Cultural Influences on Consumers' On Line Shopping Preferences: A Cross Cultural Study of Taiwan and the United States

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Abstract: Due to the processes of globalization and internationalization, cultural influence on Internet shopping behaviors has become a current research issue. This paper proposes a Cultural System Model, which summarizes the possible links between work-related cultural values and consumers' on-line shopping preferences. Through the use of a survey questionnaire which investigates consumers' work-related cultural values and on-line shopping preferences, this study surveyed 362 college students in Taiwan and 372 college students in the United States. Taiwan and the United States are chosen as research sites because the markets of Internet shopping are fast growing in both cultures. In addition, these two cultures contrast greatly in Hofstede's (1984; 2001) cultural dimensions. The results of this study suggest that Hofstede's cultural dimensions are predictors for consumers' on-line shopping preferences. [China Media Research. 2013; 9(3): 42-51]

Keywords: Hofstede's Cultural Dimensions, E-Commerce, On-Line Shopping Preferences, Cultural System Model, Taiwan, the United States

Introduction

Due to the processes of globalization and internationalization, cultural influence on computer-mediated communication has become a current research issue. For example, *Journal of Computer Mediated Communication* has a special issue which focuses on culture and computer-mediated communication in 2005. Among this line of research, cultural influences on consumers' on-line shopping behaviors in different cultures have attracted much scholarly attention because of the emergence of electronic commerce (e-commerce) in different parts of the world.

Some researchers focused on studying cultural influences on consumers' attitudes toward adopting Internet shopping (e-commerce) in different countries. For example, Chai and Pavlou (2004) investigated how the difference in uncertainty avoidance cultural dimension may affect e-commerce adoption in Greece and the United States. Gafen and Heart (2006) explored how Hofstede's (1984; 1990; 2001) cultural dimensions may affect consumers' on-line shopping trust beliefs and trust behavioral intentions in Israeli and the United States. Adapa (2008) investigated cultural influences on Indian women's adoption of Internet shopping in country of origin (India) and country of residence (Australia).

Some other researchers (e.g., Cyr, Bonanni, Bowes, & Ilsever, 2005; Huang, Jung, & Salvendy, 2006; Lightner, Yenisey, Ozok, & Salvendy 2002) focused on comparing consumers' on-line shopping preferences in different cultures. For example, Lightner, Yenisey, Ozok, and Salvendy (2002) compared college students' on-line shopping preferences in Turkey and the United States. Huang, Jung, and Salvendy (2006) built on Lightner et al.'s (2002) study and explored consumers' on-line shopping preferences in South Korea. These previous studies have suggested that there are cultural differences in consumers' Internet shopping behaviors in e-commerce environment. However, these previous studies did not specifically exam how cultural values influence consumers' online shopping behaviors. In order to close the gap, the present study aims to explore how cultural values may predict consumers' on-line shopping preferences in two cultures, Taiwan and the United States.

Taiwan and the United States were chosen for comparison for the following four reasons. First, previous studies (e.g., Wu, 2006) suggested that these two cultures contrast greatly in Hofstede's cultural dimensions. According to Wu (2006), Taiwan and the U.S. differed in power distance, masculinity vs. femininity, individualism vs. collectivism, and long-term orientation cultural dimensions. Second, there are intensive trading relationships between these two cultures. Taiwan ranks among the top 12 expert marketers for the United States (U.S. Commercial Service, 2009). Third, both cultures are very technologically advanced. According to Internet World Stats (2011a), approximately 77.3% of the U.S. population uses the Internet as of June 2010. Similarly, the Internet usage rate is very high in Taiwan. Approximately 70.1% of the Taiwanese population uses the Internet as of June 2010 (Internet World Stats, 2011b). Finally, the markets of Internet shopping are fast growing during the last few years in both cultures. According to U.S. Census Bureau news (2011), total estimated retail e-commerce sales in the United States for 2010 were estimated at US$165.4 billion, a 14.8 percent increase from 2009. Total estimated Business to Consumer (B2C) and Consumer to Consumer (C2C) e-commerce sales in Taiwan for 2010 is approximately NT$358.3 billion (about US$11.9 billion), a yearly

increase of 21.5 percent from 2009 (Taiwan Country Commerce, 2010). Considering the topic of this study, the choice of these two cultures is appropriate.

The researcher reviews the literature which addresses the relationships among culture, e-commerce adoption, and consumers' on-line shopping preferences in the international context. The major theories and findings of previous studies are summarized in the next section of this paper.

