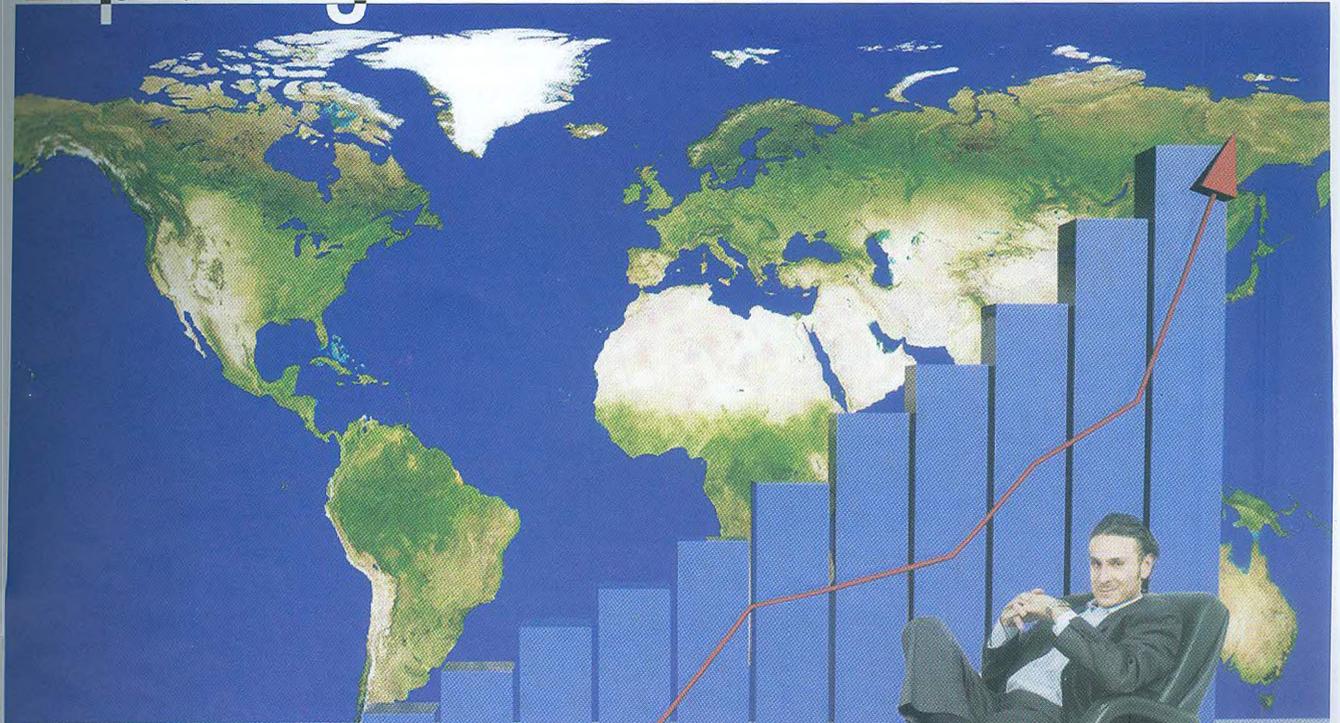


# Exploring Individual Culture



## and Internet Commerce Success Factors

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### ABSTRACT

*This study investigates the relationship between individual cultural values and Internet success factors using Yoo, Donthu, and Lenartowicz's (2002a) five dimensional measure of culture operationalized at the individual level and Torzadeh and Dhillon's (2002) scales that measure Internet commerce success factors. A total of 628 individuals were surveyed, resulting in 540 usable surveys. The psychometric properties of both scales were found to be acceptable. Results of MANOVA show support for various hypotheses tied to the individual cultural dimensions of power distance, masculinity, and uncertainty avoidance. Findings are discussed in terms of Internet marketing strategy and recommendations for future research are presented.*

**Keywords:** Internet Commerce, E-commerce, Culture, Individual Culture, Hofstede's Cultural Dimensions



## INTRODUCTION

There has been substantial growth in the use of the Internet by both individuals and businesses, and a significant increase in internet commerce as well. While the U.S. has the greatest number of Internet users, internet usage is growing in other countries (Liu, Marchewka, and Ku, 2004), and roughly 75% of the Internet population is estimated to be non-English speaking in 2005 (Cook & Finlayson, 2005). As more consumers engage in online buying and online marketing efforts become an increased part of marketing strategy, there are managerial implications that must be considered. The Internet gives a company a global presence, thus necessitating an understanding of various cultures. Yet this is not the only aspect of cultural diversity that must be considered, as cultural diversity may exist within the domestic market as well. Therefore, companies have a greater need to understand the medium, the use of the medium, and the characteristics of individuals who are using the medium. "From a management perspective, the importance of understanding the impact of cultural rifts on Web site usability is grossly underemphasized (Cook and Finlayson, 2005, p.15)." "The sooner cultural attentiveness is incorporated, the quicker the benefits of increased persuasiveness and consumer trust will be reaped (Cook and Finlayson, 2005, p.23)," as culture influences what people expect from web based services (Tsikriktsis, 2002).

success factors is most relevant and therefore most likely to lead to a successful experience online. Practically, if it can be demonstrated that culture can be measured at the individual level and that one's individual culture does impact the factors that are critical for a successful online experience, sites can be designed to accommodate a full range of individuals. Consider, for example, beginning the online/e-commerce experience by asking a series of screening questions that will determine the customer's cultural characteristics. The responses would be used to guide the customer's flow through the website, with the website designed to accommodate the concerns and interests of those with varied cultural characteristics. Customers could be high or low in power distance, uncertainty avoidance, and masculinity. It wouldn't matter; the website would be designed to accommodate their needs and the response to screening questions would determine flow and the overall online shopping experience.



