

WHAT DRIVES ELECTRONIC COMMERCE ACROSS CULTURES? A CROSS-CULTURAL EMPIRICAL INVESTIGATION OF THE THEORY OF PLANNED BEHAVIOR

Paul A. Pavlou

Marshall School of Business
University of Southern California
pavlou@marshall.usc.edu

Lin Chai

Marshall School of Business
University of Southern California
chai@marshall.usc.edu

ABSTRACT

Globalization and the ubiquitous nature of the Internet facilitate e-commerce activities across nations. These activities demand a new conceptualization of online consumer behavior that transcends national boundaries and takes into consideration cross-cultural effects. To better understand what drives e-commerce across cultures, we apply a theory of planned behavior (TPB) perspective to capture behavioral intentions to transact online in two dissimilar countries – China and the United States. We argue that adoption of e-commerce depends primarily on consumer behavioral intentions to engage in product purchases. The model first draws upon the TPB to interrelate online transaction intentions with attitude, subjective norm, and perceived behavioral control. Second, given the uncertainty present in e-commerce, trust in a Web retailer is hypothesized as a salient belief that indirectly influences transaction intentions through attitude and perceived behavioral control. The paper's major contribution is to incorporate Hofstede's (2001) cultural dimensions - individualism/collectivism, power distance, and long-term orientation - in studying cross-cultural e-commerce adoption. We argue that these cultural differences influence the proposed e-commerce adoption model and moderate its key relationships. An empirical study was conducted to test the proposed cross-cultural model using data from consumers in China and the United States. The results render support for most of the proposed hypotheses, emphasizing the role of cultural differences on consumer e-commerce adoption. The paper discusses several insights from this exploratory study that contribute to the cross-cultural e-commerce literature. Finally, we discuss the study's implications for theory and practice, concluding with several suggestions for future research on cultural aspects of e-commerce.

1. Introduction

E-commerce enables consumers to purchase products and services online using Internet technologies and associated infrastructure (Olson and Olson, 2000). In contrast to traditional consumer behavior, e-commerce has some notable differences, such as the distant and impersonal nature of the online environment, the ease by which information can be collected, processed (data-mined), and used by multiple parties, the implicit uncertainty of using an open technological infrastructure for transactions, and the newness of the transaction medium. More specifically, the spatial and temporal separation among consumers and marketers increases fears of Web retailer opportunism, arising from product and identity uncertainty (Lee, 1998; Ba and Pavlou, 2002). In addition, personal consumer information can be easily collected, manipulated, and used by multiple parties not directly linked to a dyadic transaction (Gefen, 2002). Moreover, there is a concern about the reliability of the underlying Internet and related infrastructure that Web retailers employ to interface with consumers (Salisbury et al., 2001). Overall, these unique differences increase uncertainty and reduce consumer perceptions of control over their online transactions, imposing a barrier to e-commerce adoption. Since consumers do not have full control over their online transactions, perceived behavioral control described in the theory of planned behavior (TPB) (Ajzen 1985, 1988, 1991) and trust have become critical factors in e-commerce (Pavlou, 2002/03). Following the TPB, attitude and subjective norm are also incorporated as key predictors of online consumer behavior.

The TPB is a well-established general theory of social psychology, which asserts that specific salient beliefs influence behavioral intentions and subsequent behavior (Ajzen, 1985; 1988; 1991). The TPB extends the theory of reasoned action (TRA) (Fishbein and Ajzen, 1975) to account for conditions where individuals do not have full

control over the situation (Madden et al., 1992). This research analyzes e-commerce by employing the major constructs of TPB - attitude, subjective norm (social influence), and perceived behavioral control, in addition to the indirect role of trust. The aim of this research is to address the following important unanswered questions: (1) What factors lead consumers to transact online? (2) How can Web businesses influence consumers to transact with them? Further, to account for the increasing globalization of e-commerce, this research also addresses the question, (3) How does national culture influence consumer intentions to transact online? We address the last question by including an examination of the cultural dimensions of Dutch psychologist Geert Hofstede, drawing upon his categorization of national societies (1980).

The United States (U.S.) and China were chosen for this study because they represent nearly reverse positions on three important cultural dimensions, as shown in Table 1. The U.S. is high on individualism, moderate to low on power distance, and is short-term oriented. On the other hand, China is high on collectivism, high on power distance, and has a long-term orientation. These distinct cultural dimensions are proposed to moderate the proposed e-commerce adoption model (Pavlou, 2002), which mainly draws from the TPB *with the inclusion of trust*.

Table 1. Cultural Index Scores

Country	Power Distance	Long-Term Orientation	Individualism/Collectivism
China	80	118	20
United States	40	29	91

2. Literature Review

2.1 The Theory of Planned Behavior

The theory of planned behavior (TPB) asserts that specific salient beliefs influence behavioral perceptions and subsequent actual behavior (Ajzen, 1985; 1988; 1991). There are three types of beliefs in the TPB that affect three perceptual constructs: behavioral beliefs that influence attitudes, normative beliefs that affect subjective norm, and control beliefs that shape perceived behavioral control. In turn, these three perceptual constructs determine behavioral intentions and actual behavior.

2.1.1 Attitude

Following the TPB, attitude toward the transaction is defined as the overall evaluation of the desirability of a potential transaction with a specific Web retailer. In their decomposed TPB (DTPB), Taylor and Todd (1995) describe the construct as the generalized attitudinal belief that a behavior will lead to a particular outcome.

2.1.2 Subjective Norm

Beliefs arising from social pressure are termed *normative beliefs* (Ajzen, 1991). Subjective norm is the influence of a person's normative beliefs that others approve or disapprove a particular behavior. People's intentions to perform a particular action are a function of subjective norm, or their perception that important others think they ought to do so. In the present context, subjective norm is the influence from consumers' normative belief that the behavior is accepted, encouraged, and promoted by their circle of influence. In other words, consumers may believe that their family, friends, and peers would favor certain online behaviors, and this belief tends to influence their intentions and behavior.

2.1.3 Perceived Behavioral Control

Perceived behavioral control is a general construct dealing with consumer perceptions of whether a behavioral act is within their control. Perceived behavioral control reflects beliefs regarding access to resources and opportunities required to facilitate a behavior (Ajzen, 1991). There are two components of perceived behavioral control; the first deals with self-efficacy, an individual's self-confidence regarding the ability to undertake a behavior. The second component deals with facilitating conditions that provide the resources to engage in a behavior (Triandis, 1979). In order to closely capture the notion of control in a B2C e-commerce specific context, this study focuses on the second dimension; hence, perceived behavioral control is defined here as the consumer perception of control over a potential transaction, drawn from facilitating conditions that render such control. This definition aims to focus on different structures that render a perception of control over potential online transactions.

2.2 Intention to Transact

Intention to transact is broadly described as the consumer's intent to engage in an electronic exchange relationship with a Web retailer. Following Zwass (1998), intention to transact online is defined as the consumer's objective to engage in an electronic exchange relationship with a Web retailer, such as sharing business information,

maintaining business relationships, and conducting business transactions. Hence, online transactions can be viewed as interactive marketing communications (Pavlou and Stewart, 2000; Stewart and Pavlou, 2002).

