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Cognition-Based Versus Affect-Based Trust Determinants in E-Commerce: Cross-Cultural Comparison Study

Dan Kim
Michigan State University

COGNITION-BASED VERSUS AFFECT-BASED TRUST DETERMINANTS IN E-COMMERCE: A CROSS-CULTURAL COMPARISON STUDY

Dan J. Kim
Department of Telecommunication
Michigan State University
East Lansing, MI U.S.A.
dankim@msu.edu

Abstract

The aim of this study is to examine the impact of culture on the trust determinants in e-commerce. Adopting two broad trust building foundations (cognition-based and affect-based trust) from cross-culture literature and focusing on well-established cultural constructs as groups of culture, this study develops a theoretical model of cognition-based versus affect-based e-vendor trust, and empirically tests the model using cross-cultural data. The results show that cognition-based trust determinants are more positively related to consumer trust in e-vendor in an individualist culture than in a collectivist culture. Affect-based trust determinants are more positively related to consumer trust in e-vendor in a collectivist culture than in an individualist culture. Limitation and implications for practice are also discussed.

Keywords: Trust in e-vendor, cognition-based trust, affect-based trust determinants, cross-cultural comparison

Introduction

Scholars have widely recognized that trust is crucial to the success of monetary transactions (Dasgupta 1988; Goodwin 1996; McKnight et al. 1998; Williamson 1979, 1987, 1989). Since the emergence of electronic commerce, the issue of trust has become even more critical to the success of electronic transactions because of certain barriers (e.g., online fraud and identity theft) in e-commerce transactions (Gefen 2002; Jarvenpaa et al. 1999; Urban et al. 2000).

Prior research dealing with antecedents of trust in e-commerce (Alesina and Ferrara 2000; Chang et al. 2005; Chen and Dhillon 2003; Gefen 2000; Jarvenpaa et al. 1998; Kim et al. 2003; McKnight et al. 2002; Walczuch et al. 2001) has identified plenty of trust determinants such as disposition to trust, familiarity, previous transaction experience, perceived security protection, perceived system reliability, privacy concern, reputation, importance of referral, word-of-mouth, third trusted party seal, and information quality.

As Internet shopping becomes progressively more global and as the Internet continues to increase at an exponential rate in terms of the number of cross-national interactions between Internet vendors and consumers, it becomes critical to understand the existence and nature of cultural differences on trust in e-commerce (Jarvenpaa et al. 1999). Furthermore, there are differences dealing with trust in terms of level of trust perceptions, the way in which it was conceptualized and formed in the context of different cultures (Lee and Turban 2001; Sako and Helpers 1988). Thus, it is an important issue to investigate the effect of trust determinants across cultures. However, little research has examined the impact of culture on trust in e-commerce, especially cultural influences on trust determinants.

Grabner-Krauter and Kaluscha (2003) conducted a meta-analytic review of the empirical literature on trust in electronic commerce to provide a cumulative analysis of results. Based on the synopsis of empirical findings, they suggested several promising

avenues. One of avenues for future research is cross-cultural effects on consumers' trust for reasons similar to those presented above. Some studies have done work in the area of culture effect on trust (Griffith et al. 2000; Strong and Weber 1998), but most dealt with the culture effect in a non e-commerce context. Although a few studies (Jarvenpaa et al. 1999; Pavlou and Chai 2002) 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).

This paper seeks to address the gap in research to date and tests the cross-culture validation of trust determinants. The purposes of this study are (1) to propose a theoretical model of e-vendor trust determinants across cultures, (2) to test the proposed model empirically using cross-cultural data, and (3) to provide some insights to multinational Internet business mangers from the cross-culture perspective. Specifically, this study intends to focus on the following two key 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 significant determinants of trust in e-commerce, dependent on cultural differences?

We first review literature on cultural differences of trust then propose a research model on the effect of culture on the fostering of trust, from which we derive a set of propositions and hypotheses. The research methodology and analysis results follow. Finally, the article will be concluded with a discussion of the implications for research and practice.

