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Does culture explain acceptance of new products in a country?

An empirical investigation

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Keywords *Culture (sociology), Product development, Social economics*

Abstract *This paper investigates the role of cultural differences in the acceptance of new products, as moderated by socio-economic variables. In order to assess the relationship, an analysis utilizing Hofstede's cultural dimensions, along with secondary data representing socio-economic structure and the penetration rate of new products was undertaken. The results demonstrate that power distance and uncertainty avoidance hinder the acceptance of new products. Also found is that individualism has a positive effect but the masculinity dimension has no significant effect on the diffusion of new products. The findings regarding the moderation effects of the socio-economic variables are mixed.*

The business environment has evolved in response to the continued globalization of world markets as there appears to be an increasing speed, frequency and magnitude of competitors entering a broader and more diverse set of markets (Wolf, 2000). In this setting, firms are ever more dependent on new products to generate revenues and market share as they search for a competitive advantage and a profitable return (Steenkamp *et al.*, 1999). Moreover, in order to maintain momentum, and relative position, firms must enter a broader and more diverse set of markets. The success of a new product introduction in a foreign market is dependent on a series of factors, some of which are fundamentally controllable, while others are not (Takada and Jain, 1991) and must be considered when formulating marketing strategy. Hence, as an intrinsic variable specific to the market, culture remains a significant factor in international marketing research (Dunning, 1997).

There are scholars who argue that globalization has created a progressively more homogenized world market, with an increasing number of consumers from diverse geographic locations and cultural backgrounds sharing the same preferences (Levitt, 1983). This perspective is a function of the development of international linkages and infrastructure, and holds that an increased interconnectedness among the world's nations has resulted in decreased differentiation due to socio-economic factors, with people around the world living in a more uniform pattern (Elinder, 1965; Hannerz, 1990). This phenomenon has facilitated the emergence of global brands (Aaker and

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Joachimsthaler, 1999) with relatively standardized marketing strategies employed across cultural and geographic boundaries (Zou and Cavusgil, 2002). The primary underlying assumption of this view is that standardized marketing strategies are feasible in homogenized socio-economic infrastructures and that economic development has led to a convergence in global markets (Jain, 1989). While there is some support regarding the influence of mass media in creating a global consumer culture (Walker, 1996), there is also some evidence that firms have begun to position their products to a global consumer culture (Alden *et al.*, 1999).

Yet, there is a paucity of empirical evidence to support the notion that the development of national socio-economic infrastructures has facilitated the homogenization of world cultures; rather there is actually evidence of increased divergence, especially among industrialized countries (Usunier, 1997; Craig *et al.*, 1992). Even in Europe, with economic union and a progression toward the standardization of the political and social infrastructure, national cultural values are strongly rooted in history, and appear to be stable over time (De Mooij, 2000). Further, it has been found that even after tremendous exposure to globalization, consumers from different cultures have different attitudes, perceptions, tastes, preferences and values, and remain reluctant to purchase foreign products (Suh and Kwon, 2002). Therefore, the argument which follows is that consumer behavior remains diverse, consumers are not always rational and they are not willing to change their consumption habits in favor of cheaper products that are increasingly available on the world market (Kotler, 1986).

Hence, it can be posited that cultural differences remain an important aspect of international marketing research because cultural norms and beliefs are powerful forces shaping people's perceptions, dispositions and behaviors (Markus and Kitayama, 1991; Triandis, 1989). In order to understand the impact of these variables on product choice decisions, cultural differences have been considered from a range of different perspectives, including their impact on attitudes and persuasion (Aaker, 2000), as well as their role in the diffusion of new products (Yaveroglu and Donthu, 2002; Takada and Jain, 1991; Steenkamp *et al.*, 1999). Yet a gap in the literature exists which explains the relationship between cultural attributes, socio-economic factors, and the diffusion of new products and technologies.

In order to help reconcile the seemingly paradoxical perspectives in the literature, this article contributes to the extant knowledge in cross-cultural marketing research by providing additional empirical evidence regarding the role of cultural differences in the acceptance of new products. Socio-economic variables are considered as moderators of this relationship, providing additional evidence in the globalization debate. The remainder of this study is organized into five major sections. In the first, the theoretical background and the research hypothesis are presented. Then the research design, along with the resulting empirical evidence is offered. The investigation concludes

with a discussion and section regarding limitations and directions for future research.