Cultural Dimensions and E Commerce Adoption

A theory which is widely used by previous e-commerce studies is Hofstede's (1984; 1990; 2001) cultural theory. Hofstede (1984) proposed four work-related cultural dimensions, including power distance, uncertainty avoidance, masculinity/femininity, and individualism/collectivism, to analyze work-related cultural values in different countries.

The first cultural dimension, power distance, refers to the power inequality between managers and subordinates in organizations. In high power distance cultures, organizational hierarchy is obvious. Thus, subordinates are reluctant to express disagreement with their managers in such cultures. The second cultural dimension, uncertainty avoidance, refers to individual's tolerance level of ambiguity. In high uncertainty avoidance cultures, there are more written rules and regulations in order to reduce uncertainty. The third cultural dimension, individualism/collectivism, refers to how individuals value themselves and their groups/organizations. In individualistic cultures, people tend to care more about their own self-actualization and career progress than organizational goals. In collectivistic cultures, individuals tend to value organizational benefits more than their own interests. The fourth dimension, masculinity/femininity, defines the gender roles in organizations. In high masculinity cultures, very few women can get higher-level and better-paying jobs. In high femininity cultures, men and women are treated more equally in the workplace. Later research by Hofstede and Bond (1988) and Hofstede (1990) articulated a Confucian Dynamism dimension. This cultural dimension measures thrift, perseverance, and the desire for orderly relationships with others. It may provide additional insight into the practice of public relations in Taiwan. This non-Western cultural dimension includes four traditional Chinese concepts: (1) ordering relationship, (2) thrift, (3) persistence, and (4) having a sense of shame. Later, Hofstede (2001) renamed this cultural dimension as Long-Term Orientation (LTO).

Hofstede's (1984; 1990; 2001) cultural dimensions were used in a few previous e-commerce studies. For example, Gafen and Heart (2006) conducted a quantitative study to explore how Hofstede's cultural dimension may affect consumers' e-commerce trust beliefs and purchase intentions in the U.S. and Israel. According to Gafen and Heart, the U.S. and Israel were chosen as comparison cultures because "the two cultures differ in all four cultural dimensions and represent extremes" (p. 6). Specifically, the U.S. and Israel contract greatly in the individualism and power distance cultural dimensions. In this study, 162 Israeli and 217 U.S. college students participated in on-line book purchasing experiments and filled out a questionnaire which measured their trust beliefs and trust behavioral intentions associated with Amazon.com. The concept of trust serves as the focus of Gafen and Heart's study because trust is the key of successful e-commerce adoption. The results of path analysis suggested that participants' trust belief is closely related to culture. The statistical results of path analysis showed significant differences in the paths from integrity, a type of trust belief, to purchase intentions between the two cultures. Gafen and Heart explained the result based on the difference in individualism cultural dimension between the U.S. and Israel. The United States is a highly individualistic culture. Individuals in such cultures tend to adhere to standards and norms as one type of integrity. Thus, integrity might have a stronger effect on purchasing intentions for the U.S. sample.

Gafen and Heart (2006) have discussed how Hofstede's (1984; 2001) cultural dimensions may affect trust beliefs and trust behavioral intentions in e-commerce environment. However, they did not actually measure Hofstede's cultural dimensions. Their explanations about cultural influences on trust beliefs in e-commerce environment are based on assumed cultural differences. Nevertheless, Gafen and Heart's study has raised the need to include national culture as well as Hofstede' cultural dimensions in e-commerce/on-line shopping studies. In order to close this gap, this study empirically measures Hofstede's cultural dimensions and consumers' on-line shopping preferences in two cultures, Taiwan and the United States.

The next section of this paper reviews literature which specifically addresses the relationship between culture and Consumers' on-line shopping preferences.

Culture and On Line Shopping Preferences in Different Cultures

The relationship between culture and consumers' on-line shopping preferences has attracted much scholarly attention. For example, Lightner et al. (2002) compared consumers' on-line shopping preferences in the United States and Turkey based on Helander and Khalid's (2000) system model, which categorizes consumers' on-line shopping preferences in three categories, including shopping behavior preferences, site design preferences, and technological issues. By surveying 303 Turkish and 64 U.S college students, Lightner et al. found significant differences in

participants' on-line shopping preferences between these two cultural groups. First, the Turkish subjects were a little bit more concerned about Internet security than the U.S. subjects were. Second, two types of shopping behavior preferences, price comparison and perceived accuracy of information, were perceived to be more important by Turkish participants. Finally, the Turkish subjects were more concerned about the speed of retrieving information.

