.871*	0.849*

* satisfy the suggested value.

effects of certain trust determinants (privacy concern, third-party seal, and referral) on consumer trust are not equivalent across the U.S. and Korean samples.

Putting It All Together: Structural Model Comparison

Interestingly, the results of the series of regression weight tests are consistent with the comparisons of regression weight significance between the U.S. and Korean models in Figures 5 and 6. As shown in Figure 5, all three self-perception-based trust determinants (security protection, privacy concern, and system reliability) of the U.S. model have significant effects on consumer trust in an e-vendor, with path coefficients of 0.61, –0.12, and 0.30, respectively.

On the other hand, all transference-based trust antecedents (i.e., third-party seal and referral) have an insignificant effect on consumer trust. For the Korean model, it was found that all transference-based trust determinants (i.e., third-party seal and referral) have positive effects on consumer trust in e-vendors with path coefficients of 0.12 and 0.23, respectively.

Among the self-perception-based trust determinants, security protection and system reliability are significant. Privacy concern is not significant in the Korean sample. The *R*-squares of trust in e-vendors for both U.S. and Korean samples are 0.67 and 0.68, indicating that each model explains 67 percent and 68 percent of the variance in consumers' trust in e-vendors, respectively. Consumer trust in e-vendors shows strong positive effects on a consumer's willingness to use in both U.S. and Korean samples, with a path coefficient of 0.65 and 0.68. The *R*-squares of willingness to use for both samples are 0.42 and 0.46, respectively.

The results of multigroup analysis and structural model comparison confirm that there are differences in the effect of privacy, third-party seal, and referral on trust between the online consumers in an individualist culture and those in a collectivist culture. Thus, the data support H1b, H2a, and H2b. Although *t*-test results show that there are mean differences of the trust determinants across two data sets (i.e., U.S. and Korean), the effects of security protection and system reliability on consumer trust in e-vendors are not significantly different between a Type I culture and a Type II culture. Thus, H1a and H1c are not supported. The effects of a consumer's trust in e-vendors on willingness to use show no statistical difference across cultures. Therefore, the data support H3.

Discussion and Conclusion

Findings of the Study

First, as summarized in Table 3, interestingly the mean values of all trust determinant constructs between two the countries are significantly different; the mean values of the self-perception-based trust determinants of the U.S. sample (i.e., Type I) are higher than those of the Korean sample (i.e., Type II), whereas all the mean values of the transference-based trust determinants of the Type II culture are higher than those of Type I culture. This result shows that self-perception-based determinants are more likely related to Type I culture than Type II culture and transference-based trust determinants are less likely related to Type I culture than Type II culture. Another interesting finding related to the mean values is that the mean values of trust in e-vendor and willingness to use of the U.S. sample are significantly higher than those of the Korean sample. Are there any reasons? Fukuyama's analysis of trust [27] may give an interpretation of the different trust levels of countries. He analyzes the relationship between trust, social capital, and culture and compares low-trust and high-trust societies. He comments that a low-trust society is a type of kin-oriented society that has strong families, but weak bonds of trust among people unrelated to one another [27]. The primary avenue to sociability and community is family or broader forms

of kinship. High-trust societies, by contrast, are characterized by a high degree of generalized social trust, and a strong propensity for the spontaneous sociability upon which middle-range enterprise formation depends [78]. Even though his comments give some clues, future research should be done to examine whether (and if so, why), in general, consumers in countries of Type II culture are less trusting and less willing to use than in countries of Type I.