Consumer intention to transact in e-commerce is proposed as the behavioral intention to engage in online transactions (product purchases and exchange of transaction information) with Web retailers. It is important to ex ante mention the paper's empirical limitation in terms of measuring actual e-commerce behavior. Even if it is notionally implied that intentions lead to actions (Davis, 1989), it is beyond the scope of this research to measure actual transaction behavior in a longitudinal fashion, a limitation common in exploratory studies (e.g. Bernadette, 1996; Mathieson, et al., 2001).

2.3 Trust

Consumers have not widely adopted e-commerce, primarily because of trust-related issues (Hoffman et al., 1999; Palmer, Bailey, and Faraj, 2000; Pavlou, 2002/03). Therefore, the influence of trust on consumer online transaction activities is fundamental in predicting e-commerce adoption (Gefen, 2002; Pavlou, 2001; 2002). Trust has always been an important element in influencing consumer behavior (Schurr and Ozanne, 1985); hence, developing consumer trust is critical for the continued growth of e-commerce (Palmer et al., 2000; Stewart, Pavlou, and Ward 2002). The open nature of the Internet as a transaction infrastructure and its global nature have further heightened the importance of trust in e-commerce (Gefen, 2000; Keen, 1999). Concerns about privacy and security underscore the importance of trust (Chellappa and Pavlou, 2002). In fact, Jarvenpaa and Tractinsky (1999) argue that lack of trust prevents consumers from engaging in online transactions. In sum, it is reasonable to argue that the importance of trust has become elevated in e-commerce given the high degree of uncertainty present in most online transactions (Fung and Lee, 1999; Lee, 1998).

Trust in a Web retailer is defined as the subjective probability by which consumers expect that a Web retailer will perform a given transaction in accordance with their confident expectations (Ba and Pavlou, 2002). Hence, trust is the expectation that the Web retailer will perform particular activities, irrespective of the consumer's ability to control the retailer's actions (Tan and Thoen, 2001). The practical utility of proposing trust as a salient belief stems from the fact that Web retailers have definite influence on this variable through their own trustworthiness.

2.4 Culture Differences

Hofstede's (1980) cultural dimensions serve as the most influential culture theory among social science research (Nokata and Sivakumar, 2001). In addition, Hofstede's cultural framework has also received strong empirical support (Sondergaard 1994). The framework was generated through the most extensive examination of cross-national values ever undertaken, with 116,000 respondents and across 40 countries. The results were consistent with findings in 38 other studies (Nokata and Sivakumar, 2001). Hofstede's seminal work separated cultures on the basis of the dimensions of (a) masculinity-femininity, (b) individualism-collectivism, (c) power distance, and (d) uncertainty avoidance. The author recently added the Confucian dimension of (e) long-term orientation (Hofstede, 2001). Individualism-collectivism refers to the basic level of behavior regulation, whether by individuals or groups. People high on individualism view self and immediate family as relatively more important than the collective. Masculine cultures emphasize work and material accomplishments; feminine societies put human relationships at the forefront. Power distance represents the extent of adherence to formal authority channels and is the degree to which the lesser powerful accept the prevailing distribution of power. High power distance cultures have members who are much more comfortable with centralized power than members of low power distance cultures. Uncertainty avoidance refers to how much people feel threatened by ambiguity, as well as the felt importance of rules and standards. People with an orientation low on uncertainty avoidance prefer situations that are free and not bound by rules and regulations. Short-term vs. long-term orientation is people's basic reference period; short-term involves the tendency toward consumption and maintaining materialistic status, and long-term suggests thrift, perseverance, following tradition, and deferred satisfaction.

3. Conceptual Development

Figure 1 presents the proposed research model. The dependent variable – transaction intentions – captures consumer e-commerce adoption intentions (product purchases and exchanging of transaction information). Drawing from the TPB (Ajzen, 1991), attitude toward the transaction, subjective norm and perceived behavioral control directly influence online transaction intentions (Pavlou, 2002). These relationships are examined in terms of cultural differences on the dimensions of (a) individualism-collectivism, (b) long/short term orientation, and (c) high/low power distance. Trust has a direct effect on perceived behavioral control and attitude; these relationships with trust are not hypothesized to be moderated by the three cultural effects under examination.