Huang et al. (2006) replicated Lightner et al.'s (2002) cross-cultural on-line shopping preference study by surveying 205 college students in South Korea. Huang et al. used Lightner's survey instrument with minor modifications. They factor analyzed the on-line shopping preferences items and identified five underlying factors, instead of three factors which may categorize consumers' on-line shopping preferences. These five factors are: (1) information seeking security, (2) time efficiency, (3) product price comparison, (4) perceived credit card risk, and (5) instant attraction. Huang et al. suggested that precise and specific product information was very important for Korean on-line shoppers. In addition, personal information privacy and transaction security are major concerns for Korean on-line shoppers.

Lightner et al. (2002) and Huang et al.'s (2006) studies have suggested cultural influences on consumers' on-line shopping preferences because their participants' on-line shopping preferences are different in South Korea, Turkey, and the United States. However, Taiwan has not been studied although Taiwan is very technologically advanced. In addition, the U.S. sample size (n=64) of Lightner et al.'s study was very small. Thus, the present study attempts to expand the U.S. sample size, and then compares Taiwanese and U.S. college students' on-line shopping preferences.

By synthesizing the theories and results of previous studies (e.g., Gefen and Heart, 2006; Huang et al., 2006; Lightner et al., 2002), a theoretical model which guides the present study is proposed in Figure 1.

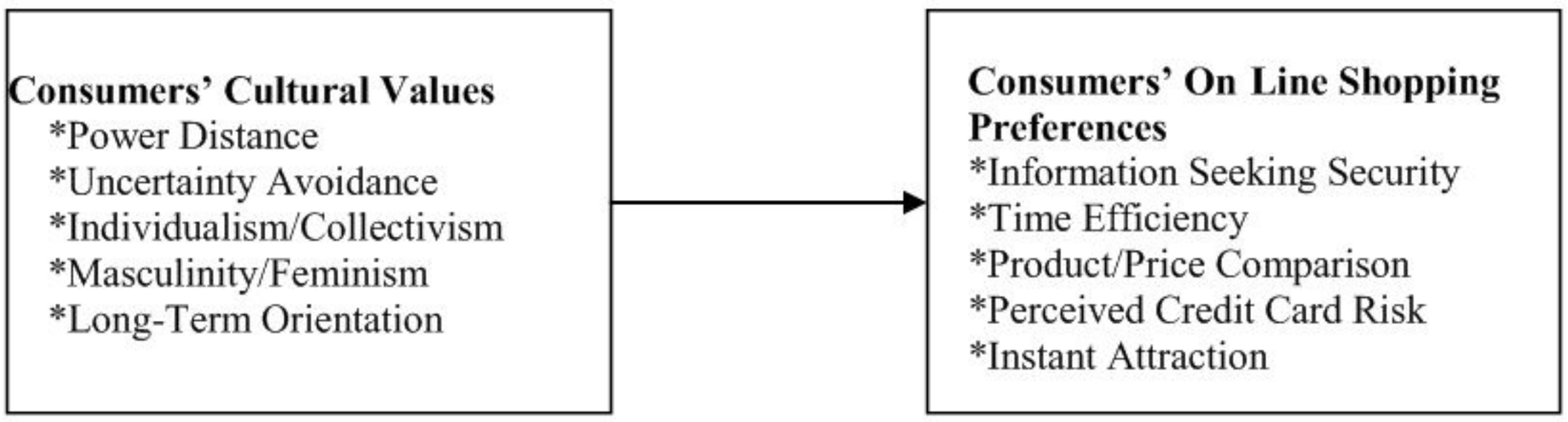

Figure 1. Cultural System Model: Cultural Factors Affecting Consumers' On-Line Shopping Preferences

In order to explore the relationship between consumers' work-related cultural values and on-line shopping preferences as summarized in Figure 1, a research question is proposed:

RQ: What work-related cultural values (Hofstede, 1984; 1990; 2001) predict Taiwanese and U.S. consumers' on-line shopping preferences?

To test the multivariate relationships between work-related cultural values and on-line shopping preferences as predicted in the theoretical model, specific research hypotheses are proposed.