The second key finding is that although the role of trust in e-commerce does not vary across cultures, its determinants do. Depending on cultural differences, different trust determinants have different effects on consumer trust. The main reason for the difference is the different trust development foundations (i.e., self-perception-based versus transference-based processes), which create interventions that are likely to affect the way members of a society look at the trustee. Because members of the Type II culture have more interdependent tendencies, they are more likely to share similar opinions and beliefs; want more structural ways of controlling risk; be influenced by traditions, group norms, and member's opinions; and obtain information from personal networks. However, individuals from the Type I culture might have more independent tendencies. They are more private oriented, without a lot of need for social approval, more prone to risk taking, more tolerant of deviant behavior, more likely to accept innovative ideas, and are seeking information from direct and formal sources. Therefore, transference-based trust determinants (i.e., referral, word of mouth, intermediate institution's review and recommendation) are more positively related to consumer trust in e-vendors in a Type II culture than in a Type I culture. In other words, transference-based trust determinants such as the intermediate institutional factor (i.e., trusted third-party seals) and the relational factor (i.e., referral or recommendation) play a stronger role in building consumer trust in e-vendors in a Type II culture.

Unlike the initial hypothesized expectations, self-perception-based trust determinants did not show stronger roles to consumer trust in e-vendors in a Type I culture than in a Type II culture, although a stronger negative effect of perceived privacy concerns is observed on consumer trust in e-vendors in a Type I culture than in a Type II culture. A possible interpretation of this result is that "limited villages" in terms of space and time expand into "cyber global villages." McLuhan [71] described how electronic media, such as the Internet, collapse time and space barriers and enable people to interact and live on a global scale. Today, the Internet globalizes communications by allowing people from around the world to connect and interact with each other. In this sense, the new reality has implications for forming new sociological structures within the context of culture. In summary, the results of this study do not fully support P1, but do support P2.

Third, as discussed above, privacy is valued more in a Type I culture than in a Type II culture. In other words, members in a Type I culture (i.e., the United States) have a higher regard for privacy compared to those in a Type II culture (i.e., Korea) in an e-commerce context. Actually, the importance of privacy is directly related to the level of individualism in a society [24]. This finding coincides with the concept of private space in cultural studies [40]. The definition of private space (i.e., how much physical distance between people is considered normal) is associated with the perceptions of

privacy [40, 61]. People in an individualistic culture (e.g., Americans) tend to establish places that they call "mine." Even family members are not allowed to penetrate this territory without permission. Before the modernization of Korea, however, it was not rare for an entire family to share a room. They were very close in terms of personal physical distance as well as emotional relationships. Still, family connections and alumni networking are very important in one's job hiring, promotion, and business success [28] in Korea. In this situation, the issue of privacy is not as serious as in an individualistic culture. Traditionally, Koreans have tolerated their lower state of privacy and have been willing to disclose their private information. Indeed, in the Korean language, "privacy" is a loanword from English, the Korean language having no native equivalent. In contrast, individuals in the United States feel uncomfortable or aggressive about releasing personal information. Thus, it is a comprehensible result that privacy concerns play a more important role in the formation of trust in e-vendors in individualistic cultures.

Finally, trust determinants of the study (i.e., security protection, privacy concern, system reliability, third-party seal, and referral) explained more than 60 percent (67 percent and 68 percent for the United States and Korea, respectively) of the variance in consumers' trust in e-vendors even though not all determinants showed statistically significant effects in both cultures. Consumers' perception of security protection and system reliability showed strong effects on consumer trust across two culture groups, inferring that they are important trust determinants across cultures.

Limitations and Future Studies

There are several limitations of this study that need to be addressed. The first limitation is related to the results of data analyses. Although the results of structure model comparison and multigroup analyses confirm H1b and H2a, the beta coefficients and their differences of the two culture groups are very small.[9] Hence the results should be interpreted with caution. In addition, based on these results, the question may arise: Do the small beta values of "third-party seal" and "privacy concern" imply a relatively unimportant and insignificant role of the trust antecedents of the trust-building process in both countries? Future research should answer this question.