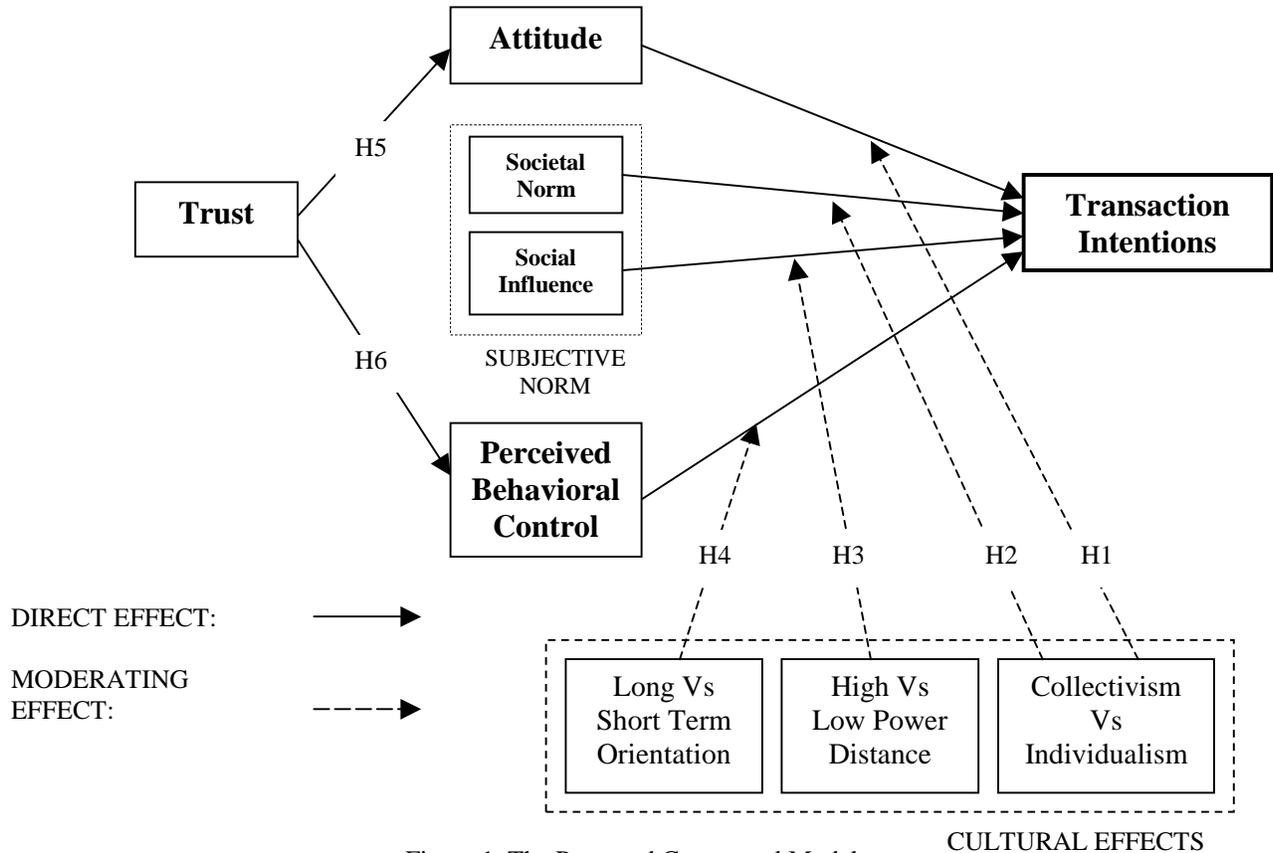


Figure 1. The Proposed Conceptual Model

3.1 Attitude

Attitude has been proposed to influence behavioral intentions in multiple theories, such as the TPB (Ajzen, 1991) and the TRA (Fishbein and Ajzen, 1975). The theoretical predictions of these theories have received substantial empirical support in a variety of settings (Madden et al., 1992). Attitude is an overall evaluation of the transaction activities with a Web retailer; hence, it is likely to influence the proposed transaction activities with a retailer. Therefore, favorable attitude is expected to ease online transactions and reduce barriers to the adoption of e-commerce (Jarvenpaa and Tractinsky, 1999; Pavlou, 2002). Following the TPB, favorable attitude toward a transaction with a Web retailer is expected to positively influence consumer online transaction intentions.

A cultural dimension is relevant to attitude toward transactions with Web retailers. Collectivist societies have strong relations within the “in-group” – the extended family and familiar acquaintances (Hofstede and Bond, 1988). In-group relations focus on maintaining harmony by going along with the group’s wishes and promoting long-term relationships (Bond and Smith, 1996). The implicit assumption is that the best thing for an individual is to guarantee the group’s well being. In general, once collectivist societies establish a positive attitude toward something, they tend to internalize it and take it into their in-group circle. Thus, the extended group can be taken to include e-commerce vendors, and we would then expect that members of a collectivist culture, such as China, would want to maintain harmonious consumer-vendor relationships. This would include intentions to transact online with these retailers. On the contrary, member of individualist cultures, such as the U.S. do not generally feel a natural influence toward the maintenance of group harmony. Because China is highly collectivist and the U.S. is highly individualistic, we expect an attitudinal difference in the levels of transaction intention between the two countries, as the following hypothesis proposes.

H1: The relationship between attitude and transaction intention is stronger in collectivist than in individualist societies.

3.2 Subjective Norm

The research literature shows support for the role of subjective norm on behavioral intentions. For example, in a cross-sectional comparison of pre- and post-adoption of information technology use, Karahanna et al. (1999) found that top management, supervisors, and peers significantly influenced adoption intention for both potential

technology adopters and actual users. In addition, they found that MIS staff and friends were important influences for potential adopters, while computer specialists played a significant role for actual users. In a study of decision support system adoption for health planning, Chiasson and Lovato (2001) also report that subjective norm is a significant antecedent of information system adoption intention. In addition, Morris and Venkatesh (2000) investigated age differences in adoption intentions and continued use of information technology using the theory of planned behavior. They found that workers were strongly influenced by subjective norm, although age and length of exposure moderated the effects. Based on the TPB, it is expected that subjective norm will have an influence on the intentions of consumers to engage in online transactions.

Subjective norm can be decomposed into (a) societal norm and (b) social influence. Societal norm refers to adhering to the larger societal fashion (large circle of influence), while social influence reflects adhering to opinions from family, friends, and peers (small circle of influence). China and the U.S. share important cultural differences with respect to societal norm and social influence, as described below.

3.2.1 Societal Norm

The first difference of social influence is related to Hofstede's dimension of individualism/collectivism. Collectivism refers to the extent to which individuals are integrated into groups and form their judgments based on group norms (Hofstede and Bond, 1988). Members of individualistic societies prefer self-sufficiency, while those in collectivistic cultures acknowledge their interdependent natures and obligations to the group (Hofstede, 1980). Other studies have replicated Hofstede's cultural dimension of collectivism, finding that it places relatively greater importance on the group's needs and norms than individualism (Triandis, 1990). Because China is highly collectivist and the United States is highly individualistic, we expect a cultural difference in the effect of societal influence on transaction intention.

H2: The positive relationship between societal norm and online transaction intention is stronger in collectivist than in individualist societies.

3.2.2 Social Influence

With respect to social influence, the second relevant cultural difference between the United States and China is power distance, which refers to the extent that people accept a hierarchical system with an unequal power distribution. High power distance means that less powerful individuals accept large status differences. Superiors tend to be autocratic and paternalistic, and subordinates willingly do as they are told (Hofstede, 1991). China, for example, is high on power distance, while the United States is relatively low. As a result, Chinese find it self-evident that "all men are born unequal" (Bond, 1986), whereas opposite sentiment is fundamental in the U.S. Thus, power distance is closely related to social influence, which reflects family and friends' opinions. We would, then, expect a stronger relationship between social influence and transaction intention in China than in the U.S.

H3: The positive relationship between social influence and online transaction intention is stronger in societies characterized by high versus low power distance.

3.3 Perceived Behavioral Control

The research literature shows support for the role of perceived behavioral control on behavioral intention. For example, Mathieson (1991) shows that behavioral control influences intention to use an information system. A positive relationship between control and intentions is also found in Taylor and Todd (1995), who examine users in a computer resources center, and Pavlou (2002) in e-commerce behavior. Overall, there is strong theoretical and empirical support for the role of perceived behavioral control on behavioral intentions. Applied to the context of online transaction intentions, behavioral control should have a positive effect on such intentions since consumers would not have fears of opportunistic behavior from a Web retailer. In sum, perceived behavioral control is likely to reduce barriers to the adoption of B2C e-commerce (Pavlou, 2002).

Cultural differences between China and the United States are also relevant to perceived behavior control. According to Hofstede (2001), China is extremely high on long-term orientation, a cultural dimension reminiscent of the teachings of Confucius. Confucian thinking emphasizes persistence and thrift, in addition to respect for tradition. These qualities are translated into the long-term orientation dimension, which also includes personal steadiness and stability. A long-term orientation means that people feel free to put off making a decision until they are comfortable with its ramifications. In essence, this gives such people more control over their actions. In contrast to China, the United States ranks low on long-term orientation. Therefore, we would expect Chinese to demand more control of their e-commerce transactions than Americans, and rely on this control in their online transaction behavior.

H4: The positive relationship between perceived behavior control and transaction intention is stronger in societies characterized by long versus short-term orientation.

3.4 Trust and Perceived Behavioral Control

Given that trust in a Web retailer describes confidence in the behavior of another party, trust gives consumers some control over the transaction since the actions of the Web retailer are expectable. Therefore, trust in the Web

retailer increases the amount of control the consumer has over the situation through having confidence in the Web retailer's behavioral actions (Pavlou, 2002). It is important to reiterate that trust does not influence control through self-efficacy, but as a facilitating condition (Triandis, 1979), which gives consumers perceptual resources (trust beliefs) to gain control over their online transactions. From a TPB perspective, a belief that a Web retailer will behave in accordance with consumer confident expectations is likely to increase the amount of consumer's control over the transaction (Pavlou, 2002). Hence, trust is posited as a control belief that acts as an antecedent of behavioral control (Ajzen, 1985). This relationship seems to be universal between the two cultures under investigation, and no cultural dimension seems to differentiate the effect of trust on perceived behavioral control.

H5: Trust positively influences perceived behavioral control in Chinese and U.S. cultures.