H1a: Power distance, uncertainty avoidance, masculinity/femininity, individualism/collectivism, and long-term orientation predict consumers' information seeking security preference in Taiwan.
H1b: Power distance, uncertainty avoidance, masculinity/femininity, individualism/collectivism, and long-term orientation predict consumers' information seeking security preference in the U.S.
H2a: Power distance, uncertainty avoidance, masculinity/femininity, individualism/collectivism, and long-term orientation predict consumers' time efficiency preference in Taiwan.
H2b: Power distance, uncertainty avoidance, masculinity/femininity, individualism/collectivism, and long-term orientation predict consumers' time efficiency preference in the U.S.
H3a: Power distance, uncertainty avoidance, masculinity/femininity, individualism/collectivism, and long-term orientation predict consumers' product/price comparison preference in Taiwan.
H3b: Power distance, uncertainty avoidance, masculinity/femininity, individualism/collectivism, and long-term orientation predict consumers' product/price comparison preference in the U.S.
H4a: Power distance, uncertainty avoidance, masculinity/femininity, individualism/collectivism, and long-term orientation predict consumers' perceived credit card risk in Taiwan.
H4b: Power distance, uncertainty avoidance, masculinity/femininity, individualism/collectivism, and long-term orientation predict consumers' perceived credit card risk in the U.S.

H5a: Power distance, uncertainty avoidance, masculinity/femininity, individualism/collectivism, and long-term orientation predict consumers' instant attraction preference in Taiwan.
H5b: Power distance, uncertainty avoidance, masculinity/femininity, individualism/collectivism, and long-term orientation predict consumers' instant attraction preference in the U.S.

Method

Participants

University students in Taiwan and United States are chosen as the participants of this study because they represent a young and educated population with good computer skills, and possibly have more on-line shopping experiences. In order to make the samples in both cultures as comparable as possible, the researcher surveyed two public universities (a Taiwanese university and an U.S. university) with similar sizes and locations. Both universities have about 10,000 students, and are located in college towns. Convenience sampling technique was used in this study. In both universities, 400 questionnaires were distributed to university students. The researcher's formal colleagues in the Taiwanese university helped her with data collection by distributing questionnaires and collecting the completed surveys from their students in Summer, 2008. Three hundred and sixty two (90.5% response rate) Taiwanese students completed and returned the survey. Similar to the data collection process in Taiwan, the researchers' formal colleagues in the U.S. university helped her with data collection in summer and fall, 2008. Extra credits were given to students who filled out the questionnaires. Three hundred and seventy two (93% response rate) U.S. respondents completed and returned the survey. Table 1 summarizes the demographic information of the participants.

Table 1. Demographic Information of Participants in Taiwan and the United States

Categorical Variables		Taiwanese sample		The U.S. Sample	
		n	Percent	n	Percent
Gender					
	Male	129	36.3	167	46.4
	Female	226	63.7	193	53.6
Education					
	Undergraduate	305	86.2	340	94.7
	Graduate	49	13.8	19	5.3
Full-Time Job					
	Yes	33	9.3	38	10.6
	No	321	90.7	319	89.4
Race	White/Taiwanese	281	80.1	298	82.8
	Asian/Mainlander	20	5.7	10	2.8
	Latino/Hakanese	39	11.1	11	3.1
	African American/Aboriginal	3	.9	35	9.7
	Other	8	2.3	6	1.7
Continuous Variables		Taiwanese Sample		U.S. Sample	
		Mean	S.D.	Mean	S.D.
Age		21.16	3.94	21.02	3.04

Note. The race variable was customized for the U.S. population and the Taiwanese population.

Research Instrument

A self-administered survey questionnaire (with IRB approval) was used in this study. The questionnaire was designed in English. According to Brislin (1970), backward translation is needed for effective cross-cultural studies. The English survey instrument was translated to Chinese by the researcher who is fluent in both languages. Then, the Chinese version was translated back into English by a bilingual business professional. The researcher compared the original English questionnaire and the back-translated questionnaire. After minor adjustments, the meanings of the two questionnaires matched and met Brislin's (1970) rules for back-translation. The English version was distributed to the U.S. participants. The Chinese version was distributed to the Taiwanese participants because Chinese is the official language in Taiwan.

The questionnaire included questions which measure participants' work-related cultural values, on-line shopping preference, and demographic information.

The first part of the questionnaire represented Hofstede's (1984; 2001) five cultural dimensions (power distance, uncertainty avoidance, masculinity, collectivism and long-term orientation). Questions which measure Hofstede's (1984; 2001) cultural dimensions are based on Dorfman and Howell's (1988) measurement of Hofstede's (1984; 2001) cultural dimensions because previous researchers (e.g., Wu & Stewart, 2005; Wu, 2006) suggested that Dorfman and Howell's (1988) measurement is statistically more reliable. These questions are measured by 7-point Likert-type scales (1 = very strongly disagree and 7 = very strongly agree).