Second, because the data were collected from students who represented only a portion of the online shopper population for the two countries, even if they are good proxies of general online shoppers who are the younger and more educated portion of the population, a study of general online customers should be conducted in order to increase the generality. In addition, this study considered only two countries (i.e., the United States and Korea) that have distinct national cultures as a representation of two culture types. Because there are more than 100 countries in the world, a future study is needed to collect data from other countries that have similar culture types to replicate the findings. Third, although the level of explained variance of consumers' trust in an e-vendor to willingness to use the e-vendor's Web site is quite high, there is still about 40–50 percent level of unexplained variance. Therefore, subsequent research with some other factors such as perceived usefulness [20, 31, 83], perceived

risk [53, 85], and perceived ease of use [83] would enhance the explanatory power beyond that of the consumer's trust.

Another noticeable limitation is that this study implicitly assumed that members of each country tend to exhibit their respective cultural type. However, some members, especially college students, easily adopt "more international preferences" in relation to online vendors. Furthermore, the study used Hofstede's scores and Hall's context scale score as indices of cultural values of each country, rather than measuring each consumer's cultural values directly. Using a country as a proxy for culture is a relatively insensitive measure and ignores the possibility of individual differences within cultures as noticed by Mayer and Tan [66]. Moreover, in light of the fact that Hofstede's culture dimensions were crafted about four decades ago, one may expect changes in the national culture values and attributes. Thus, future research should attempt to double-check the validation of the findings using individual-level assessments and more direct measures of cultural values.

Implications for Theory

From a theoretical perspective, combining the national culture dimensions from Hofstede's studies [43, 45] and Hall [38, 39] and Hall and Hall's [40] studies, this study identifies two national cultural types: Type I (individualistic–weak uncertainty avoidance–low long-term orientation–low context) and Type II (collectivist–strong uncertainty avoidance–high long-term orientation–high context). Drawing from several trust-building foundations from cross-culture literature, this study develops a theoretical model of self-perception-based versus transference-based trust determinants in an e-commerce context. To the best of my knowledge, this is the first cross-cultural comparison study of Internet consumer trust determinants. The study also empirically tests the model using cross-cultural data collected from two countries typically representing the Type I and Type II cultures. The results of the study not only show that trust plays an important role in business-to-consumer e-commerce transaction across cultures but also clearly support the theoretical argument that national culture affects the trust determinants through which trust is built. The findings of the study improve our understanding of the trust determinants across cultures in information communication technologies–mediated transactions, where little empirical work has been done to date.

Furthermore, in terms of the data analysis methodology, this study used a relatively new data analysis methodology (i.e., multigroup SEM analysis) in the IS research area. In cross-group research, the measurement equivalence issues (i.e., whether measurement accuracy, reliability, and validity are achieved across samples) are critical [80]. Thus, multiple group SEM analysis has been suggested as a reliable method for determining measurement equivalence [79]. Considering the appropriateness and validity of the multigroup analysis, it is an ideal method of determining if a grouping variable (i.e., culture in this study) affects a structural equation model across groups. However, the use of this analysis is limited in the IS area. To my knowledge, there are very few papers published using multigroup SEM analysis in major IS journals.

Because this is a pioneer attempt to use this research analysis method in the IS area, I expect that it will have an impact on future research in the area of multigroup comparison study in the IS area.

Implications for Practice

From a practical standpoint, this study provides important insights for multinational online business managers and industry leaders. First, it is worthwhile for international managers to be aware that culture has a major influence on the trust-building process, which is the key to facilitating monetary transactions in the international electronic commerce environment. In light of the findings from this study, multinational Internet business managers should put special emphasis on trust determinants dependent on the cultural background of the target consumers. Because transference-based determinants (e.g., recommendation, word of mouth, and trusted third-party seals) play more significant roles of trust building in a Type II culture, for example, online business managers in Type II culture countries (e.g., Korea, Brazil, Japan, Thailand, etc.) should pay more attention to transference-based trust determinants when implementing Web-based consumer relationship management systems, whereas those in a Type I culture (e.g., United States, Australia, Canada, Netherlands, etc.) should put more focus on self-perception-based determinants. More specifically, because people in a Type II culture need more social and emotional cues and feedback to build trust relationships, online business managers in Type II cultural countries should take an approach to highlight and strengthen in-group ties such as expert advisors, references, and opinions through a chat or bulletin board, blog, or social networking tools, which can spread the word of an excellent Web site and ensure increasing customer trust.