3.5 Trust and Attitude

Trust in a Web retailer is viewed as a salient behavioral belief that directly influences consumer attitude, and indirectly affects behavioral intentions for online transactions with Web retailers. The proposed relationship between trust and attitude is justified by placing trust in the context of the TPB as a behavioral belief (Pavlou, 2002). Drawing from a large body of literature review on trust, there is a consensus that trust is related to positive feelings, beliefs, and attitudes (McKnight and Chervany, 2002). Trust creates positive feelings towards transactions with Web retailers, providing expectations for a satisfactory transaction. This strong relationship between trust and attitude is likely to hold across the two cultures under investigation in this study.

H6: Trust positively influences favorable attitude in Chinese and U.S. cultures.

4. Research Methodology

This study used an experiential survey methodology where participants were asked to rate their responses regarding a self-selected Web retailer. The online survey instrument was administered to randomly selected Internet users from the U.S. and China. E-mail addresses of 1,500 selected consumers in both countries were randomly collected from multiple Websites using an e-mail extractor spider program. Invitation e-mails were sent to the selected consumers, explaining the purpose of the study and requesting their participation. When respondents clicked on the URL link provided in the e-mail message, they were directed to the online survey instrument. 58 responses were received from China, and 55 from the U.S. Participation in this study was voluntary; the response rate was approximately 8% overall. The demographic characteristics of the two samples are shown in Table 2.

Table 2. Demographic Information of Consumer Sample

Variable Mean (STD)	Age	Sex (Female)	Education (Years)	Annual Income (Thousands \$)	Internet Experience (Years)
China	25.0 (6.4)	28% (47%)	17.1 (4.1)	12.5 (9.8)	3.0 (0.86)
United States	36.7 (13.3)	51% (50%)	15.7 (3.5)	61.3 (71.5)	3.6 (2.72)

4.1 Measure Development

The principal constructs were developed based on existing measures where possible, or they were adapted from similar scales. The intention to transact measure was based on scales measuring intentions to use a system (Venkatesh and Davis, 2000) and had six items. The two specific items related to the dimension of product purchase were adopted from Ohanian (1991), while the intent to receive information was based on Choudhury et al. (2001). Following a similar basis, the intent to provide information was captured by two new items. Measures for attitude, perceived behavioral control, and subjective norm (societal norm and social influence) were based on the empirical studies of Taylor and Todd (1995), Mathieson (1991), and Miniard and Cohen (1981). Trust measures were adapted from Ohanian (1991) and reflected retailer's trustworthiness. Although most items were based on previous empirical studies, the actual scales were developed to capture the context of this study. After the scales were developed, a preliminary version of the instrument was generated and reviewed by faculty and doctoral students for clearness. The questionnaire was translated from English to Chinese by one of the study's authors, and back-translated for accuracy. Finally, to verify the appropriateness of the instrument, it was pretested with multiple Chinese and U.S. consumers, who varied in age and gender. None of these phases revealed any major problems, but the questionnaire was progressively refined, simplified, and shortened.

5. Results

5.1 Measure Validation

Measure validation was initially examined for reliability by computing Cronbach's alpha coefficient for each construct. As shown in Tables 1 and 2, all measures have high levels of reliability, both for China and the United States, all above the recommended 0.7 levels. Discriminant and convergent validity of the scales was initially examined using exploratory principal component factor analysis with a Varimax rotation. All items loaded significantly on their hypothesized factors, and using the 0.40 rule-of-thumb, all cross-loadings are low, while the resulting solution explained 84% of the total variability. Using Partial Least Squares (PLS), a confirmatory factor analysis was conducted to establish discriminant validity of the principal constructs. Discriminant validity is shown when the square root of each construct's Average Variance Extracted (AVE) is larger than its correlations with other constructs (Chin, 1998). As shown in Tables 1 and 2, the square root of the AVE is much larger than all other cross-correlations for both samples. In addition to reliability coefficients and AVE values, Tables 3 and 4 report the correlation matrix and descriptive statistics of the study's principal constructs for both countries, respectively.

Table 3. Descriptive Statistics, Correlation Matrix, and AVEs of Principal Constructs for China

	Intention	Attitude	Control	Trust	Influence	Norm
Transaction Intentions	0.83	<i>.67</i>	<i>.64</i>	<i>.61</i>	<i>.42</i>	<i>.56</i>
Attitude		0.91	<i>.65</i>	<i>.73</i>	<i>.45</i>	<i>.49</i>
Behavioral Control			0.84	0.70	<i>.59</i>	<i>.57</i>
Trust				0.94	<i>.44</i>	<i>.61</i>
Social Influence					0.89	<i>.31</i>
Societal Norm						0.98
Cronbach's alpha	0.92	0.96	0.92	0.97	0.73	0.89
Mean Values	4.6	4.5	4.9	4.8	4.3	4.4
Standard Deviation	1.9	1.8	1.9	1.9	1.6	1.9
The main diagonal shows the square root of the AVE. Significant at $p < 0.01$ level ($r > .35$ or $r < -.35$) are shown in bold; Significant at $p < 0.05$ level ($r > .30$ or $r < -.30$) in italics.						

5.2 Hypothesis Testing

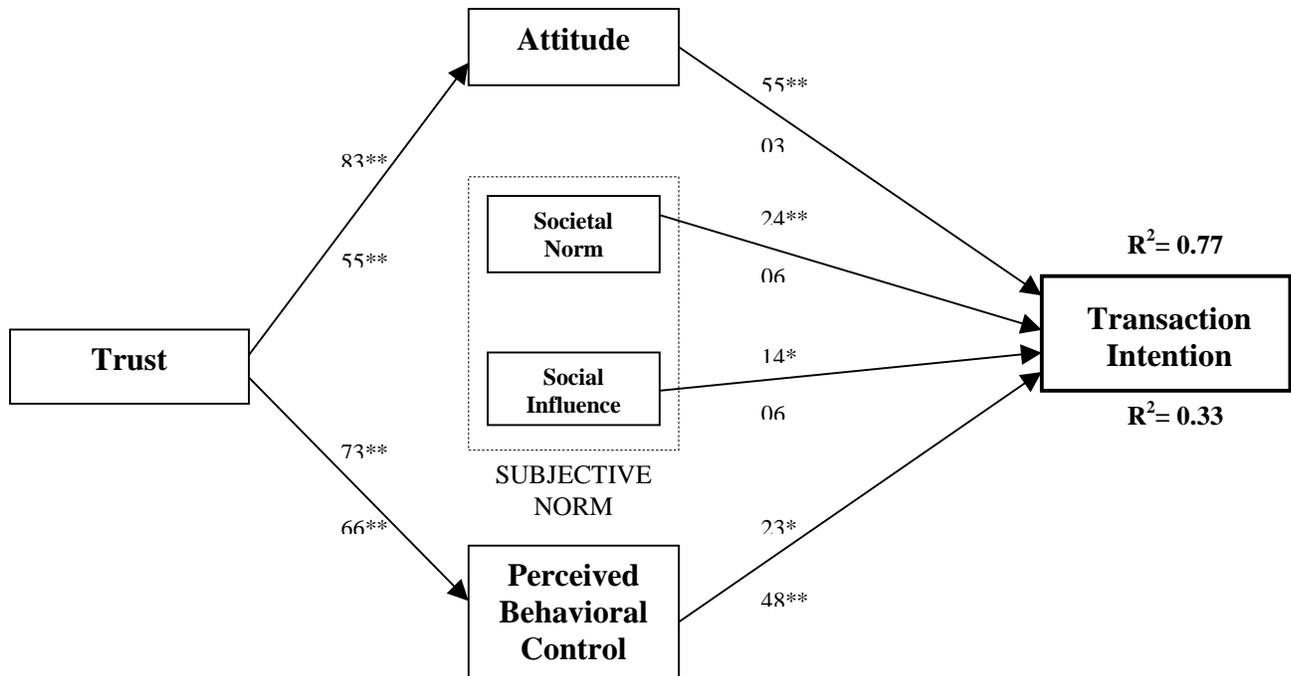
In order to examine the proposed hypotheses, PLS (PLS-Graph Version 3.0) was employed, as shown in Figure 2. PLS allows the specification of the relationships among the principal construct, as well as with their underlying items, resulting in a simultaneous analysis of both whether the hypothesized relationships at the theoretical level are empirically acceptable, and also how well the measures relate to each construct (Chin, 1998). The ability to include multiple measures for each construct provides more accurate estimates of the paths among constructs, which are typically downward biased by measurement error when applying multiple regression analysis (Barclay, Higgins, and Thompson, 1995). LISREL analysis was not appropriate here, because of the nature of some of the measures used and the small sample size (Chin and Gopal, 1995). Hence, the entire structural model for each country was estimated with PLS. As shown in Figure 2, the results for both countries broadly support the role of the TPB and trust in explaining consumer adoption of e-commerce. The model is particularly valid in China where it explains 77% of the variation in transaction intentions, as compared with 33% in the U.S. Trust shows a strong influence both on attitude and on perceived behavioral control.