## CULTURE

There are numerous definitions of culture. It has been defined by Hofstede as a "collective programming of the mind that distinguishes a group or category of people from another"

(Liu, Marchewka, and Ku, 2004, p.1; Sornes, Stephens, Saetre, and Browning, 2004). Culture has also been referred to as the man-made part of the human environment (Chai and Pavlou (2004); Simon (2001)). Others suggest that culture is defined as the combination of language and habits of people in certain places (Bin, Chen, and Sun, 2003). However it is defined, culture influences much of what we do and how we

act; and it structures our behavior, thoughts, perceptual values, goals, morals, and cognitive processes (Cohen, 1998).

Culture has been widely studied, receiving attention in such areas as ethics (Yoo and Donthu, 2002b; Lee, 1981), leadership (Dorfman and Howell, 1988), distance learning (Chang & Li, 2002; Mercado, Parboteeah, and Zhao, 2004; Tu, 2001; Tupakula & Hornik, 2004), e-commerce adoption (Chai and Pavlou, 2004), information and communication technology (Sornes, Stephens, Saetre, and Browning, 2004), service quality expectations (Donthu and Yoo, 1998; Liu, Furrer, and Sudharshan, 2001) and service recovery (Kanousi, 2005), e-commerce (Bin, Chen, and Sun, 2003), website navigation (Luna, Peracchio, and de Juan, 2002), website quality expectations (Tsikriktsis, 2002), and website design (Cook and Finlayson, 2005; Singh, N., Xhao, H., and Hu, X., 2005; Simon, S.J., 2001).

Hofstede (1980) proposed a model of national culture that has become the most widely accepted and most frequently cited model for cross-cultural research (Bhagat & McQuaid, 1998; Chai and Pavlou, 2004; Lonner & Berry, 1998; Sivakumar and Nakata, 2001; Sondergaard, 1994). There is substantial empirical evidence to support that Hofstede's dimensions are a valid differentiator of cultural differences (Simon, 2001). In fact, Liu, Furrer, and Sudharshan (2001) studied the influence of culture on behavioral intentions toward services, finding patterns of variations across cultures that led to the recommendation of four types of service quality strategies. Applying Hofstede's cultural dimensions to distance learning, Mercado, Parboteeah, and Zhao (2004) suggest a number of on-line course design and delivery recommendations. Chai and Pavlou (2004) apply Hofstede's dimensions to the area of e-commerce adoption, evaluating two dissimilar countries. Tsikriktsis (2002) studied the influence of culture on website quality expectations, presenting the implications for international market segmentation and for the globalization of e-services. The current research evaluates three of Hofstede's cultural dimensions, each of which is described in detail below.



## CULTURE AND THE INTERNET

There has been a proliferation of websites and other web based activities, as more and more businesses recognize the benefits of an online presence. Internet based e-commerce allows for a global presence, "compressing time and space and permitting the duplication and

sharing of scarce corporate resources" (Liu, Marchewka, and Ku, 2004, p.2). In going global, or when marketing in a country whose population is becoming increasingly multicultural, it is vital for a company to understand how the cultural characteristics of the target will influence their use of technology and further, how technology should be used by a company to best meet the needs of those with particular cultural characteristics. Current research on attitudes towards e-commerce (Sagi, Carayannis, Dasgupta, and Thomas, 2004), e-commerce use (Dinev, Bellotto, Hart, Russ, Serra, and Colautti, 2006), e-commerce diffusion (Yap, Dabur, Burbridge, and Cort, 2006), e-commerce adoption (Elbeltaq

2007; Lim, Leung, Sia, and Lee, 2004; Tan, Tyler, and Manica, 2007), and trust belief in e-commerce (Gefen and Heart, 2006) addresses the impact of culture. Clearly web technology should be designed and used with care. In fact, technology developed and implemented in one culture may fail when taken into a different setting (Sagi, et. al., 2004). What improves the chances of success when companies venture into e-commerce and to the global marketplace? Certainly, attention to the target audience (Kale, 2006) and to the characteristics and content of the site itself will help. E-commerce must fall under the same multicultural scrutiny and research as previous information and communications technology (Sagi et al., 2004).

Luna, Peracchio, and de Juan (2002) suggest that the congruity of the website with a visitor's culture will influence the likelihood that visitors will experience an optimal navigation experience or flow. In order to be culturally congruent, a website must feature values, heroes, rituals, and symbols that are consistent with those of the visitor's culture (Luna, Peracchio, and de Juan, 2002). Without attention to culture, online visitors may encounter problems including language, values, and infrastructure (Bin, Chen, and Sun, 2003). Bin et al. (2003) propose that the first element that should be taken into account is language; however, Liu et al. (2004) and Haegele (2000) conclude that customized language alone is not enough. Website builders must also take into account political, cultural, social and legal differences (Liu et al. 2004; Sagi, Carayannis, Dasgupta, and Thomas, 2004). This supports the findings of Tu (2001) who concludes that one must consider a number of factors including local culture and language skills, when integrating computer mediated communications into an online learning environment.