Theoretical background and hypotheses

The effects of both the controllable endogenous and uncontrollable exogenous factors impacting on the introduction of new products have been investigated in the literature (Takada and Jain, 1991). Controllable factors such as proficiency in developing marketing activities (Calantone *et al.*, 1987), market knowledge processes (Li and Calantone, 1998), and R&D capabilities (Hill and Snell, 1989) have a significant impact on new product success. On the other hand, environmental factors that cannot be controlled, but can be managed with the appropriate strategy, include national culture (Steenkamp *et al.*, 1999; Clark, 1990) and other country based differences (Takada and Jain, 1991).

Culture remains an elusive, multi-faceted dimension that is difficult to harness and understand completely; in the most simplistic of terms, it is typically considered as a shared set of values and beliefs. The most frequently utilized and cited framework for analyzing and assessing culture is that of Hofstede (1980, 1991), who views it as the mental programming of a society, resulting in a definition of "the interactive aggregate of common characteristics that influences a group's response to its environment" (Hofstede, 1980). Culture is common to members of cultural groups or clusters with well defined boundaries (Hall, 1966) and distinguishes the member of one group from those of another (Hofstede, 1991).

Nationality may be considered a proxy for culture, since all members of a nation tend to share similar language, history, and religion (Dawar and Parker, 1994). At least one study has shown that a significant amount of the variation in product and service usage can be attributed to the home country of the respondent (Zaichkowsky and Sood, 1989). Although some nations such as Malaysia and Belgium have diverse cultural groups within their borders, it has been pointed out that there must be some common foundations upon which there is general agreement, or else the survival of the nation would be in doubt (Gannon, 2001). In these "cleft" cultures (Huntington, 1996), ideals can exist where individuals are able to maintain their own unique cultural identities while adopting values that are supportive of the larger cultural group (Berry, 1990). Nationality remains a viable proxy for culture since the members of the society share an understanding of the institutional systems, a bond for identity, and experiential understanding of the world (Hofstede, 1983).

Hofstede's original analysis, supported theoretically by the work of Inkeles and Levinson (1969), found a set of four distinct factors that represented the dimensions of culture in the workplace; however, these original dimensions have been extended to other applications for the study of various national and geographic groups. This framework remains the dominant cultural paradigm (Sivakumar and Nakata, 2001), and forms the basis for a significant proportion

of the cross cultural studies undertaken in the literature. Previous research has shown the prevalent cultural system in a country has a significant impact on consumer innovativeness (Steenkamp *et al.*, 1999) and the diffusion patterns of new products (Takada and Jain, 1991). Since consumers' attitudes and behaviors are significantly influenced by the cultural context of the market (Triandis, 1989), it is expected that there is a strong effect of national culture in the adoption of new products in a country.

Power distance is the extent to which people accept that power is distributed unequally, and is related to conservatism and maintaining the status quo (Steenkamp, 2001). In societies with a high degree of power distance, status and age are very important; generally, people tend to be less innovative. In one study considering the effects of culture on the diffusion of new products, the coefficient of innovation was found to be significantly lower in countries with high power distance (Yaveroglu and Donthu, 2002). Since in such cultural environments customers are less open to new ideas and products, the penetration rates of new products is expected to be lower:

H1. Power distance has a negative effect on the acceptance rates of new products.

The individualism/collectivism dimension appears to be the most extensively employed dimension in cross-cultural consumer behavior research (Kim *et al.*, 1994; Triandis, 1989; Triandis *et al.*, 1988; Zhang and Gelb, 1996). Members of individualistic cultures tend to see themselves as independent, unique persons separate from others. In individualistic cultures, people tend to give more importance to their own and their immediate family's well being. On the other hand, people in collectivistic cultures feel they belong to a group, whose overall well being supersedes the needs of the individual. In such cultures, identity is based on the social network to which one belongs. Attitudes towards differentiation and uniqueness tend to be more favorable for members of individualist cultures, while attitudes toward building relationships tend to be more favorable in collectivistic cultures (Aaker and Maheswaran, 1997). Previous empirical results indicate that countries which have higher scores in the individualist dimension have higher coefficients of innovation (Yaveroglu and Donthu, 2002), and a positive impact on the innovativeness of consumers (Steenkamp *et al.*, 1999). Therefore, in contrast with power distance, individualism is expected to have a positive effect on penetration rates:

H2. Individualism has a positive effect on the acceptance rates of new products.