Second, privacy concerns are especially critical for consumers in a Type I culture as opposed to a Type II culture. Thus, it will be true that the more effective mitigation of privacy issues will increase online consumers' willingness to use the Web site in a Type I culture. The key Web design strategy is to highlight privacy protection efforts explicitly of Internet business in a Type I cultural area. The efforts include privacy-enhancing technologies (e.g., P3P,[10] HTTPS, SSL), as well as private industry- and self-regulating policy (e.g., opt-in policy, safe harbor).

Finally, building a secure transaction infrastructure (i.e., security protection mechanism and reliable and dependable transaction system) is a critical ingredient for successful e-commerce transactions across cultures. We believe that a secure transaction infrastructure can be achieved through both technological and managerial approaches. Thus, it is important for online business managers, government policymakers, and industry and professional associations to work closely together to improve the level of security of the e-commerce transaction environment. For example, industry-government-level committees and standards bodies can build strong institutional-based e-commerce transaction assurance mechanisms (e.g., accreditation, escrow, secure transaction guarantee, etc.), which include an educational program or campaign to enhance online consumers' understanding of the role of institutional-based assurance mechanisms in facilitating success in e-commerce transactions in general.

In summary, modern information communication technologies globalize communications by allowing people from around the world to connect and interact with each other. Although there is a difference in the impact of culture on the trust determinants in e-commerce, the notion of a "global village" supported by information technologies may blur many cultural differences. In this sense, the new reality has implications for forming new sociological structures within the context of culture. However, proper cultural consideration is still valid and essential in international business when adopting and applying e-commerce.

Notes

1. The five distinct cognitive trust-building processes are calculative process, prediction process, capability process, intentionality process, and transference process. For the definition of each process, please refer to the literature in details.

2. IDV, PDI, MAS, UAI, and LTO, respectively, refer to (1) the degree the society reinforces individual or collective achievement and interpersonal relationships; (2) the degree of equality, or inequality, between people in the country's society; (3) the degree the society reinforces, or does not reinforce, the traditional masculine work role model of male achievement, control, and power; (4) the degree of tolerance for uncertainty and ambiguity within the society—that is, unstructured situations; and (5) the degree the society embraces, or does not embrace, long-term devotion to traditional, forward-thinking values [38, 39, 40].

3. Because the masculinity and power distance dimensions are not significantly linked to the core topic of this study, the trust determinants in e-commerce, they will be excluded from further discussion.

4. Due to space limitations, the measurement items are not included, but are available from the author upon request.

5. The summarized reliability, correlation, and discriminant validity indices were presented to the reviewers. If readers are interested in seeing the table, they are available from the author upon request.

6. After setting the perfect correlation (1.0) between one pair of the highly correlated variables and running the model again, if the chi-square test shows the original model to be a better fit, discriminant validity is established.

After combining two or more highly correlated variables into one and running the model again, if the chi-square difference is significant, the original model demonstrates discriminant validity.

7. Multiple group analysis is a very useful method of determining if a grouping variable (e.g., culture, gender) affects a model when the same measurement items are applicable to multiple groups [15].

8. We can test for the invariance by constraining the corresponding regression weight parameters to be equal.

9. Chin [19] recommends that for a beta coefficient to be conceptually significant, it should be greater than 0.2.

10. P3P (platform for privacy preferences): a standard designed to communicate to Internet users a Web site's privacy policy, and to compare that policy to the user's own preferences, or to other standards.

References

1. Ajzen, I., and Fishbein, M. *Understanding Attitude and Predicting Social Behavior.* Englewood Cliffs, NJ: Prentice Hall, 1980.