Literature Review: Cultural Difference of Trust

National culture influences individual and organizational trust development processes (Doney et al. 1998). Since there are hundreds of countries in the world, there must be a proper way to place hundreds of different types of cultures into some categories to allow for comparison. Culture is a multidimensional construct. Hofstede (1980, 1991, 1994) revealed 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 (Sondergaard 1994) but also has been recognized as the most influential culture theory among social science researchers (Nakata and Sivakumar 2001).

Based on Hofetede's framework and using individualism/collectivism and power distance as independent variables, Strong and Weber (1998) examined the theory that trust is culturally determined and concluded that differentials in trust exist globally between cultures. Griffith et al. (2000) designated the United States and Canada as Type 1 culture countries with an "individualistic-small power distance-weak uncertainty avoidance" type of culture to contrast with Type 2 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 was found between Type 1 and Type 2 cultures, the study discovered that Type 1 culture has a higher possibility of forming a trusting relationship with other Type 1 culture countries rather than with Type 2 culture countries.

Huff and Kelly (2003) conducted a seven-nation survey 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 result somewhat supports the finding of the Griffith et al. study that managers in the United States demonstrate higher levels 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 scope. Triandis (1995) summarized four attributes of individualism/collectivism based on an extensive review of the literature: conceptions of the self, goal relationships, relative importance of attitudes and norms, and emphasis on relationships.

A number of e-commerce trust studies empirically tested the effect of trust on the behavior intention (i.e., willingness to purchase) and found that trust has a significant positive impact on the intention to purchase. Incorporating Hofstede's three cultural dimensions (i.e., individualism/collectivism, power distance, and long-term orientation) along with the theory of planned behavior, Pavlou and Chai (2002) conducted 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 that cultural differences play a significant role in consumer e-commerce adoption.

Jarvenpaa et al. (1999) used 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 found that consumers in different cultures may have differing expectations of what makes a Web merchant trustworthy. Although no strong cultural effects were found regarding the antecedents of trust, their study ignited examinations of cultural differences in the antecedents of trust and the levels of trust in the e-commerce context.

McAllister (1995) differentiated 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. (1998) proposed that cognition-based trust is more positively related to cooperation in an individualist culture while affect-based trust will be more positively related to cooperation in a collectivist culture.

Theory Development and Research Model

Cultural Dimensions

According to Hofstede (1980, p. 21), national culture is "the interactive aggregate of common characteristics that influence a human group's response to its environment." Culture is defined as "the collective programming of mind which distinguishes one national group or category of people from another" (Hofstede 1994, p. 5). To assist in differentiating national cultures, Hofstede (1980, 1991) 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).[1] The model was generated through the most extensive examination of cross-national values ever undertaken, with 116,000 respondents and across 40 countries (Nakata and Sivakumar 2001).

Since culture is not directly observable but is inferable from a national group or category of people, in this study the effect of culture on trust determinants is examined implicitly using two sets of data collected from two countries that have a distinct national culture: the United States of America (USA) and South Korea (Korea). In other words, instead of measuring cultural dimensions directly, the study uses a country as a surrogate for culture.

Compared with world average Hofstede scores, the USA 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 USA and the world average. They have, however, higher PDI, UAI, and LTO scores than those of the USA and world average (see Figure 1). Interestingly, all of the Hofstede scores for Korea are nearly reverse positions for the USA scores on the five cultural dimensions.[2] The choice of USA and Korea as the two samples can be justified that the two countries have some similarities in terms of the maturity of e-commerce, and information technology innovation, and at the same time they have significant differences in terms of culture characteristics.

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 (Gudykunst, 1997). 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 (Griffith et al. 2000). Thus, in more collective cultures, decisions are influenced by the group norm and member's opinions.

A high Hofstede IDV score indicates a country with more individualistic attitude and relatively loose bonds with others. A low individualism ranking (i.e., a high collectivism ranking) indicates a more collectivist nature with close ties between individuals.

Uncertainty avoidance refers to the degree to which people tend to desire more formal (structure) over informal (unstructured) arrangements. The high uncertainty avoidance cultural types attempt to formulate ways (e.g., laws, rules, regulations, and standards) of controlling risk. A 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.

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[1]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 (i.e., unstructured situations), and (5) the degree the society embraces, or does not embrace, long-term devotion to traditional, forward thinking values (Hofstede 1980, 1991).