Uncertainty avoidance is the extent to which people feel uncomfortable in the presence of vagueness and ambiguity. Cultures with low uncertainty avoidance scores have a high tolerance for improbability and ambiguity; generally, people tend to be more innovative and entrepreneurial. People of these cultures are

more tolerant to take risks and are more willing to try new things (Yaveroglu and Donthu, 2002). Alternatively, in cultures where there is a high degree of uncertainty avoidance there is an innate need for clear rules, and a formality to the structure of life. It has been found that cultural uncertainty avoidance has a negative impact on consumer innovativeness (Steenkamp *et al.*, 1999). Therefore, it is expected that the uncertainty avoidance dimension has a negative effect on penetration rates of new products:

H3. Uncertainty avoidance has a negative effect on the acceptance rates of new products.

The masculinity dimension indicates the degree to which a culture values assertiveness, achievement, and the acquisition of wealth (Hofstede, 1991). In masculine cultures, achievement and success are more important than caring for others, and improving the overall quality of life (Hofstede, 1980). A largely symbolic means of demonstrating achievement is by having the latest and most novel possessions. This essentially serves as a proxy for success, reflecting a given level of status in a society (Rogers, 1983). Therefore, the implication is that this dimension has an apparent connection with the acceptance of new things in a society. This position is further supported by previous research which found a positive effect of masculinity on the innovativeness of consumers in a given market (Steenkamp *et al.*, 1999):

H4. Masculinity has a positive effect on the acceptance rates of new products.

The socio-economic infrastructure of a country plays a major role in the manifestations of culture on consumer behavior. Previous research has led to conflicting expectations: improved infrastructure facilitating the homogenization of consumer behavior across cultures and decreasing the effect of cultural dimensions (e.g. Hannerz, 1990), versus enabling consumers to more freely exhibit the behaviors rooted in their cultural values (e.g. Kotler, 1986). Thus:

H5. The socio-economic structure moderates the effect of cultural dimensions on the acceptance rates of new products.

Typically, in countries with enhanced economic conditions, customers have higher incomes and have more freedom in initiating behaviors according to their cultural values. This is reflected in the academic view which purports that globalization will only serve to increase the divergences existing in consumer behavior across countries (Kotler, 1986). The basic premise is that higher incomes will drive different consumption patterns, shaped by the cultural characteristics of each nation (Kotler, 1986; De Mooij, 2000). Additionally, increasing economic conditions, particularly the systematic change in

purchasing power, and demographic changes, are related to the velocity of new product diffusion rates (Van Den Bulte, 2000):

H6. In countries with more developed economic structures (i.e. higher gross domestic product (GDP) purchasing power parity (PPP) per capita values), the effects of cultural dimensions on the penetration rates of new products are stronger than in countries with less developed economic structures (i.e. lower GDP (PPP) per capita values).

Urbanization has been used as an indicator of the market potential for American companies exporting abroad (Cavusgil, 1997). The urban population is broadly defined by the share of the total population living in areas specified as a city in each country (World Bank, 1999) and has been employed extensively as an indicator of the socio-economic structure of the country, particularly in the economics literature (e.g. Rodrik, 1998). From a marketing perspective, this is an important variable because previous research suggests that urban respondents seem to be less partial to culture specific advertisements (Khairullah and Khairullah, 1995). Additionally, results from a model of product introductions across multiple markets suggest significant findings related to cosmopolitanism and diffusion patterns (Gatignon *et al.*, 1989). Therefore, cultural characteristics are expected to have lower effects on consumer choice decisions, and subsequent penetration rates in countries that have higher urbanization rates:

H7. In countries that have higher urbanization rates, the effects of cultural dimensions on the penetration rates of new products are weaker than in countries with a lower urbanization rate.