Table 4. Descriptive Statistics, Correlation Matrix, and AVEs of Principal Constructs for the U.S.

	Intention	Attitude	Control	Trust	Influence	Norm
Transaction Intentions	0.68	.23	.54	.47	.16	.20
Attitude		0.97	.42	.56	-.10	.15
Behavioral Control			0.90	.66	.25	.21
Trust				0.87	.09	.15
Social Influence					1.0	.34
Societal Norm						1.0
Cronbach's alpha	0.77	0.97	0.90	0.84	0.74	0.87
Mean Values	5.0	6.0	5.6	6.1	2.3	2.1
Standard Deviation	1.8	1.5	1.3	1.0	1.6	1.5

The main diagonal shows the square root of the AVE.
 Significant at p<0.01 level (r > .35 or r < -.35) are shown in bold; Significant at p<0.05 level (r > .30 or r < -.30) in italics.

However, in order to test the moderating effect of cultural differences, the traditional test for moderators (Baron and Kenny, 1986; Sharma, Durand, and Gurarie, 1981) was conducted, as shown in Table 5. We compared the simple regression model with four independent variables versus the moderated regression model that additionally included the interaction of these variables with culture (dummy variable). A significant interaction effect suggests that culture indeed moderates the relationship.



Top Coefficient: China
 Bottom Coefficient: United States

** Indicates p-value < 0.01
 * Indicates p-value < 0.05

Figure 2. Results of Partial Least Squares Analysis of the Research Model

H1 posits that attitude would have a stronger effect in collectivist than in individualist cultures. In fact, in China (b=.55, p<.01), attitude has a substantially greater effect on intentions than the U.S. The moderated regression model shows that the interaction of culture with attitude (b=.56, t=5.31, p<.001) is significant, validating H1. Similarly,

H2, which argues that societal norm is more important in collectivist societies, received support since Chinese consumers ($b=.24$, $p<.01$) are influenced by their society's norms, as opposed to U.S. consumers where subjective norm does not notably influence their transaction intentions. The moderated regression model also shows that the interaction of norm with culture is significant ($b=.24$, $t=2.26$, $p<.01$), providing additional support for H2. H3 argues that social influence in China would have a greater effect on intentions than it would have in the U.S. The PLS coefficient was indeed significant for China ($b=.14$, $p<.05$), but not in the U.S. However, H3 is not strongly supported, because the interaction of influence with culture does not have a significant effect on intentions ($b=.12$, $t=1.13$); yet, there is a directional support for this hypothesis. H4 posits that the relationship between perceived behavioral control and transaction intentions would be higher in countries with long-term orientation. However, this hypothesis is not supported. On the contrary, control has a stronger effect on intentions among U.S. consumers ($b=.48$, $p<.01$) than among Chinese consumers ($b=.23$, $p<.05$). This unexpected finding is validated by the moderated regression model ($b=-.21$, $t=1.92$, $p<.1$).

Table 5. Moderated Regression Analysis on Transaction Intentions

Independent Variables	R-squared (adjusted)	Regression Coefficient	t-value
Simple Regression Model			
Attitude	0.53	.43	4.51***
Societal Norm		.15	1.67*
Social Influence		.08	1.23
Behavioral Control		.35	3.61***
Moderated Regression Model			
Attitude * Culture	0.75	.56	5.31***
Societal Norm * Culture		.22	2.26**
Social Influence * Culture		.12	1.13
Behavioral Control * Culture		-.21	-1.92*
Culture		.11	1.12
Note: *** $p<.01$; ** $p<.05$; * $p<.01$.			
All original variables (attitude, norm, influence, control) became insignificant in moderated regression model.			

As expected, both H5 and H6 receive strong support, because the role of trust in influencing attitude and perceived behavioral control is particularly significant in both cultures under investigation. The effect of trust on attitude and control was also examined to test if they were influenced by culture, using a similar moderated regression model. However, no cultural differences were observed. Finally, given the small sample size and the high correlations among the predictor variables, multicollinearity might have been an issue. However, multicollinearity turned out not to be a serious concern, because relevant checks (eigenanalysis, tolerance values, Variance Inflation Factors) did not necessitate dropping any independent variable.

The results of this study show that most of the research hypotheses are supported. The relationship between attitude and transaction intention was significant for the collectivist culture, but insignificant for the individualistic culture. Similarly, social norm was strongly related to transaction intention in the Chinese collectivist culture, but insignificant in the U.S. individualistic society. However, social influence was weakly related to transaction intentions, suggesting that this type of subjective norm may not be a key e-commerce driver that can be influenced by cultural effects, such as power distance. Whereas perceived behavioral control was a significant driver of e-commerce transactions in both countries, the expected higher effect for the Chinese culture with long-term orientation was not evident in this sample. Finally, trust was found to be a significant predictor of attitude and perceived behavior control in both countries, implying that the role of trust is not moderated by cultural idiosyncrasies evident in China and the U.S. This finding suggests that trust is a universal driver of e-commerce, even if some cultural differences not examined in this study may still moderate its strong effect. In sum, the role of cultural differences was found to be a noteworthy moderator in the proposed e-commerce adoption model, emphasizing the role of cultural aspects in multi-national e-commerce research.