[2]Since the masculinity and power distance dimensions do not have a strong theoretical link to the core topic of this study, the trust determinants in e-commerce, they will be excluded from further discussion.

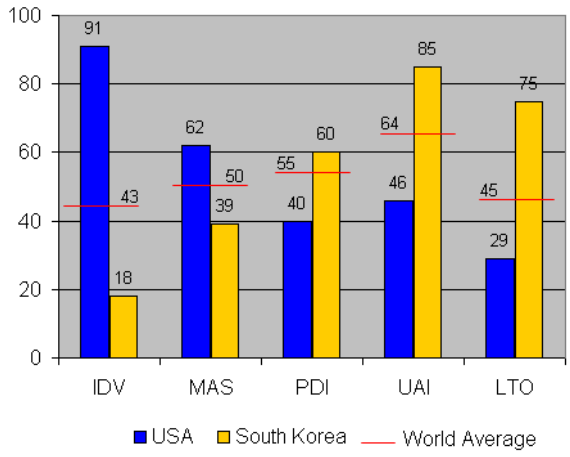

Figure 1. Comparison of Hofstede's Scores (Source http://www.geert-hofstede.com/hofstede_dimensions.php)

Long-term orientation refers to the degree to which society embraces, or does not embrace long-term devotion to traditional values (Hofstede 1980, 1991). The high long-term oriented cultural types might evaluate plans in terms of customers, traditions, or history. A high LTO ranking indicates that the country subscribes to the values of long-term commitments and respect for tradition. In this culture, change can occur less rapidly as compared to the low LTO culture, since long-term traditions and commitments become impediments to change. Thus, in the high LTO countries, business may take longer to develop, particularly for an outsider.

In general, these cultural dimensions provide a clear distinction between two cultural types that account for a significant portion of international trade: "individualistic-weak uncertainty avoidance-low long-term orientation" versus "collectivist-strong uncertainty avoidance-high long-term orientation" (Griffith et al. 2000). In this study, these cultural types will be referred to as *individualist versus collectivist culture* (I-C) because among these cultural dimension scores for two countries, individualism (IDV) shows the biggest difference. In addition, individualism/collectivism is considered to be a well-established cultural construct for comparing cultures and, for comparing differences among individuals and populations within a particular culture (Chen et al. 1998; Triandis 1995; Wagner and Moch 1986).

Cognition-Based Versus Affect-Based Trust

How does I-C influence trust determinants in the e-commerce context? Following the propositions suggested by Chen et al. (1998), this study adopts two broad trust building foundations (cognition-based versus affect-based) as groups of trust determinants.

Cognition-based trust is built by self-perception and self-interest on the cues of performance and the fact of accomplishments through direct interactions with a partner. The basis of cognition-based trust is cognitive reasoning (McAllister 1995). For instance, if an individual is truly impressed with a trustee's professional and educational training, experience, and role performance, the individual tends to develop cognition-based trust. In contrast, *affect-based trust* is built by a social emotional bond that goes beyond a regular business or professional relationship. The emotional ties linking individuals provide the basis for affect-based trust (McAllister 1995). An example of the affect-based trust is that an individual would trust the brightest, most-professional, well-trained colleague with a complex task. It is worthy to note that affect-based trust is a further development of cognitive trust (Chen et al. 1998).

Determinants of cognition-based trust are related to the direct features or characteristics of the trustee while affect-based trust determinants are related to the indirect interactions with the trustee such as input from others (e.g., third party seal, referral,

recommendation, etc.) rather than the trustee. Since members of a collectivist culture are more likely to share similar opinions and beliefs, and have less tolerance for a variety of opinions, affect-based trust determinants are more valued while cognition-based trust determinants are less valued in collectivist cultures than in individualist cultures. Drawing from the relationship between I-C and cognition-based versus affect-based trust determinants, we propose the following propositions:

Proposition 1: There will be a difference in the effects of cognition-based trust determinants on consumer trust in e-vendors in both the individualist and collectivist cultures.

Proposition 2: There will be a difference in the effects of affect-based trust determinants on consumer trust in e-vendors in both the individualist culture and collectivist cultures.