2. Anderson, J.C., and Gerbing, D.W. Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103,* 3 (1988), 411–423.

3. Ardnt, J. *Word of Mouth Advertising: A Review of the Literature.* New York: Advertising Research Foundation, 1967.

4. Bagchi, K.; Hart, P.; and Peterson, M.F. National culture and information technology product adoption. *Journal of Global Information Technology Management, 7,* 4 (2004), 29–46.

5. Bagozzi, R.P., and Yi, Y. On the evaluation of structural equation models. *Journal of the Academy of Marketing Science, 16,* 1 (1988), 74–94.

6. Barney, J.B., and Hansen, M.H. Trustworthiness as a source of competitive advantage. *Strategic Management Journal, 15,* 8 (1994), 175–190.

7. Baskerville, R.F. Hofstede never studied culture. *Accounting, Organizations and Society, 28,* 1 (2003), 1–14.

8. Benassi, P. TRUSTe: An online privacy seal program. *Communications of the ACM, 42,* 2 (1999), 56–59.

9. Bentler, P.M. Comparative fit indexes in structural models. *Psychological Bulletin, 107,* 2 (1990), 238–246.

10. Bentler, P.M., and Chou, C.P. Practical issues in structural modeling. *Sociological Methods & Research, 16,* 1 (1987), 78–117.

11. Bhattacherjee, A. Individual trust in online firms: Scale development and initial test. *Journal of Management Information Systems, 19,* 1 (Summer 2002), 211–242.

12. Bollen, K.A. *Structural Equations with Latent Variables.* New York: Wiley, 1989.

13. Byrne, B.M. *Structural Equation Modeling with LISREL, PRELIS, and SIMPLIS: Basic Concepts, Applications, and Programming.* Mahwah, NJ: Lawrence Erlbaum, 1998.

14. Byrne, B.M. *Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming.* Mahwah, NJ: Lawrence Erlbaum, 2001.

15. Carlson, D.; Kacmar, K.; and Williams, L. Construction and initial validation of a multidimensional measure of work–family conflict. *Journal of Vocational Behavior, 56,* 2 (2000), 249–276.

16. Castelfranchi, C., and Tan, Y.-H. *Trust and Deception in Virtual Societies.* Norwell, MA: Kluwer Academic, 2001.

17. Chen, C.C.; Chen, X.-P.; and Meindl, J.R. How can cooperation be fostered? The cultural effects of individualism–collectivism. *Academy of Management Review, 23,* 2 (1998), 285–304.

18. Cheung, C.M.K., and Lee, M.K.O. Understanding consumer trust in Internet shopping: A multidisciplinary approach. *Journal of the American Society for Information Science and Technology, 57,* 4 (2006), 479–492.

19. Chin, W.W., and Todd, P.A. On the use, usefulness, and ease of use of structural equation modeling in MIS research: A note of caution. *MIS Quarterly, 19,* 2 (1995), 237–246.

20. Davis, F.D. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13,* 3 (1989), 319–340.

21. Doney, P.M., and Cannon, J.P. An examination of the nature of trust in buyer–seller relationships. *Journal of Marketing, 61,* 2 (1997), 35–51.

22. Doney, P.M.; Cannon, J.P.; and Mullen, M.R. Understanding the influence of national culture on the development of trust. *Academy of Management Journal, 23,* 3 (1998), 601–620.

23. Dourish, P., and Anderson, K. Collective information practice: Exploring privacy and security as social and cultural phenomena. *Human–Computer Interaction, 21,* 3 (2006), 319–342.

24. Etzioni, A. *The Limits of Privacy.* New York: Basic Books, 1999.

25. Everdingen, Y.M.V., and Waarts, E. The effect of national culture on the adoption of innovations. *Marketing Letters, 14,* 3 (2003), 217–232.