In addition to the research mentioned previously, there have been other studies undertaken to understand internet and technology issues using Hofstede's cultural dimensions. They include web content and a framework for measuring cultural adaptation on the web (Singh, Xhao, and Hu, 2003), internet portals (Zahir, Dobing, Hunter, 2002), websites (Cook and Finlayson, 2005; Robbins and Stylianou, 2001/2002; Simon, 2001), privacy and trust issues (Liu, Marchewka, and Ku, 2004), e-commerce (Chai and Pavlou, 2004), on-line course design and delivery (Mercado, Parboteeah, and Zhao, 2005), information and communication technologies (ICTs) (Sornes, Stephens, Saetre, & Browning, 2004), navigation of the site (Luna, Peracchio, and de Juan, 2002), website quality expectations (Tsikriktsis, 2002), and site perception and satisfaction (Simon, 2001). Singh et al. (2003) conducted an extensive review of many of the cultural models that exist, deciding that Hofstede's four-dimension model and Hall's two-dimension model would be their cultural framework. They cite the fact that Hofstede's model has shown a higher degree of validity and legitimacy when compared to other models, the parsimony of the model, and that the framework has been found to be a valid basis for the analysis of regional differences and as a means through which marketers could adapt their websites to local cultures (Singh et al., 2003).

Sornes et al. (2004) evaluate how workers in the United States

and Norway vary in their use of ICTs, finding that workers in the US and Norway are similar on four dimensions: power distance, uncertainty avoidance, individualism, and masculinity. In their research, Liu, Marchewka, and Ku (2004) report that trust will influence customer behavioral intentions in terms of whether they would purchase from a site, visit a site again, whether they will have favorable things to say about the company, and whether they would recommend the site to others. Based on Hofstede and research cited by Liu et al. (2004), it was anticipated that there would be significant differences between the US and Taiwan samples; yet none was found, suggesting that these two different cultures have the same privacy and trust concerns when purchasing online (Liu, Marchewka, and Ku, 2004). Simon (2001) used three of Hofstede's dimensions, power distance, individualism, and masculinity, to explore the perception and satisfaction levels of websites. He notes that perception and satisfaction differences do exist between gender groups and cultural clusters within Asia, Europe, Latin & South America, and North America.



## RESEARCH QUESTION

The current research seeks to ascertain the impact that culture measured at the individual level has on the factors that determine the success of Internet marketing efforts. Individual culture was measured using the five dimensional scale developed by Yoo, Donthu, and Lenartowicz (2002a). Internet commerce success factors were measured using Torkzadeh and Dhillon's (2002) scales. A total of nine constructs for Internet commerce have been suggested: Internet shopping convenience, Internet ecology, Internet customer relations, Internet product value, Internet product choice, online payment, Internet vendor trust, shopping travel, and Internet shipping errors (Torkzadeh and Dhillon, 2002). It would be beneficial for marketers, as they develop their Internet marketing effort, to understand how cultural dimensions influence consumer behavior with regard to the Internet commerce success factors.

**Table 1**  
**Internet Commerce Success Factors**

<p><b><u>Internet Product Choice</u></b></p> <ul style="list-style-type: none"> <li>I like having greater product selection</li> <li>I like broad choice of products</li> <li>I like to have maximum range of quality product options</li> <li>I like having maximum product variety</li> <li>I like to have maximum product availability</li> <li>I like the ease of comparison shopping</li> <li>I like to have greater product choice</li> </ul>
<p><b><u>Online Payment</u></b></p> <ul style="list-style-type: none"> <li>I am worried about who will have access to my credit card number</li> <li>I am concerned about unauthorized use of my credit card</li> <li>I am concerned about misuse of personal information</li> <li>I am concerned about misuse of my credit card</li> <li>I am concerned about my personal information being shared</li> </ul>
<p><b><u>Internet vendor trust</u></b></p> <ul style="list-style-type: none"> <li>I am concerned about vendor legitimacy</li> <li>I am concerned about seller legitimacy</li> <li>I am concerned about how much I trust the vendor</li> <li>I am concerned about how much I can trust the vendor</li> <li>I am concerned about security for Internet commerce</li> </ul>
<p><b><u>Shopping travel</u></b></p> <ul style="list-style-type: none"> <li>I like to travel as little as possible to purchase</li> <li>I like to drive as little as possible to shop</li> <li>I like to minimize travel for purchase</li> </ul>
<p><b><u>Internet shipping errors</u></b></p> <ul style="list-style-type: none"> <li>I worry about receiving wrong products</li> <li>I am concerned about shipping errors</li> </ul>
<p><b><u>Internet shopping convenience</u></b></p> <ul style="list-style-type: none"> <li>It is important to make shopping easy</li> <li>It is important to minimize effort of shopping</li> <li>It is important to minimize queuing time</li> <li>It is important to minimize time to select a product</li> <li>It is important to minimize personal hassle</li> <li>It is important to minimize payment time</li> <li>It is important to minimize time pressure when shopping</li> </ul>
<p><b><u>Internet ecology</u></b></p> <ul style="list-style-type: none"> <li>It is important to minimize pollution</li> <li>It is important to minimize environmental impact</li> <li>It is important to reduce environmental damages</li> </ul>
<p><b><u>Internet customer relations</u></b></p> <ul style="list-style-type: none"> <li>It is important to assure an easy return process</li> <li>It is important to provide an easy return process</li> <li>It is important to provide quality after -sale service</li> </ul>
<p><b><u>Internet product value</u></b></p> <ul style="list-style-type: none"> <li>It is important to minimize tax cost</li> <li>It is important to minimize product cost</li> <li>It is important to maximize product value</li> </ul>

## Hypotheses Development

A total of three of Hofstede's cultural dimensions were evaluated for their hypothesized impact on various Internet commerce success factors. Each dimension is described in general terms followed by marketing and Internet related findings associated with the cultural dimensions.