In an e-commerce context, the cognition-based trust determinants are associated with consumers' perceptions and interactions with a selling party[3] while the affect-based trust determinants are related to influences of other sources (e.g., recommendation, referral, and third party reviews) than the selling party itself. Among the trust determinants previous e-commerce studies identified, perceived security protection, privacy concern, and system reliability are selected as determinants of cognition-based trust whereas the presence of third party seal and importance of referrals are selected as determinants of affect-based trust in this study.

Perceived security protection refers to a consumer's perception that the e-vendor will fulfill security requirements, such as authentication, integrity, encryption, and non-repudiation. Consumers have to send confidential 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 also increase as well. Thus, the online consumer's perception regarding security affects trust in the e-vendor (Miyazaki and Fernandez 2001).

Privacy refers to the rights of individuals and organizations to determine for themselves how, when, and to what extent information about them is to be given to others (Udo 2001). Privacy issues come from concerns such as unauthorized sharing of personal information, spam from the online retailer, and disclosure of the patterns of the customer's shopping behavior (Miyazaki and Fernandez 2001). Privacy is identified as a major concern when online consumers make a transaction (Udo 2001). Concerns about privacy are likely to decrease consumer trust in an e-vendor and lower purchase intentions (Labuschagne and Eloff 2000).

As a technical dimension to support electronic commerce, *system reliability* considers key factors such as the following: access is always fast and available, very few errors are allowed at all levels, the transaction record is correct and remains correct, and services do not fail during a transaction. For example, a site may not totally fail but site access may become so slow that a sale is lost. This is not a hard failure, but may be classified as a soft failure. Even under a soft failure, consumers' trust regarding that site may be negatively impacted.

In order to survive in today's competitive market, online sellers continuously upgrade to the latest technologies. The main reason is to present to their consumers a steady and reliable system where every bit of pertinent information will be available to the consumer, just a click away. This also generates an impression about the competency of the seller, and consequently consumers tend to trust the seller. Thus, perceived system reliability 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.

The presence of a *third party seal* refers to the assurance of Internet vendors by third party certifying bodies (e.g., banks, accountants, consumer unions, and computer companies). Recently, a wide variety of third party seals were introduced to help create trust in electronic commerce. The basic idea is that when Internet customers see the seal on a given site, it creates extra trust in that Website. The purpose of a seal is to provide assurance to consumers that a Website discloses and follows its operating practices, that it handles payments in a secure and reliable way, that it has certain return policies, or that it complies with a privacy policy that says what it can and cannot do with the collected personal data (Castelfranchi and Tan 2001; Koreto 1997; Shapiro 1987). Thus, when an ordinary consumer finds a third party seal on an e-vendor's site, he or she can recognize the e-vendor has openly agreed to disclose their information gathering and dissemination practices, and that their disclosure is backed by credible third-party assurance (Benassi 1999), which will affect consumer trust in the e-vendor so that the consumer feels comfortable completing the transaction.

[3]A selling party or entity in this study refers to the firm as well as the Website as a whole, because it is through the Website that all transactions with the firm are consummated.

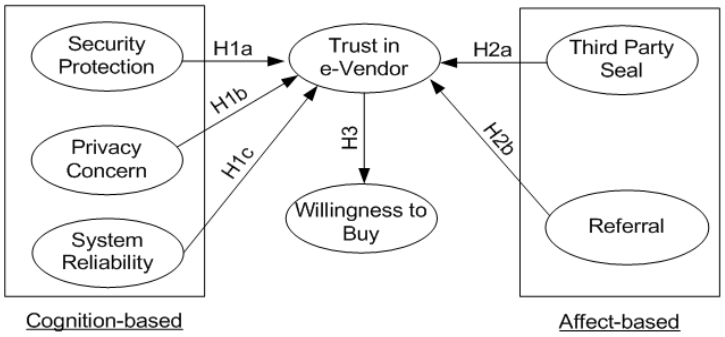

Figure 2. The Research Model: Cognition-Based and Affect-Based Trust Determinants

Referral or recommendation from third party sources (e.g., friends, professionals, reviewers, etc.) is another important determinant influencing a consumer's trust in an e-vendor. The empirical evidence of the effect of referrals including word of mouth has been presented in diverse purchase situations (Ardnt 1967). According to a word-of-mouth referral study conducted by Money et al. (1998) in a cross-national setting (the United States and Japan), collectivistic cultural (i.e., Japanese) companies use more word-of-mouth referral sources than do individualistic cultural (American) companies. Figure 2 illustrates the research model on the relationships between trust determinants and trust in e-vendor. The proposed hypotheses in cross-culture setting are

Hypothesis H1a: There will be a difference in the effect of perceived security protection on trust between the online consumers in an individualist culture and those in a collectivist culture.