The second part of the questionnaire included 19 questions which measure consumers' on-line shopping preferences. The researcher adopted these questions from Lightner et al.'s (2002) study with minor modifications. Since shopping speed questions were asked several times in Lightner et al.'s questionnaire, the researcher removed one question which overlaps with another question in this current study. These questions were all measured by 7-point Likert-type scales (1 = very strongly disagree and 7 = very strongly agree). The last part of the questionnaire measured participants' demographic information, such as gender, age, race, educational status, and work status.

Scale Development

Factor Analysis for Cultural Value Variable

Factor analysis was conducted to ensure that all cultural value scales used in this study were uni-dimensional. Specifically, the Principal Component extraction and the Varimax Rotation were used for analysis. The results of the Principal Component analysis suggested that most of the cultural value scales were uni-dimensional because only one factor was extracted. However, the factor loading of one item, managers using authority item, in the Power Distance scale was low (.37). Comrey and Lee (1992) suggested that factor loadings in excess of .71 are considered excellent, .63 very good, .55 good, .45 fair, .32 poor. Based on Comery and Lee's standard, the manager using authority item was deleted from the power distance scale.

The only sub-scale which includes two factors was the collectivism scale. Based on the results of factor analysis, two items, suffering individual goals and giving up individual goals, were deleted from the collectivism scale.

Factor Analysis for On Line Shopping Preference Scales

Huang et al. (2006) suggested that there are five underlining dimensions for these on-line shopping preferences items. Following Huang et al.'s approach, the research factor analyzed all of the on-line shopping preferences items. Consistent with Huang et al.'s result, five factors were extracted. These five factors were named (1) Information Seeking Security, (2) Product Price Comparison, (3) Time Efficiency, (4) Perceived Credit Card Risk, and (5) Instant Attraction. Table 2 summarizes the factor analysis results.

Table 2. Factor loadings of on-line shopping preferences questions.

Scales and Items	Information Seeking Security	Time Efficiency	Product/Price Comparison	Perceived Credit Card Risk	Instant Attraction
Accurate information	**.76**	.07	.27	.06	.07
Detailed information	**.76**	.04	.34	.06	.09
Transaction security	**.77**	.29	.00	.16	-.06
Personal information privacy	**.76**	.18	-.05	.24	-0.9
Finding information quickly/ Site Navigation Speed	.44	**.53**	.26	.01	.08
Effective search mechanism	.44	**.55**	.34	.04	-.05
Transaction speed	.05	**.72**	.31	.01	.05
Effective shopping cart	.13	**.74**	.19	-.04	.07
Pictures or text for information	.13	**.55**	-.06	.25	.23

Price negotiation	.32	-.05	**.62**	.02	.23
Product and price comparison	.21	.28	**.68**	.15	.02
Physical contact with the product	-.08	.26	**.69**	.24	-.09
Knowing the opinions of others	.22	.33	**.56**	.04	-.07
Risk of giving credit card number online	.25	.03	.10	**.86**	.04
Reluctance to give credit card number online	.12	.06	.21	**.86**	-.06
Megastore versus boutique store format	.04	-.06	.25	.07	**.65**
Credit card payment	.04	-.12	-.16	-.27	**.65**
Purchase a new product out of curiosity	-.15	.22	.06	.02	**.57**
Classification by brand name or product family	.10	.30	-.11	.10	**.63**
Eigenvalues	3.1	2.5	2.3	1.8	1.7
Percent of Variance Explained by Each Factor	16.2	13.1	12.0	9.5	9.0
Cumulative Variance Explained	16.2	29.3	41.4	50.9	59.9
Cronbach Alpha Reliability	.84	.70	.76	.81	.51

Note. Principal Component Analysis with Varimax Rotation was conducted. Factor loadings > .50 are in boldface.

Reliability Analysis

After running the factor analysis, a reliability test was conducted for checking the internal consistency of each scale. The reliability scores based on Cronbach Alpha are as follows: power distance .70, uncertainty avoidance .75, masculinity .83, collectivism .69, long-term orientation .66, information seeking security .84, product price comparison .70, time efficiency .76, perceived credit card risk .81, and instant attraction .51.