26. Fornell, C., and Larcker, D. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18,* 1 (1981), 39–50.

27. Fukuyama, F. *Trust: The Social Virtues and the Creation of Prosperity.* New York: Free Press, 1995.

28. Gannon, M.J. *Understanding Global Cultures: Metaphorical Journeys Through 28 Nations, Clusters of Nations, and Continents.* Thousand Oaks, CA: Sage, 2003.

29. Gefen, D. E-commerce: The role of familiarity and trust. *Omega: The International Journal of Management Science, 28,* 6 (2000), 725–737.

30. Gefen, D. Reflections on the dimensions of trust and trustworthiness among online consumers. *ACM SIGMIS Database, 33,* 3 (2002), 38–53.

31. Gefen, D. What makes an ERP implementation relationship worthwhile: Linking trust mechanisms and ERP usefulness. *Journal of Management Information Systems, 21,* 1 (Summer 2004), 263–288.

32. Gefen, D.; Karahanna, E.; and Straub, D.W. Trust and TAM in online shopping: An integrated model. *MIS Quarterly, 27,* 1 (2003), 51–90.

33. Gefen, D.; Straub, D.W.; and Boudreau, M.-C. Structural equation modeling and regression: Guidelines for research practice. *Communications of the AIS, 4,* 7 (2000), 1–77.

34. Gefen, D.; Rose, G.M.; Warkentin, M.; and Pavlou, P.A. Cultural diversity and trust in IT adoption: A comparison of potential e-voters in the USA and South Africa. *Journal of Global Information Management, 13,* 1 (2005), 54–78.

35. Grabner-Krauter, S., and Kaluscha, E.A. Empirical research in on-line trust: A review and critical assessment. *International Journal of Human–Computer Studies, 58,* 6 (2003), 783–812.

36. Griffith, D.A.; Hu, M.Y.; and Ryans, J.K. Process standardization across intra- and inter-cultural relationships. *Journal of International Business Studies, 31,* 2 (2000), 303–325.

37. Gudykunst, W.B. Cultural variability in communication. *Communications Research, 24,* 4 (1997), 327–348.

38. Hall, E.T. The silent language of overseas business. *Harvard Business Review, 38,* 3 (1960), 87–96.

39. Hall, E.T. *Beyond Culture.* New York: Anchor Press, 1976.

40. Hall, E.T., and Hall, M.R. *Understanding Cultural Differences.* Yarmouth, ME: Intercultural Press, 1990.

41. Hoffman, D.L.; Novak, T.P.; and Peralta, M. Building consumer trust online. *Communications of the ACM, 42,* 4 (1999), 80–85.

42. Hofstede, G. Culture's Consequences: International Differences in Work-Related Values. Beverly Hills, CA: Sage, 1980.

43. Hofstede, G. *Cultures and Organizations: Software of the Mind.* London: McGraw-Hill, 1991.

44. Hofstede, G. *Cultures and Organizations: Software of the Mind: Intercultural.* London: HarperCollins, 1994.

45. Hofstede, G. *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations.* Thousand Oaks, CA: Sage, 2001.

46. Hu, L., and Bentler, P.M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6,* 1 (1999), 1–55.

47. Huff, L., and Kelly, L. Levels of organizational trust in individualistic versus collectivist societies: A seven-nation study. *Organization Science, 14,* 1 (2003), 81–90.

48. Jarvenpaa, S.L.; Tractinsky, N.; and Vitale, M. Consumer trust in an Internet store. *Information Technology and Management, 1,* 1–2 (2000), 45–71.

49. Jarvenpaa, S.L.; Tractinsky, N.; Saarinen, L.; and Vitale, M. Consumer trust in an Internet store: A cross-cultural validation. *Journal of Computer-Mediated Communications, 5,* 2 (1999) (available at http://jcmc.indiana.edu/vol5/issue2/jarvenpaa.html).

50. Jöreskog, K.G., and Sörbom, D. *LISREL 7: A Guide to the Program and Applications.* Chicago: SPSS, 1988.

51. Keil, M.; Tan, B.C.Y.; and Wei, K.K. A cross-cultural study on escalation of commitment behavior in software projects. *MIS Quarterly, 24,* 2 (2000), 299–325.