The literacy rate is the percentage of adults ages 15 and above who can, with understanding, read and write a short, simple statement about their everyday life (World Bank, 1999) and is widely accepted as an indicator of the strength of the educational structure of a country (e.g. Williamson, 1996; DuBois *et al.*, 1993). Cultural values are deeply rooted in social memories, customs and habits (De Mooij, 2000). Yet, education can facilitate people's awareness and understanding of other cultures. Under these circumstances, it is reasonable to expect members of a society to be more cognizant of, and have a better appreciation of consumer preferences in other parts of the world. It is expected that in the nations with more developed educational systems, customers will give less importance to their national cultural values than in countries with less developed educational systems:

H8. In countries that have lower literacy rates, the effects of cultural dimensions on the penetration rates of new products are stronger than in countries that have higher literacy rates.

One of the main consequences of globalization is the increase in international trade. Therefore, the argument can be made that the total international trade of a country, in terms of its relative proportion of GDP, can be used as an indicator of the overall openness of the economy (Cavusgil, 1997). In order to remain consistent with previous research, we define openness as the ratio of imports and exports of goods and services to the GDP of the country (e.g. Rodrik, 1998). The consumers of countries with economies that have a higher degree of openness are exposed to a wider variety of foreign products and services; hence, a greater pressure of globalization. Therefore, we hypothesize that openness has a negative moderation effect on the relationship between cultural dimensions and the penetration rates:

H9. In countries that have a higher degree of openness, the effects of cultural dimensions on the penetration rates of new products are weaker than in countries that have a lower degree of openness.

Research design and empirical evidence

There are essentially two different approaches to performing cross-cultural analysis: those utilizing primary data, and those using secondary information sources. Early research studies used random samples from several countries to perform mean and variance tests in order to demonstrate the similarities and differences in consumer behavior (e.g. Green and Langeard, 1975; Hempel, 1974; Lorimer and Dunn, 1968). This approach was heavily criticized for not being adequate when studying cross-cultural differences since factors other than culture, such as economic and demographic differences, may engender the observed discrepancies in behavior (e.g. Katona *et al.*, 1973; Clark, 1990; Dawar and Parker, 1994).

In order to overcome these criticisms, other studies have used secondary data to employ ordinary least squares analyses to test hypotheses regarding cross cultural differences (e.g. De Mooij, 2000). We utilize a similar approach, with secondary data and multiple regression analyses. In addition to Hofstede's cultural dimension scores for 56 countries (Hofstede, 2001), the GDP per capita (World Bank, 1999) adjusted for the purchasing power parity, the urbanization rates (percentage of population living in urban areas) (World Bank, 1999), the literacy rates (percentage of population being literate) (World Bank, 1999), the openness rates (total foreign trade divided by the GDP) (World Bank, 1999), the Internet penetration rates (Internet users per 10,000 inhabitants) (International Telecommunication Union, 2001), the cellular phone penetration rates (cellular phones per 100 inhabitants) (International Telecommunication Union, 2001) and the PC penetration rates (PCs per 100 inhabitants) (International Telecommunication Union, 2001) were gathered for each country. GDP (PPP) per capita is the gross domestic product converted to international dollars using purchasing power parity rates and divided by the midyear population of the country (World Bank, 1999). This is a more accurate

gauge of comparative wealth, as it takes into account social services and subsistence requirements, which can vary substantially across countries (Craig and Douglas, 2000). The long-term/short-term orientation dimension was available only for 30 countries and was dropped due to concerns regarding the sample size. The list of countries included in this study can be found in the Appendix.

The multiple regression results with penetration rates as the dependent variable and the cultural dimensions as the independent variables can be seen in Table I. In all three regressions, the coefficient for power distance is negative and significant, supporting *H1*. Similarly, in all three regressions the coefficient of individualism is positive and significant, supporting *H2*. The coefficient for uncertainty avoidance is negative and significant only for PC ownership, but negative and insignificant for Internet usage and cellular phone ownership, providing partial support for *H3*. The coefficients for the masculinity dimension are insignificant and negative in all three regressions, failing to provide support for *H4*. Therefore, three of the first four hypotheses are supported, with the overall findings consistent with both theory and previous empirical research (Figure 1).