Inter correlation Among Independent Variables and Dependent Variables

In order to make sure that there is no collinearity among predictor variables and outcome variables, correlation analysis was conducted. According to Meyers, Gamst, and Guarino (2006), there is collinearity or multicollinearity problem for multiple regression analysis if the correlation among independent variables or among dependent variables is above .7 or .8. The results of correlation analysis suggest there is no collinearity problem in this study. Table 3 summarizes the inter-correlation among predictor variables. Table 4 summarizes the inter-correlation among outcome variables.

Table 3. Inter-correlation among independent variables

	PDI	UAI	MAS	COLL	LTO
PDI	--	-.08*	.46**	.01	.10**
UAI	-.08*	--	-.11**	.30**	.14**
MAS	.46**	-.11**	--	.15**	.23**
COLL	.01	.30**	.15**	--	.39**
LTO	.10**	.14**	.23**	.39**	--

Note. *p < .05. ** p < .01.

PDI= Power Distance Index
UAI= Uncertainty Avoidance Index
MAS= Masculinity Index
COLL= Collectivism Index
LTO= Long Term Orientation

Table 4. Inter-correlation among outcome variables

	INFO	TIME	COMP	CREDIT	INSTANT
INFO	--	.50**	.46**	.37**	.03
TIME	.50**	--	.55**	.26**	.17**
COMP	.46**	.55**	--	.34**	.06
CREDIT	.37**	.26**	.34**	--	-.04
INSTANT	.03	.17**	.06	-.04	--

Note. *p < .05. ** p < .01.

INFO= Information Seeking Security
TIME= Time Efficiency
COMP= Product Price Comparison
CREDIT= Perceived Credit Card Risk
INSTANT= Instant Attraction

Results

Research question guiding this study asks how Hofstede's (1984; 2001) cultural dimensions may predict consumers' on-line shopping preferences in Taiwan and the United States. Pearson correlation and multiple regression analyses were conducted to examine the relationships between participants' cultural values and on-line shopping preferences.

First, Pearson correlation analyses were conducted. Table 5 summarizes the correlation matrix for the Taiwanese and U.S. samples.

Table 5. Correlation matrix for the Taiwanese and the U.S. samples

		INFO	TIME	COMP	CREDIT	INSTANT
PDI	Taiwan	-.25**	-.16**	-.14**	--	.24**
	U.S.	-.29**	--	.12*	--	.28**
UAI	Taiwan	.52**	.49**	.50**	.42**	.18**
	U.S.	.43**	.17**	.21**	.17**	.12*
MAS	Taiwan	--	--	--	--	.21**
	U.S.	-.17**	.13**	.12*	--	.28**
COLL	Taiwan	.45**	.34**	.45**	.33**	--
	U.S.	.16**	.15**	.24**	--	.20**
LTO	Taiwan	.52**	.48**	.46**	.41**	--
	U.S.	--	--	.18**	.17**	.16**

Note. *p < .05. ** p < .01. n = 362 (Taiwan). n = 372 (U.S.).

PDI= Power Distance Index
UAI= Uncertainty Avoidance Index
MAS= Masculinity Index
COLL= Collectivism Index
LTO= Long Term Orientation
INFO= Information Seeking Security
TIME= Time Efficiency
COMP= Product Price Comparison
CREDIT= Perceived Credit Card Risk
INSTANT= Instant Attraction

A number of significant relationships were found between the cultural variables and the on-line shopping preference variables in both cultures. Then, multiple regression analyses were conducted to further understand which cultural values are significant predictors of consumers' on-line shopping preferences. Five analyses were conducted for each cultural sample by using SPSS. The five work-related cultural values served as the independent variables, whereas the five on-line shopping preferences (information seeking security, time efficiency, product/price comparison, perceived credit card risk, and instant attraction) served as the dependent variables for the multiple regression analyses. Since no previous research has suggested which cultural dimension should be entered first, the enter model was used for the multiple regression analysis. All cultural variables were entered into the models simultaneously.

The overall models for the five on-line shopping preferences are all significant for both the Taiwanese sample and the U.S. sample. First, the overall model for information seeking security is significant for the Taiwanese sample, $R^2 = .43$, Adjusted $R^2 = .42$, $F(5, 306) = 45.23$, $p < .001$. **H1a** is partially supported. Four independent variables (power distance, uncertainty avoidance, collectivism, and long-term orientation)

contribute significantly to the prediction of information seeking security for the Taiwanese sample. The overall model for information seeking security is also significant for the U.S. sample, $R^2 = .28$, Adjusted $R^2 = .27$, $F (5, 329) = 25.21$, $p < .001$. **H1b** is partially supported. Three independent variables (power distance, uncertainty avoidance, and collectivism) contribute significantly for the prediction of information seeking security for the U.S. sample. Second, the overall model for time efficiency is significant for the Taiwanese sample, $R^2 = .35$, Adjusted $R^2 = .34$, $F (5, 303) = 32.32$, $p < .001$.