### Masculinity/Femininity

Masculinity is the degree to which dominant values are success, money, and things. With regards to femininity, achievement is defined in terms of human contacts and concern with the environment. "Feminine societies are more service-oriented and have a people orientation. Small is beautiful and there is a tendency to strive for consensus" (Robbins and Stylianou, 2001/2002, p. 4). High masculinity is associated with independent decision making, live to work, achievement ideal, sympathy for the successful achiever, decisiveness, excelling (trying to be the best), and performance and growth are both important (Hofstede, 1980). Status is important, big and fast are beautiful, and there is a tendency to polarize (Robbins and Stylianou, 2001/2002).

Masculine customers emphasize performance and independence, whereas feminine ones value interdependence and service (Kanousi, 2005). "In masculine cultures, loyalty and harmony are valued less than in feminine cultures, thus people are more willing to exercise their customer power to discipline service providers by switching to others" (Liu, Furrer, and Sudharshan, 2001, p. 122). Additionally Liu et al. (2001) state that those in masculine cultures are less likely to participate in negative word-of-mouth because they are unwilling to look bad in others' eyes. Finally, "in masculine cultures customers are more likely to complain than customers in more feminine cultures because they are more willing to confront the service provider for an unsatisfactory experience" (Liu et al. 2001, p. 123).

Tsikriktsis (2002) concluded that two cultural dimensions, masculinity and long-term orientation, have an impact on website quality expectations. Specifically Tsikriktsis (2002, p.109) concludes that "masculinity is associated with higher expectations about a web site's interactivity, design, and flow-emotional appeal." With respect to website design, those high in femininity would respond to sites with artistry and aesthetics (Mercado et al., 2004). Websites with games and competition, quick rewards, and a navigation system based on exploration and control would be of value to those with high masculinity whereas promotion of cooperation and support rather than competitiveness would appeal to those of low masculinity (Cook and Finlayson, 2005). In fact, Cook and Finlayson (2005) suggest that with very high masculine cultures it might be wise to maintain gender specific sites, an interesting recommendation that makes sense given the emphasis on performing according to one's gender role.

As such, it is predicted that Internet ecology, as measured by the importance of minimizing pollution, the importance of minimizing environmental impact, and the importance of reducing environmental damage, will be of less importance to

those who score high on masculinity. Internet customer relations items (easy return process, quality after-sale service, easy return policy) will not be as important to those who score high on masculinity, especially if part of the internet customer relations process involves direct communication with other customers or the company. However, both the online payment (worry about giving out credit card information, the unauthorized use of their credit card, the misuse of personal information, the unauthorized use of their credit card) and shopping travel (like to travel as little as possible to purchase, drive as little to shop, minimize travel for purchase) factors will be more important to those who score high on masculinity. Additionally, Internet product value, assessed by four items (important to minimize product cost, important to minimize tax cost, important to maximize product value, and important to ensure quality of product), will be rated as more important by those who score high on masculinity.

**Hypothesis 1:** Individuals who score high on masculinity will rate the importance of "Internet Ecology" lower than those who score low on masculinity.

**Hypothesis 2:** Individuals who score high on masculinity will rate the importance of "Internet Customer Relations" lower than those who score low on masculinity.

**Hypothesis 3:** Individuals who score high on masculinity will rate the importance of "Internet Product Value" higher than those who score low on masculinity.

**Hypothesis 4:** Individuals who score high on masculinity will rate the importance of "Online Payment" higher than those who score low on masculinity.

**Hypothesis 5:** Individuals who score high on masculinity will rate the importance of "Shopping Travel" higher than those who score low on masculinity.

### Uncertainty Avoidance

This cultural dimension has been described as the extent to which people feel threatened by ambiguous situations and have created institutions and beliefs for minimizing or averting uncertainty. Countries high in uncertainty avoidance are more likely to develop elaborate systems of rules and procedures. Hofstede (1980, p.184) reported societal norms suggesting that those high in uncertainty avoidance would show concern with security in life, that achievement would be defined in terms of security, a strong need for consensus, that conflict and competition can unleash aggression and should be avoided, and that the uncertainty inherent in life is felt as a continuous threat that must be fought. Those of high uncertainty avoidance have a strong need to control situations, environment, and events (Kanousi, 2005).

In high uncertainty avoidance cultures, customers are less likely to complain are less likely to engage in negative word-of-mouth messaging, and are less likely to switch service providers as switching service providers is associated with uncertainty and is, thus, undesirable (Liu, Furrer, and

Sudharshan, 2001). With respect to on-line design issues, those with high uncertainty avoidance should understand the results of their on-line actions, should not be subjected to information overload, should have precise information and instructions, and should not have to engage in extensive problem solving, while those low in uncertainty avoidance should be given more flexibility and less structure (Mercado, Parboteeah, and Zhao, 2004). Uncertainty avoidance influences the willingness of people to accept uncertainty, which is an inherent aspect of Internet shopping; the effects of uncertainty could be lessened when trust exists between the parties engaged in the exchange (Lim, Leung, Sia, and Lee, 2004). With regard to web sites, those with higher uncertainty avoidance would value simplicity, as well as limited and predictable choices, while those lower in uncertainty avoidance are more resilient to change and would prefer to have a higher number of alternatives available and would tolerate a certain degree of surprise and mystery (Cook and Finlayson, 2005). Web content developed for those of low uncertainty avoidance would have an increased level of complexity, with options and content maximized and navigational schemes conducive to exploration and discovery (Marcus and Gould, 2000 as cited in Cook and Finlayson, 2005).