52. Kelloway, E.K. *Using LISREL for Structural Equation Modeling: A Researcher's Guide.* Thousand Oaks, CA: Sage, 1998.

53. Kim, D.J.; Ferrin, D.L.; and Rao, H.R. A trust-based consumer decision-making model in electronic commerce: The role of trust, risk, and their antecedents. *Decision Support Systems, 44,* 2 (2008), 554–564.

54. Kim, D.J.; Sivasailam, N.; and Rao, H.R. Information assurance in B2C Websites for information goods/services. *Electronic Markets, 14,* 4 (2004), 344–359.

55. Kim, D.J.; Song, Y.I.; Braynov, S.B.; and Rao, H.R. A multi-dimensional trust formation model in B-to-C e-commerce: A conceptual framework and content analyses of academia/practitioner perspective. *Decision Support Systems, 40,* 2 (2005), 143–165.

56. Kim, D.J.; Steinfield, C.; and Lai, Y.-J. Revisiting the role of Web assurance seals in business-to-consumer electronic commerce. *Decision Support Systems, 44*, *4* (2008), 1000–1015.

57. Kline, R.G. *Principles and Practices of Structural Equation Modeling.* New York: Guilford Press, 1998.

58. Kobsa, A. Personalized hypermedia and international privacy. *Communications of ACM, 45,* 5 (2002), 64–67.

59. Koreto, R. In CPAs we trust. *Journal of Accountancy, 184,* 6 (1997), 62–64.

60. Labuschagne, L., and Eloff, J.H.P. Electronic commerce: The information-security challenge. *Information Management and Computer Security, 8,* 3 (2000), 154–157.

61. Laufer, R.S., and Wolfe, M. Privacy as a concept and a social issue: A multidimensional developmental theory. *Journal of Social Issues, 33,* 3 (1977), 22–42.

62. Lee, M.K.O., and Turban, E. A trust model for consumer Internet shopping. *International Journal of Electronic Commerce, 6,* 1 (Fall 2001), 75–91.

63. Lewis, D.J., and Weigart, A. Trust as social reality. *Social Forces, 63,* 4 (1985), 967–985.

64. Lim, K.H.; Leung, K.; Sia, C.L.; and Lee, M.K. Is e-commerce boundary-less? Effects of individualism–collectivism and uncertainty avoidance on Internet shopping. *Journal of International Business Studies, 35,* 6 (2004), 545–559.

65. Markus, H.R., and Kitayama, S. Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98,* 2 (1991), 224–253.

66. Mayer, M.D., and Tan, F.B. Beyond models of national culture in information systems research. *Journal of Global Information Management, 10,* 1 (2002), 24–32.

67. Mayer, R.C.; Davis, J.H.; and Schoorman, F.D. An integrative model of organizational trust. *Academy of Management Review, 20,* 3 (1995), 709–734.

68. McAllister, D.J. Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations. *Academy of Management Journal, 38,* 1 (1995), 24–59.

69. McCoy, S.; Galletta, D.F.; and King, W.R. Integrating national culture into IS research: The need for current individual-level measures. *Communications of the ACM, 15,* 12 (2005), 211–224.

70. 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,* 3–4 (2002), 297–323.

71. McLuhan, M. *The Gutenberg Galaxy: The Making of Typographic Man.* Toronto: University of Toronto Press, 1962.

72. Milberg, S.J.; Smith, H.J.; and Burke, S.J. Information privacy: Corporate management and national regulation. *Organization Science, 11,* 1 (2000), 35–57.

73. Milberg, S.J.; Burke, S.J.; Smith, H.J.; and Kallman, E.A. Values, personal information privacy, and regulatory approaches. *Communications of ACM, 38,* 12 (1995), 65–74.