Hypothesis H1b: There will be a difference in the effect of perceived privacy protection on trust between the online consumers in an individualist culture and those in a collectivist culture.

Hypothesis H1c: There will be a difference in the effect of perceived system reliability on trust between the online consumers in an individualist culture and those in a collectivist culture.

Hypothesis H2a: There will be a difference in the effect of third party seal on trust between the online consumers in an individualist culture and those in a collectivist culture.

Hypothesis H2b: There will be a difference in the effect of referral on trust between the online consumers in an individualist culture and those in a collectivist culture.

Hypothesis H3: There will be a difference in the level of trust between the online consumers in an individualist culture and those in a collectivist culture.

Research Methodology and Data Collection

For the cross-culture validation of the model and testing the hypotheses in a cross-cultural setting (i.e., individualistic and collectivistic), a set of data were collected from a group of students at public universities in the northeastern United States and in South Korea. The United States represent an individualist cultural type, while South Korea has a collectivist cultural type characterized as strong and intimate social relationships among the members of society (Griffith et al. 2000). 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.

Students participated in the study voluntarily for extra credit. A total of 249 responses for the USA and 212 responses for the Korea survey were collected. After eliminating incomplete responses, a total of 246 USA and 199 Korean samples were used to test the proposed model. Several studies (Ahuja et al. 2003; Kotkin 1998) show that online consumers are generally younger and more educated than are conventional consumers. Thus, while students represent only a portion of the online shopper

population, they do represent a disproportionately large segment of the broader online population. A number of studies (Ahuja et al. 2003; Kovar et al. 2000; Lee and Turban 2001) have utilized students as subjects, with the expectation not only that they represent an important segment of the broader online population, but also that they are likely to be representative of that broader population.

The research instrument used to measure the constructs was developed following the three stages suggested by Moore and Benbasat (1991): (1) item creation, (2) scale development, and (3) 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 (see Appendix A). For the second stage, scale development, a panel of experts reviewed the instrument to ensure the validity and to identify ambiguous items of the instruments created in the first step.

As recommended by Bentler and Chou (1987), each construct was measured by at least three observable indicators. All constructs were measured using multi-scale items. 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 (USA) and 199 (Korea) respondents include the fact that 58 and 56 percents, respectively, were male and, on a scale of 1 (novice) to 7 (expert), the respondents reported a relatively high level of experience on the computer (mean = 5.31, 4.06) and Internet (mean = 5.52, 4.66), USA and Korea respectively.

Data Analyses and Results

Testing the Mean Values

To ensure the comparison, before the structure model testing, t-tests were conducted for the mean values of the constructs between the two different culture data sets (i.e., USA and Korea). The results of the t-tests are summarized in Table 1. As seen in the results, the mean scores of all constructs between USA and Korean data are significantly different at the 0.001 level. Interestingly, all of the mean values of the cognition-based trust determinants (security protection, privacy concern, and system reliability) and trust in e-vendor for the USA sample are higher than those for the Korean sample whereas all the mean values of the affect-based trust determinants (third party seal and referral) for the Korea sample are higher than those for the USA. This result clearly shows that cognition-based determinants are more likely related to individualist culture than collectivist culture and affect-based trust determinants are less likely related to individualist culture than collectivist culture.