Given the characteristics of uncertainty avoidance, it is expected that individuals who score high on this dimension will demonstrate greater concern for the online payment, Internet vendor trust (concern about legitimacy of vendor, concern about seller legitimacy, concern about securing on the Internet), Internet shipping errors (worry about receiving wrong products, concern about shipping errors), and Internet shopping convenience factors (make shopping easy, minimize time to select a product, minimize queuing time, minimize shopping effort, minimize personal hassle, minimize payment time, minimize time pressure when shopping).

**Hypothesis 6:** Individuals who score high on uncertainty avoidance will indicate greater concern with "Online Payment" than those with low uncertainty avoidance.

**Hypothesis 7:** Individuals who score high on uncertainty avoidance will indicate greater concern with "Internet Vendor Trust" than those with low uncertainty avoidance.

**Hypothesis 8:** Individuals who score high on uncertainty avoidance will indicate greater concern with "Internet Shipping Errors" than those with low uncertainty avoidance.

**Hypothesis 9:** Individuals who score high on uncertainty avoidance will indicate greater concern with "Internet Shopping Convenience" than those with low uncertainty avoidance.

### Power Distance

The power distance dimension is concerned with the distribution of power within the culture. In a high power distance society, a small minority of the citizens maintains a significant portion of the power and prestige. Power and prestige are more equally distributed in a low power-distance

culture. In low power distance cultures, people are equals and there is a great deal of value on independence and individuality. Hofstede (1980, p.122) determined that in high power distance norms, power holders are entitled to privileges, a few should be independent whereas most should be dependent, there is a latent conflict between power and the powerless, stress is placed on coercive and referent power, other people are a threat to one's power and rarely trusted, and there should be an order of inequality in the world in which everyone has his rightful place.

Customers in large power distance cultures are more likely to switch when the perception of service quality is negative than are customers in small power distance cultures because they perceive having the power to switch to another provider (Liu, Furrer, and Sudharshan, 2001, p.122). This might suggest that this depends on whether they have high power in that society? If the majority of the power is held by a few, there is a greater chance that you will tap into the powerless and get different responses. In large power distance societies, the buyer is king and the seller is a lower status; additionally, large power distance societies would expect more formally expressed web page design (Kale, 2006). Liu et al. (2001) report that those of high power distance are more likely to spread negative word of mouth communication because they consider themselves to have higher power and are therefore less tolerant of poor service quality. Finally, they are more likely to complain when they experience a problem (Liu et al. 2001). In terms of online design considerations, those with high power distance would prefer a web site with ordered and symmetric design and presentation, the use of formal imagery to convey authority, as well as assertive and direct feedback (Mehra, Parboteeah, and Zhao, 2004). A site's content should be equally available to all users in low power distance societies and these users would expect the freedom to explore and roam the web site (Cook and Finlayson, 2004). Those with high power distance would not expect the same degree of information availability, thus they would be less affected by viewing restrictions as those of low power distance (Cook and Finlayson, 2004). Further, since emphasis is placed on expertise and authority, a web site for those of high power distance should implement access restrictions to content based on one's position in the social hierarchy, like a breach of etiquette (Cook and Finlayson, 2004). Therefore, given these characteristics, it is predicted that those scoring high on power distance will report a greater importance of the Internet shopping convenience, product value, Internet product choice (greater product selection, broad choice of products, maximum product quality products, maximum product variety, maximum product availability, ease of comparison shopping, ease of product choice), and shopping travel factors.

**Hypothesis 10:** Individuals who score high on power distance will indicate a greater importance of "Internet Shopping Convenience" than those who score low on power distance.

**Hypothesis 11:** Individuals who score high on power distance will indicate a greater importance of "Internet

Product Value" than those who score low on power distance.

**Hypothesis 12:** Individuals who score high on power distance will indicate a greater importance of "Internet Product Choice" than those who score low on power distance.

**Hypothesis 13:** Individuals who score high on power distance will indicate a greater importance of "Shopping Travel" than those who score low on power distance.



## ETHODOLOGY

### Sample

Undergraduate students at a major north-eastern university participated in this study. Paper and pencil surveys were administered during class and participation was anonymous and voluntary. There were no inducements for participating. A total of 628 students completed the survey, of which 540 were usable. Sample characteristics are summarized in Table 2.

Table 2  
Sample Characteristics

Characteri	N	%
<b>Gender</b>		
Male	332	59%
Female	235	41%
<b>Religion</b>		
Christian	372	71%
Buddhist	21	4%
Agnostic	18	3%
Jewish	64	12%
Islamic	12	3%
Other	35	7%
<b>Racial or ethnic identification</b>		
American Indian or other Native American	4	1%
Asian American or Pacific Islander	63	11%
Black or African American	43	8%
White	399	70%
Other	60	10%
<b>Hispanic, Latino, or Spanish origin</b>		
Yes	47	8%
No	520	92%
<b>Purchased a product using the Internet</b>		
Yes	453	89%
No	57	11%
<b>Primary use of Internet</b>		
Information gathering and research	225	45%
Shopping and looking for products	30	6%
Education	48	10%
Entertainment	114	24%
Sports	46	9%
Sales	1	0%
Other	31	6%
<b>Own a computer</b>		
Yes	484	95%
No	23	5%
<b>Easy access to a computer</b>		
Yes	500	99%
No	6	1%

Fifty nine percent of the respondents were male versus forty one percent female. Roughly 71% identified themselves as Christians, 12% as Jewish, and 7% as 'Other.' Approximately 70% of the respondents identified themselves as White, 11% Asian, 8% Black or African American. Roughly 8% indicated an Hispanic, Latino, or Spanish origin. Ninety-nine percent of the respondents have easy access to a computer, with 95% owning their own. The Internet is used primarily for information gathering and research (45%) although 89% indicate that they have purchased a product using value item was evaluated using a 5-point Likert-type scale anchored as 1=strongly disagree and 5 = strongly agree. The the internet.