6. Discussion

The findings of this study are mostly in accordance with expectations. As hypothesized, attitude had a significant effect on transaction intention for the collectivist society of China. However, attitude did not significantly affect transaction intention for the individualist society. The lack of association for attitude in the U.S. is contrary to

one of the basic postulates of the TPB. An explanation could lie in the influence of individualism itself. Individualists perceive that they are relatively free to follow their own wishes, without regard for others' opinions. Therefore, these online consumers could very well have a positive attitude toward transactions with a Web retailer but, following their self interest, feel no obligation to patronize that retailer. Individualists are also more objective than affective (Hofstede, 2001); this would take other elements besides attitude into consideration in forming the intention to patronize. The fact that the variance explained in the U.S. sample (33%) is much lower than that in the Chinese sample (77%) strengthens this assertion. Collectivist long-term orientation could also account for the disparity in findings for attitude. People in long-term oriented cultures feel an inward moral obligation to follow through with their sentiments. On the contrary, individuals in short-term oriented cultures feel no such compulsion.

Results of this study show, contrary to H3, that in China, social influence does not have a significantly greater effect on intentions than in the U.S. As noted above, the PLS coefficient was significant for China and not for the U.S. However, H3 was not strongly supported since the interaction of social influence with culture did not have a significant effect on intentions. The fact that power distance did not show a strong moderating effect is perhaps due to the lack of a large enough difference between the power distance scores of China (80) and the U.S. (40), as described by Hofstede (1980). The power distance scores may simply not differ enough to capture a strong moderating effect, especially given the small sample size. Nonetheless, there is still directional evidence for the moderating role of power distance that remains to be validated by future cross-cultural research in countries with more notable power distance differences, or with larger sample sizes.

Another unexpected finding relates to the impact of perceived behavior control, where control has a stronger effect on transaction intention in the U.S. than in the Confucian Chinese society. Perhaps the reason lies in the utilitarian nature of the online consumer (Jarvenpaa and Todd, 1997), especially in the U.S. As noted by Koufaris (2002) online consumers demand more control, less effort, and higher efficiency. This is likely to be more prominent in the utilitarian U.S. society that likely surpasses the effect of long-term orientation. Another plausible explanation may be the fact that this study examines intentions, not actual behavior. Perceived behavioral control has also a direct effect on actual behavior (Pavlou, 2002). Therefore, by not examining actual e-commerce use, this potentially substantial effect remains unclear. Consequently, the expectation that the relationship between control and transactions is higher in societies with long-term orientation may be evident when examining actual behavior.

6.1 Implications for Theory and Research

This study contributes to our understanding of the drivers of e-commerce. A main contribution is the specification, justification, and empirical validation of a set of interrelationships between important factors that tend to be associated with transaction intentions in e-commerce. Another important contribution of this research is the placement of fundamentally important variables – attitude, subjective norm, perceived behavioral control, and trust – as determinants of e-commerce adoption, drawing from a well-established model of social psychology. Most importantly, this study integrates a cultural effect that significantly moderates key relationships in the proposed model, reflecting the growing importance of e-commerce in a world setting. The integration of cross-cultural differences as moderators of key antecedents of online transaction behavior is the key contribution of this study to the emerging cross-cultural e-commerce literature.

Further, the role of trust in e-commerce is placed within the context of sound theory, empirically validating the study's hypotheses that trust influences transaction intentions through attitude and perceived behavioral control. Integrating trust into TPB essentially ties a new variable with existing TPB constructs, providing a substantial foundation for the fundamental role of trust in e-commerce. Therefore, another contribution of this study is to explicate the role of trust, integrate it with the well-accepted TPB, and show its effect in cross-cultural online transaction behavior. Despite the non-moderated effect of trust on key TPB variables between the U.S. and China, this study stimulates future cross-cultural research on fully exploring the role of trust in online consumer behavior. For instance, uncertainty avoidance differences among cultures might moderate the effect of trust, which opens new avenues for cross-cultural e-commerce research.

In terms of theory building, this study attempts to develop theory by grounding new variables in a well-accepted model and then applying the revised model in a cross-cultural context. Empirical results validate the long-standing notion of important cultural differences between China and the United States and show that those differences extend to the e-commerce context. Results of this research additionally suggest that different research models of e-commerce are appropriate for different cultural contexts (Malhotra and McCort, 2001). This is in line with Nakamura's (1964) characterization of Chinese vs. American culture. He found three important differences to be applicable to behavioral intention modeling for Chinese: an emphasis on perception of the concrete; a central focus of practicality; and the concern for reconciliation, harmony and balance.

This study also relates to the important field of customer relationship management (CRM). Fundamentally, CRM involves a shift from a product focus to a customer focus by taking customer views into account in all aspects

of a business (Yu, 2001). Central to online CRM is having a clear view of the process that leads to transactions; the key to successful CRM is understanding the sources of customer intentions to transact. Knowing the important determinants of customers' intentions to transact online would allow the targeting of those determinants to better serve customer needs. This study extends our understanding of psychological aspects of cross-cultural online CRM by showing that global customers are different and must be understood in the context of their own culture. Finding these sources and their cultural moderators was the aim of the present study; future research could directly investigate cross-cultural online consumer behavior in the context of CRM.

While the number of Internet users is constantly increasing (Commerce Net, 2001), according to a recent study, more than 75% of online consumers abandon their shopping carts before purchase (BizRate, 2000)¹. This poses a problem for Web retailers who prefer buyers and not browsers. Nevertheless, even if consumers finally decide not to purchase, similar to traditional shopping, it is important for marketers to know how to bring them to the (online) store, initiate communication, collect valuable feedback information, and encourage future transactions (Hoyer and MacInnis, 2001). This study makes a modest contribution to our understanding of the major factors related to online transaction behavior; however, it does not differentiate among the individual transaction behaviors. According to Ajzen's (1991) TPB, there is an expectancy model that assigns weight on each independent variable (attitude, subjective norm, and control) depending on the nature of the behavioral intention. Given that these three TPB variables seem to be important in determining transaction intentions, future research could still differentiate between browsing and purchasing and assign individual weights to each TPB variable. The practical implication of this assignment would be to help Web retailers focus more on factors associated with purchasing than those on browsing. In addition, future research could explore factors that differentiate between browsing and purchasing.

6.2 Implications for Practice

E-commerce is gradually achieving international presence. Although the majority of online shoppers are in the United States, other countries are steadily entering the e-commerce environment. Managers of Web shopping sites are actively interested in determining the most favorable methods of marketing their products and services, and they are interested in tailoring their offerings to different cultures. This research has demonstrated the importance of distinguishing e-commerce acceptance on the basis of cultural differences. Online shopping managers could use the preliminary insights developed here to modify their approaches, depending on the culture they are targeting. Managers attempting to penetrate the Chinese market should focus on public image and social norm, along with creating and fostering positive attitude towards online transactions. For U.S. consumers, on the other hand, building trust and providing a sense of behavioral control may be a more effective way to encourage online transactions.

6.3 Limitations and Suggestions for Future Research

Several limitations of this study should be mentioned, which call for future research. First, this paper deals with intentions, not actual e-commerce behavior. Perceived behavioral control, which is posited in this paper as an important element of e-commerce adoption, shows a direct effect (as opposed to attitude and subjective norm) on behavior (Mathieson et al. 2001). Therefore, by not examining actual e-commerce use, this potentially substantial effect remains unclear. For example, the expectation that the relationship between control and transactions is higher in societies with long-term orientation may become evident when examining actual behavior. Furthermore, much e-commerce behavior might occur because of habituation as opposed to intentional behavior (Limayem, Hirt, and Chin, 2001), because for many consumers, online shopping is gradually becoming a habit as opposed to being driven by thoughtful deliberation. Therefore, examining actual e-commerce behavior may reveal interesting aspects of e-commerce adoption.