Table I. Multiple regression results including all countries

	Internet usage[a]		PC ownership[b]		Cellular phone ownership[c]	
Cultural dimension	Std beta	*p*-value	Std beta	*p*-value	Std beta	*p*-value
Power distance	**−0.275**	**0.061**	**−0.246**	**0.048**	**−0.323**	**0.033**
Individualism	**0.415**	**0.007**	**0.516**	**<0.001**	**0.411**	**0.009**
Uncertainty avoidance	−0.072	0.512	**−0.171**	**0.068**	−0.094	0.402
Masculinity	−0.167	0.116	−0.138	0.123	−0.082	0.447

Notes: [a] $R^2 = 0.459$, $F = 10.837$ ($p < 0.001$); [b] $R^2 = 0.616$, $F = 20.473$ ($p < 0.001$); [c] $R^2 = 0.431$, $F = 9.666$ ($p < 0.001$)

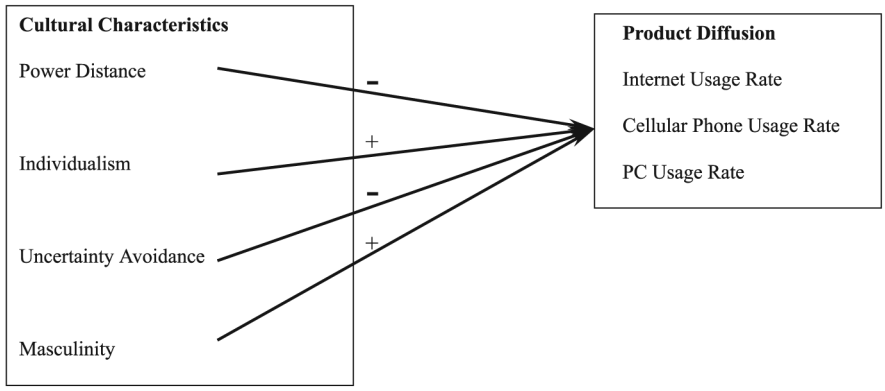

Figure 1. Conceptual model

In order to test the moderation effects of GDP (PPP) per capita, urbanization, literacy and openness, a median split was employed, resulting in groups with significantly different means (all p-values less than 0.001; see Figure 2). The resulting sets of 28 countries were used in several multiple regressions; with the dependent variables being the penetration rates for Internet, PC and cellular phone, and independent variables being the cultural dimension scores. As illustrated in Tables II-V, the results indicate a moderation effect by all three variables tested as the socio-economic conditions for the countries in the study. The median splits created significant changes in the sign and magnitude of the coefficients of cultural dimensions, providing support for *H5*. Yet the effect is not consistent across all the cultural dimensions and dependent variables.

According to these results, GDP (PPP) per capita has a different moderation effect on the relationship between each cultural dimension and the penetration rates. Generally, in countries with higher GDP (PPP) per capita values, the regressions are significant at 0.05 confidence level for Internet usage and PC ownership. All other regressions are insignificant. These results provide partial support for *H6*. Interestingly, the results suggest that while in countries with better economic conditions uncertainty avoidance is negatively related to the penetration rates of new products, this relationship tends to be positive under poorer economic conditions.

The urbanization rates have a moderation effect similar to the economic conditions of the country, with all regressions being significant at a 0.001 confidence level for the countries with higher urbanization rates. Uncertainty avoidance has a negative effect in highly urbanized countries, and a positive relationship in less urbanized ones. Overall, the multiple regressions executed using a median split on the level of urbanization failed to provide support for *H7*.

All the multiple regression models which test the effects of lower literacy rates on new product penetration rates are significant at 0.05