**Measures**

The five dimensions of individual culture were assessed using Yoo and Donthu's (2002a) 26-item scale. The scale, developed and validated using a sample of three cultural groups, allows researchers to measure Hofstede's dimensions of culture at

the individual level (Yoo and Donthu, 2002a). Each scale was developed to measure Hofstede's (1980) original dimension of cultural orientation and included items for power distance, six items for collectivism, five for uncertainty avoidance, four items for masculinity, and four items for Confucian dynamism. Students were also asked demographic questions concerning gender and cultural orientation. To test the hypotheses and maintain consistency with Hofstede's dimensions, we split the scales at three.

The psychometric properties of the scale were found to be acceptable in previous research (Yoo & Donthu, 2002) and were supported in the current study. For purposes of the current research, three dimensions were used: masculinity, power distance, and uncertainty avoidance. The correlations between the scales and the reliabilities are shown in Table 3. All of the reliabilities were above .70 and all but one were above .80. In addition, all of the correlations were below .40.

**Table 3**  
Correlations and Reliability for Dimensions of Culture

	1	2	3
Masculinity (1)	0.78		
Power Distance (2)	0.36**	0.84	
Uncertainty Avoidance (3)	0.07	-0.07	0.87
** p <.01 Reliabilities on the diagonal n = 545			

Internet commerce success factors were measured using two scales developed by Torkzadeh and Dhillon (2002). The 37-item survey measures fundamental objectives and means objectives, as defined by Torkzadeh and Dhillon (2002). Their research continues to address customer issues in the context of Internet commerce, "suggesting multidimensional measures of factors that influence Internet shoppers that are intuitively appealing and psychometrically reliable and valid" (Torkzadeh and Dhillon, 2002, p. 199). Each item was evaluated using a 5-point Likert-type scale anchored as 1=strongly disagree and 5 = strongly agree. The scale included seven items for Internet shopping convenience, three items

for Internet ecology, three items for Internet culture relations, four items for Internet product value, seven for Internet product choice, five items for online payment, four items for Internet vendor trust, three items for Internet shopping travel, and two items for Internet shipping. The correlations and reliabilities for the scales are shown in Table 4. All of the reliabilities were in the acceptable range (Nunnally, 1978). However, as would be expected with multiple scales, there was some intercorrelations between the scales. The intercorrelations between seven of the scales (leaving 20%) were greater than .70 and the intercorrelations between nine of the scales were less than .30 (25%).

**Table 4**  
Correlations and Reliabilities for Internet Success Factors

	1	2	3	4	5	6	7	8	9
Int. Shopping Convenience (1)	0.88								
Int. Ecology(2)	0.53	0.87							
Int. Cust. Relations (3)	0.61	0.70	0.90						
Int. Product Value (4)	0.60	0.71	0.78	0.88					
Online Payment (5)	0.32	0.37	0.46	0.49	0.95				
Int. Vendor Trust (6)	0.31	0.37	0.45	0.47	0.79	0.94			
Shopping Travel (7)	0.31	0.20	0.21	0.21	0.25	0.31	0.88		
Int. Shipping Errors (8)	0.25	0.29	0.29	0.33	0.47	0.54	0.40	0.87	
Int. Payment Choice (9)	0.60	0.62	0.75	0.77	0.48	0.46	0.19	0.27	0.95

All correlations significant at p <.01

Reliabilities on the diagonal

n = 502



**METHOD**

Separate analyses of variance were performed to assess differences in the dependent variables (the various internet commerce success factors) as a function of the independent variables (the various cultural dimensions). Each cultural dimension was dichotomously split into a high and low level. The middle value (three) was used to split the factors.

Multivariate analysis of variance was then performed to find the overall differences in the separate internet success factor as a function of the cultural dimensions. The separate internet success factors were calculated using the mean dimension score for each individual participating in the survey. Multivariate tests were significant for masculinity ( $F=2,809.35$ ,  $df=5 \& 494$ ,  $p<.01$ ), uncertainty avoidance ( $F=2,628.53$ ,  $df=4 \& 494$ ,  $p<.05$ ), and power distance ( $F=1,349.95$ ,  $df=4 \& 494$ ,  $p<.01$ ). Based on the overall significance, separate univariate F-tests and cell means were calculated in order to ascertain the impact of the main effect of career status on the individual dimensions of work ethic.



**RESULTS**

With regards to the three measures of culture evaluated at the individual level, mixed results are noted. Please see Table 5. There is a significant difference between individuals

high in masculinity and those lower in masculinity in terms of the importance of Internet ecology factors. Specifically, those high in masculinity find the minimization of pollution, environmental impact, and environmental damages to be less important. Therefore H1 was supported. Another significant finding, H2, suggests that individuals high in masculinity do not consider Internet customer relations issues to be as important as do those individuals scoring low in masculinity. A significant difference in masculinity and internet product value issues was found, although the direction is opposite of what was hypothesized. Therefore H3 was not supported. The findings suggest that individuals low in masculinity rated the importance of Internet product value higher than those who scored higher on masculinity. With regard to H4, it was hypothesized that those high in masculinity would rate the importance of online payment factors higher than those low in masculinity. This was not the case and, in fact, those individuals high in masculinity actually indicated that online payment factors were less important to them than did those low in masculinity. Thus H4 was not supported. Finally, as hypothesized, those high in masculinity rated the importance of shopping travel factors higher than those low in masculinity. Therefore H5 was supported.