Future research should aim to retain and enhance the predictive power of the proposed model, while eliminating unnecessary variables that compromise its parsimony. For example, uncertainty avoidance, which represents the extent to which a society's members wish to avoid risky, uncertain situations (Hofstede 1980), could also be added to the model as another cultural moderator on the effect of trust. A refined model may be required to retain the explanatory power of the proposed model, while enhancing its parsimony, similar to Taylor and Todd's (1995) procedure. Future research could also take into consideration the interaction effects of additional cultural dimensions, providing a richer understanding of e-commerce in a global setting by conducting studies in multiple countries with different degrees of cultural variation across Hofstede's dimensions. Finally, the issue of small sample size, due to low response rate, could also be alleviated by future research and additional data collection.

¹ Stewart and Pavlou (2002) argue that this phenomenon could be explained by the structure of the transaction that forces consumers to place an item in their shopping carts as the only way to learn the item's additional shipping cost.

7. Conclusion

This study applies the TPB to enhance our understanding of the determinants of e-commerce across cultures by proposing a model that draws upon the TPB to relate online transaction intentions with attitude, subjective norm, and perceived behavioral control. The proposed model incorporates Hofstede's (2001) cultural dimensions (individualism/collectivism, power distance, long term orientation) as key moderators of the effect of TPB variables on online consumer behavior, aiming to explain e-commerce adoption across cultures. An empirical study was conducted in two different cultures, China and the United States, validating our proposition that cultural differences play a significant role in consumer e-commerce adoption. This study aims to entice future research on further understanding the impact of cross-cultural differences on online consumer behavior.

REFERENCES

- Ajzen, I., "From Intentions to Actions: A Theory of Planned Behavior," in Kuhl, J. and J. Beckmann (eds.), *Action control: From cognition to behavior*, Springer Verlag, New York, 1985.
- Ajzen, I., *Attitudes, Personality, and Behavior*, The Dorsey Press, Chicago, Illinois, 1988.
- Ajzen, I., "The Theory of Planned Behavior," *Organizational Behavior and Human Decision Processes*, Vol. 50: 179-211, 1991.
- Ajzen, I. and M. Fishbein, *Understanding Attitudes and Predicting Social Behavior*, Prentice-Hall, Englewood Cliffs, NJ, 1980.
- Ba, S. and P.A. Pavlou, "Evidence of the Effect of Trust Building Technology in Electronic Markets: Price Premiums and Buyer Behavior," *MIS Quarterly*, Vol. 26, No. 3:243-268, 2002.
- Barclay, D., C.A. Higgins, and R.L. Thompson, "The Partial Least Squares (PLS) Approach to Causal Modeling: Personal Computer Use as an Illustration," *Technology Studies*, Special Issue on Research Methodology, 1995.
- Baron, R., and D. Kenny, "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations," *Journal of Personality and Social Psychology*, Vol. 51, No. 6:1173-1182, 1986.
- Bernadette, S., "Empirical Evaluation of the Revised Technology Acceptance Model," *Management Science*, Vol. 42, No. 1:85-93, 1996.
- Bizrate, "75 Percent of Online Buyers Abandon Shopping Carts According to Bizrate.com Survey," *Press Release*, October 23, 2000.
- Bond, R. and P.B. Smith, "Cross-Cultural Social and Organizational Psychology," *Annual Review of Psychology*, Vol. 47:205-235, 1996.
- Brynjolfsson, E. and M. Smith, "Frictionless Commerce? A Comparison of Internet and Conventional Retailers," *Management Science*, Vol. 46, No. 4:563-585, 2000.
- Chellappa, R. and P.A. Pavlou, "Perceived Information Security, Financial Liability, and Consumer Trust in Electronic Commerce Transactions," *Journal of Logistics Information Management*, Special Issue on 'Information Security', Vol. 11, No. 5, 2002 (forthcoming).
- Chiasson, M.W. and C.Y. Lovato, "Factors Influencing the Formation of a User's Perceptions and Use of a DSS Software Innovation," *Database for Advances in Information Systems*, Vol. 32, No. 3:16-35, Summer 2001.
- Chin, W.W. and A. Gopal, "Adoption Intention in GSS: Relative Importance of Beliefs," *DATA BASE for Advances in Information Systems*, Vol. 26, No. 2:42-64, 1995
- Chin, W.W., "Issues and Opinion on Structural Equation Modeling," *MIS Quarterly*, Vol. 22, No. 1:7-16, 1998.
- Choudhury, V., E. Karahanna, E. and R. Dumm, "The Relative Advantage of Electronic Channels: A Conceptual and Operational Definition," *Working Paper*, University of Cincinnati, 2001.
- Davis, F. D., "Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology," *MIS Quarterly*, Vol. 13, No. 3:319-340, 1989.
- Fishbein, M. and I. Ajzen, *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*, Addison-Wesley, Reading, MA, 1975.
- Fung, R. and M. Lee, "e-Commerce-Trust: Exploring the Antecedent Factors," *Proceedings of the 5th Americas Conference on Information Systems*, pp. 517-519, 1999.
- Gefen, D., "e-Commerce: The Role of Familiarity and Trust." *Omega* Vol. 28, No. 5:725-737, 2000.
- Gefen D., "Reflections on the Dimensions of Trust and Trustworthiness among Online Consumers," *The DATA BASE for Advances in Information Systems*, Vol. 33, No. 3:38-53, 2002.
- Hoffman, D. L., T. P. Novak and M. Peralta, "Building Consumer Trust Online," *Communications of the ACM*, Vol. 42, No. 4:80-85, 1999.
- Hoyer, W. D. and D. J. MacInnis, *Consumer Behavior*, 2nd Edition, Houghton-Mifflin, Boston, MA, 2001.