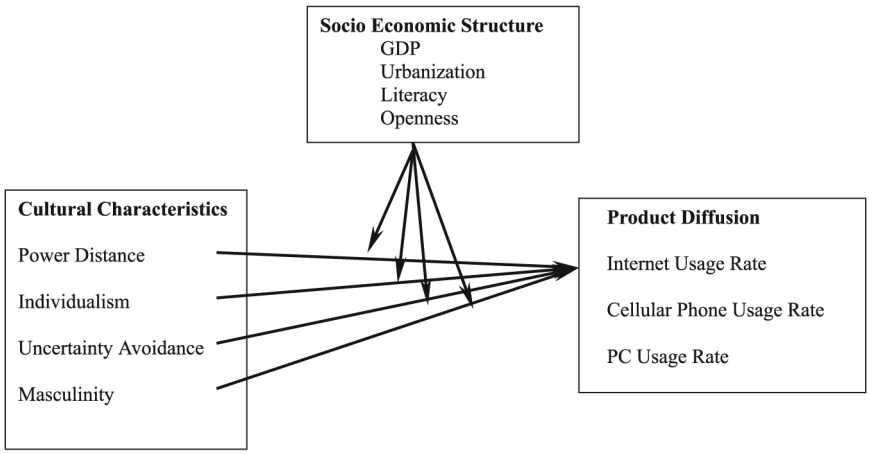

Figure 2.
The moderation effect

Table II. The moderation effect of GDP (PPP) per capita

	Internet usage				PC ownership				Cellular phone ownership			
	High GDP per capita[a]		Low GDP per capita[b]		High GDP per capita[c]		Low GDP per capita[d]		High GDP per capita[e]		Low GDP per capita[f]	
Cultural dimension	Std beta	*p*-value	Std beta	*p*-value	Std beta	*p*-value	Std beta	*p*-value	Std beta	*p*-value	Std beta	*p*-value
Power distance	−0.095	0.637	−0.253	0.298	−0.108	0.486	−0.345	0.127	−0.198	0.375	−0.126	0.602
Individualism	0.178	0.406	−0.037	0.884	**0.366**	**0.033**	0.330	0.164	0.157	0.507	0.191	0.454
Uncertainty avoidance	**−0.364**	**0.044**	0.352	0.223	**−0.476**	**0.001**	**0.532**	**0.051**	−0.086	0.654	0.400	0.170
Masculinity	−0.178	0.288	0.116	0.643	−0.127	0.327	0.252	0.277	−0.076	0.678	0.263	0.300

Notes: [a] $R^2 = 0.286, F = 2.797$ ($p = 0.045$); [b] $R^2 = 0.122, F = 0.624$ ($p = 0.651$); [c] $R^2 = 0.576, F = 9.497$ ($p < 0.001$); [d] $R^2 = 0.269, F = 1.654$ ($p = 0.204$); [e] $R^2 = 0.129, F = 1.038$ ($p = 0.405$); [f] $R^2 = 0.118, F = 0.603$ ($p = 0.666$)

Table III. The moderation effect of urbanization

Cultural dimension	Internet usage: High urbanization[a] Std beta	Internet usage: High urbanization[a] *p*-value	Internet usage: Low urbanization[b] Std beta	Internet usage: Low urbanization[b] *p*-value	PC ownership: High urbanization[c] Std beta	PC ownership: High urbanization[c] *p*-value	PC ownership: Low urbanization[d] Std beta	PC ownership: Low urbanization[d] *p*-value	Cellular phone ownership: High urbanization[e] Std beta	Cellular phone ownership: High urbanization[e] *p*-value	Cellular phone ownership: Low urbanization[f] Std beta	Cellular phone ownership: Low urbanization[f] *p*-value
Power distance	−0.285	0.132	0.068	0.774	−0.100	0.487	−0.217	0.314	**−0.382**	**0.059**	−0.061	0.785
Individualism	0.234	0.208	**0.636**	**0.047**	**0.462**	**0.003**	**0.647**	**0.026**	0.235	0.231	**0.574**	**0.057**
Uncertainty avoidance	**−0.372**	**0.014**	0.137	0.597	**−0.488**	**< 0.001**	−0.007	0.977	−0.225	0.146	**0.513**	**0.047**
Masculinity	−0.074	0.585	**−0.562**	**0.078**	−0.024	0.822	**−0.519**	**0.069**	−0.017	0.906	−0.104	0.720

Notes: [a] $R^2 = 0.533$, $F = 7.984$ ($p < 0.001$); [b] $R^2 = 0.286$, $F = 1.805$ ($p = 0.172$); [c] $R^2 = 0.722$, $F = 18.210$ ($p < 0.001$); [d] $R^2 = 0.431$, $F = 3.404$ ($p = 0.031$); [e] $R^2 = 0.478$, $F = 6.420$ ($p = 0.001$); [f] $R^2 = 0.362$, $F = 2.553$ ($p = 0.075$)