**Table 5  
Hypotheses Significance Results**

Hypothesis	Significant	Hypothesis Supported
1. Individuals who score high on masculinity will rate the importance of "Internet Ecology" lower than those who score low on masculinity	Yes	Yes
2. Individuals who score high on masculinity will rate the importance of "Internet Customer Relations" lower than those who score low on masculinity.	Yes	Yes
3. Individuals who score high on masculinity will rate the importance of "Internet Product Value" higher than those who score low on masculinity	Yes – opposite direction	No
4. Individuals who score high on masculinity will rate the importance of "Online Payment" higher than those who score low on masculinity.	No	No
5. Individuals who score high on masculinity will rate the importance of "Shopping Travel" higher than those who score low on masculinity.	Yes	Yes
6. Individuals who score high on uncertainty avoidance will indicate greater concern with "Online Payment" than those with low uncertainty avoidance.	Yes	Yes
7. Individuals who score high on uncertainty avoidance will indicate greater concern with "Internet Vendor Trust" than those with low uncertainty avoidance.	Yes	Yes
8. Individuals who score high on uncertainty avoidance will indicate greater concern with "Internet Shipping Errors" than those with low uncertainty avoidance.	No	No
9. Individuals who score high on uncertainty avoidance will indicate greater concern with "Internet Shopping Convenience" than those with low uncertainty avoidance	No	No
10. Individuals who score high on power distance will indicate a greater importance of "Internet Shopping Convenience" than those who score low on power distance.	Yes	Yes
11. Individuals who score high on power distance will indicate a greater importance of "Internet Product Value" than those who score low on power distance.	Yes	Yes
12. Individuals who score high on power distance will indicate a greater importance of "Internet Product Choice" than those who score low on power distance.	Yes	Yes
13. Individuals who score high on power distance will indicate a greater importance of "Shopping Travel" than those who score low on power distance	No	No

**Table 6**  
**Univariate Tests for Masculinity**

Variable	Masculinity		Difference	
	High (n = 149)	Low (n = 351)	pvalue	Direction
<b>Internet Ecology</b>				
Mean	3.98	4.18	0.02	Yes
Standard Deviation	0.95	0.87		
<b>Internet Customer Relations</b>				
Mean	4.04	4.29	0.00	Yes
Standard Deviation	0.94	0.84		
<b>Internet Product Value</b>				
Mean	4.11	4.28	0.04	No
Standard Deviation	0.87	0.82		
<b>Online Payment</b>				
Mean	3.97	3.99	0.83	N/A
Standard Deviation	0.97	1.06		
<b>Shopping Travel</b>				
Mean	3.68	3.37	0.00	Yes
Standard Deviation	1.04	1.08		

*Notes:*  
*Significant Difference = p value*  
*Direction is in relation to hypothesis*

Focusing on uncertainty avoidance, support for H6 and H7 is noted. Specifically, individuals who score high on uncertainty avoidance indicate greater concern for both online payment factors and internet vendor trust factors. It was also hypothesized that those high in uncertainty avoidance would have greater concern for Internet shipping errors, H8, and Internet shopping convenience factors, H9. Neither was significant although the results do show evidence of the predicted relationship between level of uncertainty avoidance and both Internet shopping convenience and Internet shipping errors.

**Table 7**  
**Univariate Tests for Uncertainty Avoidance**

Variable	Uncertainty Avoidance		Difference	
	High (n = 384)	Lo (n = 115)	p value	Direction
<b>Online Payment</b>				
Mean	4.06	3.71	0.00	
Standard Deviation	1.02	1.07		
<b>Internet Vendor Trust</b>				
Mean	4.03	3.77	0.01	
Standard Deviation	0.96	1.04		
<b>Internet Shipping Errors</b>				
Mean	3.62	3.42	0.09	N/A
Standard Deviation	1.10	1.07		
<b>Internet Shopping Convenience</b>				
Mean	3.95	3.80	0.84	N/A
Standard Deviation	0.85	0.82		

*Notes:*  
*Significant Difference = p value*  
*Direction is in relation to hypothesis*

Three of four power distance hypotheses were supported. Namely, those individuals who score high on power distance do indeed indicate a greater importance of Internet shopping convenience, Internet product value, and Internet product choice than do those individuals scoring low on power

distance, thus confirming H10, H11, and H12. It is further noted that those high in power distance do manifest the greater importance of shopping travel, although the difference is not significant and H13 was not supported.

Table 8  
Univariate Tests for Power Distance

Variable	Power Distance		p value	Direction
	High (n = 45)	Low (n = 454)		
<b>Internet Shopping Convenience</b>				
Mean	.63	3.95	0.02	Yes
Standard Deviation	1.03	0.82		
<b>Internet Product Value</b>				
Mean	3.99	4.26	0.04	Yes
Standard Deviation	1.04	0.81		
<b>Internet Product Choice</b>				
Mean	3.90	4.24	0.01	Yes
Standard Deviation	0.95	0.84		
<b>Shopping Travel</b>				
Mean	3.76	3.43	0.06	N/A
Standard Deviation	1.06	1.07		