Table 1. Results of Independent Sample t-tests

Constructs	USA Sample Mean (S.D.)	Korea Sample Mean (S.D.)	Mean Differences	S.D.	t-statistic	P-value
Security Protection	5.273 (.983)	3.673 (.875)	1.600	.088	18.092	.000***
Privacy Concern	4.070 (1.413)	2.673 (1.052)	1.397	.120	11.675	.000***
System Reliability	5.585 (.971)	4.211 (.998)	1.318	.076	14.816	.000***
Third Party Seal	4.376 (1.220)	4.782 (1.311)	-0.406	.119	-3.416	.001**
Referral	4.177 (1.444)	4.802 (.986)	-0.625	.119	-5.239	.000***
Trust in e-vendor	5.058 (.964)	3.740 (.655)	1.318	.080	16.562	.000***
Willingness to Buy	5.354 (1.164)	3.749 (1.038)	1.605	.105	15.313	.000***

Notes: **significant at the 0.01 level ***significant at the 0.001 level

The partial least squares (PLS-Graph version 3.0.1060) was used to analyze the data for both the measurement model and structural model. Two PLS structural models (one for the USA and the other for Korea) were used. To ensure the appropriateness of the instrument, it was tested for content validity, reliability, and construct validity (see Table 2). Since all constructs in this study are reflective, the assessment of the measurement model includes the estimation of internal consistency for reliability and for convergent and discriminant validity (Chin and Gopal 1995).

For the content validity, a thorough review of the literature was conducted. The questionnaire was also pilot tested by having a panel of experts (professors and information systems professionals) review it, after which necessary changes were made to improve both the content and clarity of the questionnaire. The internal reliability of the measurement models was tested using Cronbach's alpha and Fornell's composite reliability (Fornell and Larcker 1981). The Cronbach reliability coefficients of all variables were higher than the minimum cutoff score of 0.70 (Nunnally 1978; Nunnally and Bernstein 1994). Composite reliability should be greater than the benchmark of 0.7 to be considered adequate (Fornell and Larcker 1981). All composite reliabilities of constructs have a value higher than 0.7, indicating adequate internal consistency. All constructs have an average variance extracted of at least 0.5 (Fornell and Larcker 1981). Table 2 shows the summarized reliability indices. The Cronbach's reliability alpha, the composite reliability, and the calculated AVE of all constructs have values higher than the suggested criteria.

The average variance extracted (AVE) can also be used for evaluating discriminant validity. The AVE for the construct should be higher than the variance shared between the construct and other constructs in the model (Fornell and Larcker 1981). As shown in Table 2, in all cases the correlations between each pair of constructs were lower than the square root of the AVE for the relevant constructs.

Table 2. Reliability, Correlation, and Discriminant Validity of Constructs

USA Data										
Constructs	**Alpha**	**CR**	**AVE**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1. Security Protection	.757	0.888	0.664	**0.815**						
2. Privacy Concern	.888	0.899	0.689	-0.497	**0.830**					
3. System Reliability	.934	0.926	0.806	0.663	-0.374	**0.898**				
4. Third Party Seal	.745	0.850	0.793	0.238	-0.045	0.131	**0.891**			
5. Referral	.765	0.892	0.774	-0.169	0.163	-0.191	0.187	**0.879**		
6. Trust in e-vendor	.843	0.908	0.768	0.742	-0.528	0.633	0.143	0.180	**0.876**	
7. Willingness to Buy	.875	0.924	0.801	0.521	-0.327	0.477	0.207	0.085	0.554	**0.895**
South Korea Data										
Constructs	**Alpha**	**CR**	**AVE**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1. Security Protection	.858	0.855	0.597	**0.773**						
2. Privacy Concern	.935	0.941	0.800	-0.158	**0.895**					
3. System Reliability	.891	0.903	0.755	0.417	-0.188	**0.869**				
4. Third Party Seal	.713	0.931	0.731	0.305	-0.062	0.421	**0.855**			
5. Referral	.754	0.882	0.653	0.121	0.213	0.138	0.318	**0.808**		
6. Trust in e-vendor	.727	0.850	0.656	0.585	-0.193	0.580	0.428	0.226	**0.810**	
7. Willingness to Buy	.792	0.880	0.709	0.393	-0.007	0.458	0.327	0.268	0.526	**0.842**

Notes: 1. n = 246 (USA) and 199 (South Korea)
2. CR: Composite Reliability, AVE: Average Variance Extracted
3. Diagonal elements are the square root of AVE. These values should exceed the off-diagonal inter-construct correlations for adequate discriminant validity.