H2a is partially supported. Three independent variables (uncertainty avoidance, collectivism, and long-term orientation) contribute significantly to the prediction of time efficiency for the Taiwanese sample. The overall model for time efficiency is also significant for the U.S. sample, $R^2 = .11$, Adjusted $R^2 = .10$, $F (5. 329) = 8.12$, $p < .001$. **H2b** is partially supported. Two independent variables (uncertainty avoidance and collectivism) contribute significantly to the prediction of time efficiency for the U.S. sample. Third, the overall model for product price comparison for the Taiwanese sample is significant, $R^2 = .32$, Adjusted $R^2 = .31$, $F (5, 307) = 28.69$, $p< .001$.

H3a is partially supported. Two independent variables (uncertainty avoidance and long-term orientation) contribute significantly to the prediction of product price comparison for the Taiwanese sample. The overall model for product price comparison is significant for the U.S. sample, $R^2 = .07$, Adjusted $R^2 = .06$, $F (5, 330) = 4.92$, $p < .001$. **H3b** is partially supported. Uncertainty avoidance is the significant predictor for product price comparison for the U.S. sample. Fourth, the overall model for perceived credit card risk is significant for the Taiwanese sample, $R^2 = .23$, Adjusted $R^2 = .22$, $F (5, 310) = 18.33$, $p < .001$. The overall model for perceived credit card risk is also significant for the U.S. sample, $R^2 = .05$, Adjusted $R^2 = .04$, $F (5, 329) = 3.69$, $p < .01$.

H4a and **H4b** are partially supported. Two independent variables (uncertainty avoidance and long-term orientation) are significant predictors for perceived credit card risk for both the Taiwanese and U.S. sample. Finally, the overall model for instant attraction is significant for the Taiwanese sample, $R^2 = .09$, Adjusted $R^2 = .08$, $F (5, 306) = 6.02$, $p< .001$.

H5a is partially supported. Two independent variables (power distance and uncertainty avoidance) are the significant predictors for instant attraction for the Taiwanese sample. The overall model for instant attraction is also significant for the U.S. sample, $R^2 = .15$, Adjusted $R^2 = .14$, $F (5, 328) = 11.72$, $p < .001$. **H5b** is partially supported. Three independent variables (power distance, uncertainty avoidance, and masculinity) are significant predictors for instant attraction for the U.S. sample. The results of multiple regression analyses are summarized in Table 6.

Table 6: Summaries of Multiple Regression Analysis for Cultural Variables Predicting Consumers' On-Line Shopping Preferences in Taiwan and the United States (Enter Model)

	INFO		TIME		COMP		CREDIT		INSTANT	
	Taiwan	U.S.	Taiwan	U.S.	Taiwan	U.S.	Taiwan	U.S.	Taiwan	U.S.
PDI	-.20***	-.23***	-.08	.11	-.09	.09	-.02	.08	.17**	.20**
UAI	.30***	.40***	.30***	.19**	.32***	.18**	.25***	.14*	.18**	.16**
MAS	.02	-.04	.02	.04	-.03	.11	-.03	-.06	.12	.19**
COLL	.13	.12*	.19**	.16**	.03	.09	.08	-.00	-.20	.10
LTO	.29***	.00	.21***	.09	.28***	.00	.24***	.15*	.32***	.01
Adjusted R^2	.42	.27	.34	.10	.31	.06	.22	.04	.08	.14

Note: Standardized Beta (B) is reported. *p < .05. ** p < .01. *** p < .001. n=362 (Taiwan). n=372 (U.S.).