Table IV. The moderation effect of literacy

	Internet usage				PC ownership				Cellular phone ownership			
	High literacy[a]		Low literacy[b]		High literacy[c]		Low literacy[d]		High literacy[e]		Low literacy[f]	
Cultural dimension	Std beta	*p*-value	Std beta	*p*-value	Std beta	*p*-value	Std beta	*p*-value	Std beta	*p*-value	Std beta	*p*-value
Power distance	− 0.179	0.379	0.038	0.842	− 0.117	0.439	− 0.112	0.513	− 0.199	0.367	− 0.067	0.758
Individualism	0.286	0.182	0.266	0.201	**0.457**	**0.007**	**0.324**	**0.089**	0.272	0.241	0.378	0.120
Uncertainty avoidance	− 0.260	0.130	− 0.265	0.156	**− 0.427**	**0.002**	− 0.159	0.336	− 0.037	0.840	− 0.088	0.676
Masculinity	− 0.104	0.521	**− 0.592**	**0.001**	− 0.068	0.573	**− 0.569**	**0.001**	− 0.019	0.914	**− 0.409**	**0.036**

Notes: [a] $R^2 = 0.316$, $F = 3.232$ ($p = 0.027$); [b] $R^2 = 0.595$, $F = 6.602$ ($p = 0.002$); [c] $R^2 = 0.620$, $F = 11.412$ ($p < 0.001$); [d] $R^2 = 0.672$, $F = 9.216$ ($p < 0.001$); [e] $R^2 = 0.191$, $F = 1.650$ ($p = 0.190$); [f] $R^2 = 0.459$, $F = 3.812$ ($p = 0.020$)

Table V. The moderation effect of openness

Cultural dimension	Internet usage				PC ownership				Cellular phone ownership			
	High openness[a]		Low openness[b]		High openness[c]		Low openness[d]		High openness[e]		Low openness[f]	
	Std beta	*p*-value	Std beta	*p*-value	Std beta	*p*-value	Std beta	*p*-value	Std beta	*p*-value	Std beta	*p*-value
Power distance	−0.252	0.253	−0.274	0.130	−0.264	0.152	−0.178	0.298	−0.364	0.113	−0.180	0.302
Individualism	0.309	0.170	**0.606**	**0.004**	**0.426**	**0.027**	**0.715**	**0.001**	0.302	0.192	**0.754**	**< 0.001**
Uncertainty avoidance	−0.119	0.467	**0.249**	**0.069**	**− 0.245**	**0.078**	0.122	0.341	0.028	0.869	**0.508**	**0.001**
Masculinity	**− 0.303**	**0.071**	**0.212**	**0.094**	**− 0.232**	**0.092**	0.117	0.326	−0.121	0.467	0.178	0.147

Notes: [a] $R^2 = 0.445$, $F = 4.609$ ($p = 0.007$); [b] $R^2 = 0.705$, $F = 13.771$ ($p < 0.001$); [c] $R^2 = 0.621$, $F = 9.410$ ($p < 0.001$); [d] $R^2 = 0.730$, $F = 15.538$ ($p < 0.001$); [e] $R^2 = 0.413$, $F = 4.043$ ($p = 0.013$); [f] $R^2 = 0.721$, $F = 14.856$ ($p < 0.001$)

confidence level, and explain more variance in the dependent variable than the results from the countries with higher literacy rates. These results parallel expectations and provide support for *H8*. It is also important to note the significant negative effect of masculinity in countries with lower literacy rates.

Similar to literacy, openness has a negative moderating effect on the relationship between the cultural dimension scores and new product penetration rates. In countries with high openness rates the cultural scores explain more than 70 percent of the variation in the dependent variables, with all three regressions having an overall significance at confidence levels less than 0.001, providing support for *H9*. Additionally, while uncertainty avoidance and masculinity tend to be negatively related to the penetration rates in countries with open economies, these relationships are positive in more closed countries.

Taken as a whole, the findings related to the moderation effects of the socio-economic variables differ across cultural dimensions. Yet, the effects on the overall significance of the multiple regressions tend to be consistent across socio-economic variables and dependent variables studied.