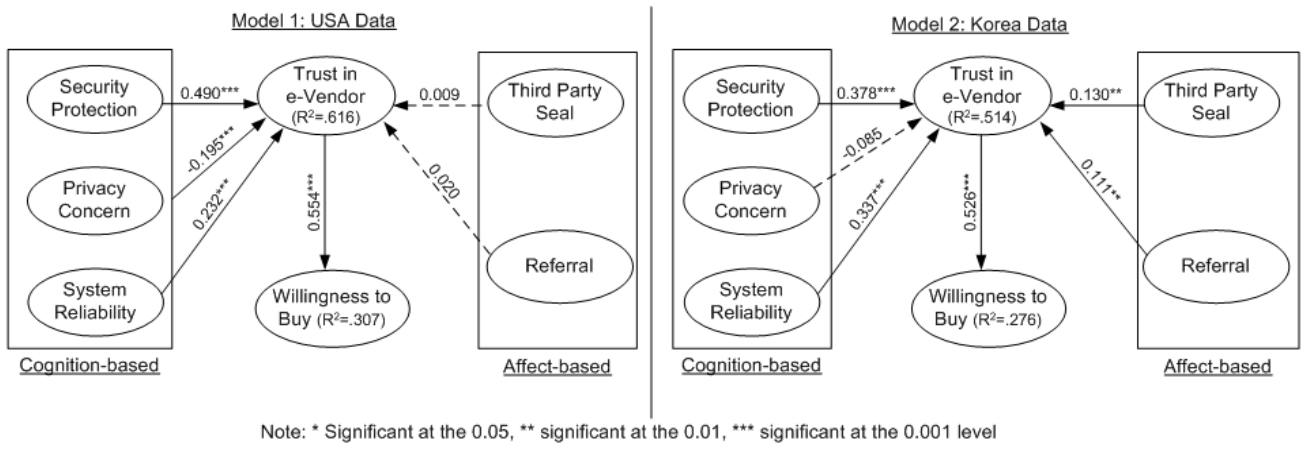

Figure 3. Structural Model Results

Testing the Structural Model

The assessment of the structural models includes estimating path coefficients and R^2. The path coefficients and R^2 can be interpreted as standardized beta weights and explained variances in a regression analysis respectively. Both R^2 and the path coefficients show how well the model is performing (i.e., model fit). The model fit (effectiveness) is analyzed as a measure of the validity of the model, and statistical tests (t-tests) of path coefficients are used to draw conclusions regarding the research hypotheses. The results of the model assessment are presented in Figure 3.

As shown in model 1 in Figure 3, for the USA sample, all three cognition-based trust determinants (security protection, privacy concern, and system reliability) have significant impacts on consumer's trust in e-vendor with path coefficients of 0.490, -0.195, and 0.232, respectively. On the other hand, interestingly, neither of the affect-based trust antecedents (presence of third party seal, importance of referral) have a significant effect on consumer's trust. For the Korea sample, it was found that both affect-based trust determinants (third party seal, referral) have positive impacts on consumer trust in e-vendor with path coefficients of 0.130 and 0.111 of $p < 0.01$ respectively. Among the cognition-based trust determinants, security protection and system reliability are significant. Privacy concern is not significant in the Korea sample. The R^2's of trust in e-vendor for both USA and Korea samples are .616 and .514, indicating that each model explains 62 percent and 51 percent of the variance in consumers' trust in e-vendor, respectively. Consumer trust in e-vendor shows strong positive effects on a consumer's willingness to buy in both the USA and Korea samples with a path coefficient of 0.554 and 0.514.

The results of the structural models confirm that there are differences in the effect of privacy, third party seal, and referral on trust between the online consumer in an individualist culture and those in a collectivist culture. This supports hypotheses H1b, H2a, and H2b. Although t-tests results show that there are mean differences of the trust determinants across the cultures' data sets (i.e., USA and Korea), the effects of security protection, system reliability, and trust are not significant. Thus, hypotheses H1a, H1c, and H3 are not supported.