Notes:

p value = significance of mean difference

Direction is in relation to hypothesis

## DISCUSSION AND IMPLICATIONS

The results with the measures of individual culture point to suggestions for how a company may improve its e-commerce programs. Marketers would need to understand the cultural characteristics of

their target audience and could then design their site and processes accordingly. Significant differences are noted between individuals high in masculinity and those lower in masculinity for three factors: Internet ecology, Internet customer relations, and shopping travel. Those high in masculinity are not as concerned with Internet ecology or Internet customer relations but they are more concerned with shopping travel issues than are those lower in masculinity. Thus to improve the chances for Internet commerce with a target audience higher in masculinity, the company should design a site that does not place as much emphasis on after-sale service, the return process, or environmental damages. Clearly the opposite would be the case when targeting an audience with low masculinity. Those high in masculinity like the convenience of shopping online, finding it important to travel as little as possible and to minimize travel for purchase. It is somewhat surprising that individuals low in masculinity rated the importance of Internet product value higher than those who scored higher in masculinity. Since individual

decision making is important to those high in masculinity, it was felt that they would be more concerned with the product value issues, namely, minimizing product cost, minimizing tax cost, maximizing product value, and ensuring the quality of product. Online payment issues are important, regardless of ones score on the masculinity index. Somewhat surprisingly, mean scores suggest product value issues are of greater concern overall than are online payment issues. Thus, selection, quality, and value, are somewhat more important than the concerns over unauthorized use or access to one's credit card.

Uncertainty avoidance, how threatened one feels with ambiguous situations, also impacts online buying behavior. It is noted that those with a higher level of uncertainty avoidance are more concerned with online payment and vendor trust issues. The trust findings are consistent with those reported by Kivijarvi, Laukkanen and Cruz (2007) who note that consumer trust is a significant factor in the behavioral intention to use and consumer attitudes held with regard to Internet banking. Further, no significant differences with Internet shipping errors or Internet shopping convenience are noted. Shipping errors, in general, does not appear to be a factor that raises a lot of concern. Clearly when the target audience demonstrates high uncertainty avoidance, the company would be wise to

concentrate on and communicate their efforts to minimize security problems. Additionally, they should work to build a community of trust around the vendor, its site, and its brands. According to Dinev et al. (2006), trust is more vital for countering the risk associated with privacy uncertainty than perceived risk related to economic uncertainty. Results with the power distance dimension are encouraging in that three of the four hypotheses are supported. Those high in power distance indicate greater importance with Internet shopping convenience, Internet product value, and Internet product choice. Seemingly, anything that can maximize independence in the online shopping experience while simultaneously giving users opportunities to secure wide product choice and value will be valued by those high in power distance. The buyer is king, and websites that portray modesty on the part of the provider or acknowledge the status of the customer are key for high power distance customers (Kale, 2006). The current research demonstrates that emphasis on the customer's needs of convenience, value, and choice give status to the customer.

The results seem to provide further support for Simon's (2001, p.32) conclusion and recommendation that "a single, universally appealing web site appears infeasible given the differences between some cultures/consumers, and that a preferable strategy might be to instead create culturally and consumer specific sites." Clearly this would have to be accomplished within the budgetary limits of the company. Finally, the results offer support to Hofstede's cultural dimensions and, support the validity and reliability of Donthu and Yoo's test instrument for the measurement of culture at the individual level.

As with all studies, there were also some limitations. First, the homogeneity of the sample could be a problem when testing for differences in culture. However, even with the limited diversity, several hypotheses have been confirmed. Any limitation posed by homogeneity would only reduce the power to detect some of the other hypotheses. The results were also subject to single source bias. In the future, it could be helpful to look at other measures of culture from other sources. Further, a well validated scale used in several other studies (Yoo & Donthu, 2002a) was utilized. However, one of the reliability coefficients was slightly below the .80 level (.78) suggested by Nunnally (1978) for developed scales. Finally,

dichotomizing the culture variables led to a reduction in variance. However, it was felt that the method was appropriate and consistent given the distinct dichotomous nature of Hofstede's original scales.

Recommendations for future research would be to expand the sample to include a wider range of individuals. Future research measured culture at the individual level, unlike many previous studies that have evaluated culture and internet factors at the group level (Chai and Pavlou, 2004; Cook and Finlayson, 2005; Mercado, Parboteeah, and Zenger, 2004; Simon, 2001; Tsikriktsis, 2005). It would be prudent to expand the sample, perhaps to different countries, and continue to measure culture at the individual level. Further research would be beneficial to determine the impact of gender and age on internet commerce success factors. For example, should a selling site targeted towards older individuals be designed to maximize e-commerce success? Further research would be helpful to expand this research to include more racial and ethnic diversity. The current sample was largely white. It would be beneficial to understand how individual cultural dimensions influence each and all of the internet commerce success factors. Further it would be helpful to understand what individuals who are largely unfamiliar with Internet commerce would desire. However, one of the benefits of this particular sample for an initial study was that cultural dimensions and online success factors is an experience that they have had with online buying. Since 80% of the sample has purchased online, they are familiar with Internet commerce and know what they like and expect in terms of site design and e-commerce procedures.

Internet technology gives companies a great deal of power and flexibility in designing their websites. The results support the conclusion made by Luna, Peracchio and de Juan (2002) that congruity of a site with a visitor's culture is a key content characteristic that influences the visitor's likelihood of experiencing flow. It is vital for companies to develop a site that results in good flow. Further, it is imperative that companies understand how cultural characteristics, gender and race/ethnicity impact Internet usage and, therefore, website development. It is possible to design a site that meets the needs of individuals with varied cultural backgrounds and expectations, but a detailed understanding of what content is needed, given these characteristics, is a vital development prerequisite.

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