PDI= Power Distance Index
UAI= Uncertainty Avoidance Index
MAS= Masculinity Index
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INFO= Information Seeking Security
TIME= Time Efficiency
COMP= Product Price Comparison
CREDIT= Perceived Credit Card Risk
INSTANT= Instant Attraction

Discussion and Conclusion

By collecting data from two different cultures, this study attempted to advance the knowledge about consumers' online shopping behaviors in a cross-cultural context. This study has several theoretical contributions. First, the theoretical model presented in this study is statistically supported. The links between Hofstede's (1984; 2001) work-related cultural

dimensions and on-line shopping preferences are empirically tested and supported because the overall models for multiple regression analyses are all significant. Interestingly, all hypotheses are partially supported. The results may suggest that first, depending on culture, and second, consumers' on-line shopping preferences, different cultural values have different significant influences. As mentioned earlier, previous e-commerce studies (e.g. Gafen & Heart, 2006; Huang et al., 2002; Lightner et al., 2002) only compared consumers' trust belief or on-line shopping preferences in different cultures based on assumed cultural differences. The present study has closed a research gap and brought additional insights about cultural influences on e-commerce by empirically testing how Hofstede's cultural dimensions predict consumers' on-line shopping preferences in two different cultures.

Second, the results of this study suggest that Hofstede's (1984; 2001) cultural dimensions influence/ predict consumers' on-line shopping preferences in both cultural general and cultural specific ways. Comparing the multiple regression results for the Taiwanese sample and the U.S. sample, both similarities and differences are found. Three cultural dimensions (power distance, uncertainty avoidance, and collectivism) seem to predict the Taiwanese and U.S. consumers' on-line shopping preferences in general ways. Power distance serves as a negative predictor for information seeking security and a positive predictor for instant attraction for both cultural samples. Uncertainty avoidance serves as a positive predictor for all five on-line shopping preferences in both cultures. Thus, uncertainty avoidance seems to be the most influential cultural value which affects consumers' on-line shopping preferences across different cultures. This result could be explained by the nature of on-line shopping. On-line shoppers encounter more uncertainties than on-site shoppers because on-line shoppers can not physically see or touch the products in the shopping process. There are also a waiting period between placing the order and receiving the product. Therefore, on-line shoppers would like to reduce uncertainties about the product, the payment method, and the information system. As a result, uncertainty avoidance becomes the most influential cultural values which affects consumers' on-line shopping preference in both cultures. Collectivism serves as a positive predictor for information seeking security and time efficiency for both the Taiwanese and U.S. samples.

Different from three other cultural dimensions, masculinity and long-term orientation seem to predict the Taiwanese and U.S. consumers' on-line shopping preferences in culturally specific ways. Masculinity is a positive predictor for instant attraction for the U.S. sample; however, it is not a significant predictor for any of the on-line shopping preferences for the Taiwanese sample. Long-term orientation serves as a significant predictor for all five on-line shopping preferences (information seeking security, time efficiency, product/ price comparison, perceived credit card risk, and instant attraction) for the Taiwanese sample; however, it only serves as a significant predictor for one on-line shopping preference (perceived credit card risk) for the U.S. sample. Long-term orientation seems to be a much more powerful predictor for consumers' on-line shopping preferences in Taiwan probably because Taiwanese culture is a long-term orientation culture under the influence of Confucianism (Wu, 2006). Different from Taiwan, the U.S. culture is not a long-term orientation culture. Therefore, long-term orientation may have much more impact for Taiwanese consumers than the U.S. consumers. Take the relationship between long-term orientation and product/ price comparison for example. Thrift is one of the important concepts which define the long-term orientation cultural value. Therefore, Taiwanese consumers who have long-term orientation culture value would prefer to have more product and price comparison opportunities in the on-line shopping process. Thus, long-term orientation serves as a positive predictor for product/price comparison for the Taiwanese sample. However, long-term orientation is not a significant predictor for product/price comparison for the U.S. sample.

With the theoretical contributions, the present study has served as a first step toward understanding how cultural dimensions may influence/predict consumers' on-line shopping preferences in two different cultures. However, this study has its limitations. First, the reliability scores for some scales were not very high. For instance, the reliability score for long-term orientation is .66. The reliability score for instant attraction is .51. In addition, the perceived credit card risk scale has only two items. Future research may add more items to these scales to improve the reliability of measures. Second, this study only uses a quantitative approach to identify the links between Hofstede's (1984; 2001) cultural dimensions and on-line shopping preferences. Although several significant relationships were found, the quantitative data cannot fully tell us why certain cultural values can predict a specific on-line shopping preference in Taiwan or in the United States. Thus, future studies may use qualitative approaches, such as in-depth interviews and focus group interviews, to explore why consumers with certain cultural values may have high preferences for certain types of on-line shopping preferences in different cultures. Second, this study only surveyed consumers in two cultures. Future studies may continue this line of research and include more national samples. Then, how cultural values influence consumers' on-line shopping preferences in different cultures can be further investigated.

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