Discussion and Conclusion

Trust is a building process that is influenced by different determinants in different cultures. This study has the following findings. First, the key finding is that although trust in e-commerce does not vary across cultures, its determinants do. In other words, a culture has a strong effect on Internet consumers' trust determinants. Depending on cultural differences, different trust determinants have different effects on consumer trust. The main reason for the difference is the two different trust development foundations (i.e., cognitive versus affect), which create interventions that are likely to affect the way the member in a society looks at the technology. Second, privacy is a more significant issue in an individualist culture than in a collectivist culture. Third, affect-based trust determinants are more positively related to consumer trust in e-vendor in a collectivist culture than in an individualist culture. Thus, the results of this study partially support proposition 1 and fully support the proposition 2.

There are several limitations in this study. Since the data was collected from students who represented only a portion of the online shopper populations for the two countries, other population of general online customers from other countries needs to be collected. Another limitation is that the study implicitly assumes members of each country will tend to exhibit their respective cultural type. However, using a country as a proxy for culture is a relatively insensitive measure and ignores the possibility of individual differences within cultures.

From the theoretical perspective, this study contributes to an area of cross-cultural comparison study of trust determinants where very little empirical work has been done to date. From a practical standpoint, this study provides important insights for multinational online business managers. In light of the results of this study, multinational Internet business managers should put special emphasis on determinants for trust. For example, privacy should be highlighted more in an individualistic culture than a collectivist culture. Affect-based determinants (e.g., recommendation, word-of-mouth, and certifications of trusted third party) are more important in collectivist culture countries because collectivists need more social and emotional cues and their feedback to build trust relationships. In summary, proper cultural consideration will be essential in international business when adopting and applying e-commerce.

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Appendix A: Measurement Items

Constructs	Measurement Items	Scales adapted from
Security Protection (1 – strongly disagree/ 7 – strongly agree)	S1: This Web vendor implements security measures to protect Internet Shoppers S2: This Web vendor has the ability to verify Internet shoppers' identities for security purposes S3: This Web vendor usually ensures that transactional information is protected from accidentally being altered or destroyed during a transmission on the Internet. S4: I feel secure about the electronic payment system of this Web vendor.	Gefen 2000 Swaminathan et al. 1999
Privacy Concern (1 – not concerned/7 – strongly concerned)	P1: I am concerned that this Web site is collecting too much personal information from me. P2: I am concerned that this Web vendor will use my personal information for other purposes without my authorization. P3: I am concerned that this Web vendor will share my personal information with other entities without my authorization. P4: I am concerned that unauthorized persons (i.e. hackers) have access to my personal information. P5: I am concerned about the privacy of my personal information during a transaction.	Chen 2000 Chen 2000 Chen 2000 New items Chen 2000
System Reliability (1 – strongly disagree/7 – strongly agree)	R1: I perceived that the entire transaction system of this site is stable. R2: I think the transaction system of this site is reliable. R3: I think the transaction system of this site is dependable.	All new items
Third Party Seal (1 – strongly disagree/7 – strongly agree)	TPS1: Would you prefer to buy from Web sites that carry such an endorsement? (1 – do not prefer/7 – strongly prefer) TPS2: The presence of a third party seal on the site makes me feel more comfortable. TPS3: The presence of a third party seal on the site makes me feel more secure in terms of privacy. TPS4: The presence of a third party seal on the site makes me feel safer in terms of the transaction security. TPS5: When I purchase from a Web site, the certification of Web sites for trustworthiness by other institutions such as TRUSTe are important to me.	All new items
Referral (1 – not important/7 – up to most important)	REF1: It is important to me that a person/friend recommends a Web site to me before I buy from it. REF2: It is important to me that previous customers' reviews are available on a Web site. REF3: It is important that professional reviewers (i.e. editors of news letters) suggest a Web site.	All new items

Constructs	Measurement Items	Scales adapted from
Trust in e-tailer (1 – strongly disagree/7 – strongly agree)	T1: This site is trustworthy. T2: This Website vendor gives the impression that it keeps promises and commitments. T3: I believe that this Website vendor has my best interests in mind.	Gefen 2000 Jarvenpaa et al. 2000 Portz 2000
Willingness to Buy (1 – strongly disagree/7 – strongly agree)	W1: I am likely to purchase the products(s) from this site W2: I am likely to return to this Website for my next purchase. W3: I am likely to make another purchase from this site during the next 3 months.	Gefen 2000 Jarvenpaa et al. 2000