- Jarvenpaa, S. L. and P.A. Todd, "Consumer Reactions to Electronic Shopping on the World Wide Web," *International Journal of Electronic Commerce*, Vol. 1, No. 2:59-88, 1997.
- Jarvenpaa, S. L. and N. Tractinsky, "Consumer Trust in an Internet Store: A Cross-Cultural Validation," *Journal of Computer-Mediated Communication*, Vol. 5, No. 2:1-35, December, 1999.
- Koufaris, M., "Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behavior," *Information Systems Research*, Vol. 13, No. 2:205-223, 2002.
- Hofstede, G., *Culture's Consequences*, Sage, Beverly Hills, 1980.
- Hofstede, G., *Culture's Consequences*, 2nd Edition, Sage, Thousand Oaks, 2001.
- Hofstede, G. and M.H. Bond, "The Confucius Connection: From Cultural Roots to Economic Growth," *Organizational Dynamics*, Vol. 16, No. 4:4-21, 1988.
- Karahanna, E., D. W. Straub and N. L. Chervany, "Information Technology Adoption Across Time: A Cross-Sectional Comparison of Pre-Adoption and Post-Adoption Beliefs," *MIS Quarterly*, Vol. 23, No. 2:183-213, June, 1999.
- Keen, P.G.W., *Electronic Commerce Relationships: Trust by Design*, Prentice Hall, Englewood Cliffs, N.J., 1999.
- Lee, H. G., "Do Electronic Marketplaces Lower the Price of Goods?" *Communications of the ACM*, Vol. 41, No. 1:73-80, 1998.
- Limayem, M., S.G. Hirt, and W.W. Chin, "Intention Does Not Always Matter: The Contingent Role of Habit on IT Usage Behavior," *Proceedings of the 9th European Conference on Information Systems*, pp. 27-29, Bled, Slovenia, June 2001.
- McKnight, D. H. and N.L. Chervany, "What Trust Means in E-Commerce Customer Relationships: An Interdisciplinary Conceptual Typology," *International Journal of Electronic Commerce*, Vol. 6, No. 2:35-72, 2002.
- Madden, T.J., P.S. Ellen, and I. Ajzen, "A Comparison of the Theory of Planned Behavior and the Theory of Reasoned Action," *Personality and Social Psychology Bulletin*, Vol. 18, No. 1:3-9, 1992.
- Malhotra, N.K. and J.D. McCort. "A Cross-Cultural Comparison of Behavioral Intention Models: Theoretical Considerations and an Empirical Investigation," *International Marketing Review*, Vol. 18, No. 3:235-269, 2001.
- Mathieson, K., "Predicting User Intentions: Comparing the Technology Acceptance Model with the Theory of Planned Behavior," *Information Systems Research*, Vol. 2, No. 3:173-191, 1991.
- Mathieson, K., E. Peacock, and W.W. Chin, "Extending the Technology Acceptance Model: The Influence of Perceived User Resources," *The DATA BASE for Advances in Information Systems*, Vol. 32, No. 3:86-112, 2001.
- Miniard, P. and J.B. Cohen, "An Examination of Fishbein-Ajzen Behavioral Intentions Model's Concepts and Measures," *Journal of Experimental Social Psychology*, Vol. 17:309-339, 1981.
- Morris, M. G. and V. Venkatesh, "Age Differences in Technology Adoption Decisions: Implications for a Changing Work Force," *Personnel Psychology*, Vol. 53, No. 2:375-403, 2000.
- Nakata, C. and K. Sivakumar, "Instituting the Marketing Concept in a Multinational Setting: The Role of National Culture," *Journal of the Academy of Marketing Science*, Vol. 29, No. 3:255-275, 2001.
- Nakamura, H., *Ways of Thinking of Eastern People*, University of Hawaii Press, Honolulu, HI, 1964.
- Ohanian, R., "The Impact of Celebrity Spokespersons' Perceived Image on Consumers' Intention to Purchase," *Journal of Advertising Research*, Vol. 31, No. 1:46-54, 1991.
- Olson, J.S. and G.M Olson, "i2i Trust in e-Commerce," *Communications of the ACM*, Vol. 43, No. 12:41-44, 2000.
- Palmer, J. W., J. P. Bailey, and S. Faraj, "The Role of Intermediaries in the Development of Trust on the WWW: The Use and Prominence of Trusted Third Parties and Privacy Statements," *Journal of Computer-Mediated Communication*, Vol. 5, No. 3, 2000.
- Pavlou, P. A., "Integrating Trust in Electronic Commerce with the Technology Acceptance Model - Model Development and Validation," *Proceedings of the 2001 Americas Conference in Information Systems*, Boston, MA, August 2001.
- Pavlou, P.A., "What Drives Electronic Commerce? A Theory of Planned Behavior Perspective," *Best Paper Proceedings of the Academy of Management Conference*, Denver, CO, August 2002.
- Pavlou, P.A., "Consumer Acceptance of Electronic Commerce – Integrating Trust and Risk with the Technology Acceptance Model," *International Journal of Electronic Commerce*, Vol. 7, No. 2, 2002/03 (forthcoming).
- Pavlou, P.A. and D.W. Stewart, "Measuring the Effects and Effectiveness of Interactive Advertising: A Research Agenda," *Journal of Interactive Advertising*, Vol. 1, No. 1: <http://www.jiad.org/>, 2000.
- Ring, P.S and A.H. Van de Ven, "Developing Processes of Cooperative Inter-organizational Relationships," *Academy of Management Review*, Vol. 19:90-118, 1994.

- Salisbury, W.D., R.A. Pearson, A.W. Pearson, and D. Miller, "Investigating Web Shopping Adoption in Terms of Perceived Risk: Developing a Scale to Measure Perceived Web Security," *Industrial Management and Data Systems*, Vol. 101, No. 4:165-177, 2001.
- Schurr, P.H. and J.L. Ozanne, "Influences on Exchange Processes: Buyers' Preconceptions of a Seller's Trustworthiness and Bargaining Toughness," *Journal of Consumer Research*, Vol. 11, No. 4:939-953, 1985.
- Sharma, S., R.M. Durand, and O. Gurarie, "Identification and Analysis of Moderator Variables," *Journal of Marketing Research*, Vol. 18, No. 3:45-57, 1981.
- Sondergaard, M., "Research Note: Hofstede's Consequences: A Study of Reviews, Citations and Replications," *Organization Studies*, Vol. 15, No. 3:447-456, 1994.
- Sparks, P. and R. Shepherd, "Self-Identity and the Theory of Planned Behavior: Assessing the Role of Identification with 'Green Consumerism'," *Social Psychology Quarterly*, Vol. 55, No. 4:388-399, 1992.
- Stewart, D.W. and P.A. Pavlou, "From Consumer Response to Active Consumer: Measuring the Effectiveness of Interactive Marketing Communications," *Journal of the Academy of Marketing Science*, Vol. 20, No. 3, 2002 (forthcoming).
- Stewart, D.W., P.A. Pavlou, and S. Ward, "Media Influences on Marketing Communications," in J. Bryant and D. Zillmann (eds.), *Media Effects: Advances in Theory and Research*, Revised Edition, Hillsdale, N. J., Erlbaum, pp. 353-396, 2002.
- Taylor, S. and P. A. Todd, "Understanding Information Technology Usage: A Test of Competing Models," *Information Systems Research*, Vol. 6, No. 3:144-176, 1995.
- Teo, S.H.T., V.K.G. Lim, and R.Y.C. Lai, "Intrinsic and Extrinsic Motivation in Internet Usage," *Omega International Journal of Management Studies*, Vol. 27, No. 1:25-37, 1999.
- Triandis, H.C., "Values, Attitudes, and Interpersonal Behavior," in *Nebraska Symposium on Motivation: Beliefs, Attitudes, and Values*, University of Nebraska Press, Lincoln, NE, 1979.
- Triandis, H.C., "Cross-Cultural Studies of Individualism and Collectivism," In J. Berman (ed), *Nebraska Symposium on Motivation*, University of Nebraska Press, Lincoln, NE, pp. 41-133, 1989.
- Venkatesh, V. and F.D. Davis, "A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies," *Management Science*, Vol. 46, No. 2, 186-204, 2000.
- Yu, L. (2001) "Successful Customer-Relationship Management," *MIT Sloan Management Review*, Vol. 42, No. 4, 18-19, Summer 2001.
- Zwass, V., "Structure and Macro-Level Impacts of Electronic Commerce: From Technological Infrastructure to Electronic Marketplaces," in K.E. Kendall (ed.) *Emerging Information Technologies*, Sage Publications, Thousand Oaks CA, 1988.