74. Miyazaki, A.D., and Fernandez, A. Consumer perceptions of privacy and security risks for online shopping. *Journal of Consumer Affairs, 35,* 1 (2001), 27–44.

75. Money, R.B.; Gilly, M.C.; and Graham, J.L. Explorations of national culture and word-of-mouth referral behavior in the purchase of industrial services in the United States and Japan. *Journal of Marketing, 62,* 4 (October 1998), 76–87.

76. Moore, G.C., and Benbasat, I. Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research, 2,* 3 (1991), 192–222.

77. Moorman, C.; Deshpande, R.; and Zaltman, G. Factors affecting trust in market research relationships. *Journal of Marketing, 57,* 1 (1993), 81–101.

78. Morden, T. Models of national culture—A management review. *Cross Cultural Management, 6,* 1 (1999), 19–44.

79. Mullen, M.R. Diagnosing measurement equivalence in cross-national research. *Journal of International Business Studies, 26,* 3 (1995), 573–596.

80. Myers, M.B.; Calantone, R.J.; Page, T.J., Jr.; and Taylor, C.R. Academic insights: An application of multiple-group causal models in assessing cross-cultural measurement equivalence. *Journal of International Marketing, 8,* 4 (2000), 108–121.

81. Nakata, C., and Sivakumar, K. Instituting the marketing concept in a multinational setting: The role of national culture. *Journal of Academy of Marketing Science, 29,* 3 (2001), 255–275.

82. Nunnally, J.C., and Bernstein, I.H. *Psychometric Theory,* 3d ed. New York: McGraw-Hill, 1994.

83. Pavlou, P.A. Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. *International Journal of Electronic Commerce, 7,* 3 (Spring 2003), 101–134.

84. Pavlou, P.A., and Chai, L. What drives electronic commerce across cultures? A cross-cultural empirical investigation of the theory of planned behavior. *Journal of Electronic Commerce Research, 3,* 4 (2002), 240–253.

85. Pavlou, P.A., and Gefen, D. Building effective online marketplaces with institution-based trust. *Information Systems Research, 15,* 1 (2004), 37–59.

86. Sako, M., and Helpers, S. Determinants of trust in supplier relations: Evidence from the automotive industry in Japan and the United States. *Journal of Economic Behavior and Organization, 34,* 3 (1988), 387–417.

87. Shapiro, S.P. The social control of impersonal trust. *American Journal of Sociology, 93,* 3 (1987), 623–658.

88. Sharma, S. Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy. *Academy of Management Journal, 43,* 4 (2000), 681–697.

89. Sondergaard, M. Research note: Hofstede's consequences: A study of reviews, citations and replications. *Organization Studies, 15,* 3 (1994), 447–456.

90. Stewart, K.J. Trust transfer on the World Wide Web. *Organization Science, 14,* 1 (2003), 5–17.

91. Stewart, K.J. How hypertext links influence consumer perceptions to build and degrade trust online. *Journal of Management Information Systems, 23,* 1 (Summer 2006), 183–210.

92. Strong, K., and Weber, J. The myth of the trusting culture. *Business & Society, 37,* 2 (1998), 157–183.

93. Suh, B., and Han, I. The impact of customer trust and perception of security control on the acceptance of electronic commerce. *International Journal of Electronic Commerce, 7,* 3 (Spring 2003), 135–161.

94. Swan, J.E., and Oliver, R.L. Post-purchase communications by consumers. *Journal of Retailing, 65,* 4 (Winter 1989), 516–533.

95. Udo, G.J. Privacy and security concerns as major barriers for e-commerce: A survey study. *Information Management & Computer Security, 9,* 4 (2001), 165–174.

96. Walczuch, R., and Lundgren, H. Psychological antecedents of institution-based consumer trust in e-retailing. *Information & Management, 42,* 1 (2004), 159–177.

97. Zucker, L. Production of trust: Institutional sources of economic structure (1840–1920). *Research in Organizational Behavior, 8* (1986), 53–111.