Discussion and managerial implications

The purpose of this research is to contribute to the body of empirical evidence regarding the relationship between cultural dimensions and new product acceptance rates with the addition of socio-economic variables as moderators. Although multiple regression does not prove that a causal relationship exists between the dependent and independent variables (Wooldridge, 2000), the results of this study indicate a strong association between the cultural dimensions and the penetration rates of new products, moderated by some of the socio-economic variables tested. The results are consistent to a great extent with previous studies in cross-cultural consumer behavior, diffusion of innovation and globalization. The results are similar to the findings from previous studies (Steenkamp *et al.*, 1999; Takada and Jain, 1991), where a significant relationship between the cultural dimensions and penetration rates of new products was found across the 56 countries included in the analysis.

While previous research regarding the penetration rates of new products did not include power distance as a predictor (Steenkamp *et al.*, 1999), we find this dimension to have a significant negative effect. According to our empirical results, individualism has a significant positive relationship and uncertainty avoidance has a significant negative relationship with the diffusion rates. In the light of the extant literature (e.g. Steenkamp *et al.*, 1999), masculinity has been hypothesized to be positively related to the diffusion of new products. Nevertheless, the results failed to provide support to this hypothesis, with a possible explanation being the differences existing in the dependent variable, the data collection method, or the set of cultural dimensions included in the study.

Additionally, the findings contribute to the extant literature by providing significant evidence regarding the moderation effects of socio-economic factors. The findings are mixed, socio-economic factors providing different moderating effects across cultural dimensions. The results indicate that the economic, educational and urbanization structures of a particular country have different effects on the role of cultural dimensions in the penetration of products. The economic wellbeing, expressed in terms of GDP (PPP) per capita has a weak positive moderation effect on the relationship between culture and the penetration rates. While urbanization rate has a strong positive moderation effect, literacy rate and market openness have a strong negative moderation effect. Therefore, the results indicate that while economic wellbeing enables customers to reflect their cultural values in their purchasing behavior, a strong educational infrastructure and an open market structure act as suppressors of the cultural differences existing among nations.

New product introduction is one of the most complex decisions that the managers of multinational companies face (Talukdar *et al.*, 2002). Cultural differences add a significant degree of complexity and perceived uncertainty to the international business environment, and have an important impact on all aspects of marketing activities (Takada and Jain, 1991). Therefore, understanding their effect on the acceptance of new products in a specific country will help management in the projection of demand, by decreasing the perceived uncertainty of foreign cultural environments. Considering that the results of this study indicate a significant relationship between power distance, individualism, uncertainty avoidance and the penetration rates of new products, managerial teams in charge of new product introductions have additional parameters, which can be added to the launch, forecast equation. Countries that have similar scores in these three dimensions are expected to have similar new product penetration rates. Additionally, *ceteris paribus*, companies with new products and technologies should first target countries with higher individualism, but lower power distance and uncertainty avoidance scores. Furthermore, sequential introduction timing conducted in conjunction with consideration of cultural values would be consistent with previous findings (Takada and Jain, 1991).

While some researchers argue that standardization across markets is an appropriate strategy in a global environment (Levitt, 1983), others posit that there must be a balance between standardization and adaptation (Jain, 1989). Our study indicates that even in the age of globalization, culture remains a significant factor in the acceptance of new products. Nevertheless, the socio-economic factors need to be taken into consideration when developing marketing programs. Factors such as literacy and openness restrain the cultural effects on the penetration rates of new products. Therefore, in countries that have less developed educational systems and a relatively closed economy, it is likely that a greater degree of adaptation of the marketing mix elements

will be a more effective strategy. A more standardized approach will be more viable in societies with a greater degree of openness and a more advanced educational system. The adaptation efforts should be centered on the cultural differences existing among countries, particularly the power distance, individualism and uncertainty avoidance dimensions.

Limitations and future research directions

Perhaps the most important limitation of this study lays in the use of secondary data, which is criticized for being inconsistent and unreliable. Yet, there are studies in extant cross-cultural research that used similar approaches (e.g. De Mooij, 2000). Additionally, due to data availability constraints, only 56 countries were included in the study. More robust findings may be possible with the use of a larger sample set. Similarly, Hofstede's fifth cultural dimension, long term versus short term orientation, was not included in the study because of its negative impact on the study's overall sample size. Additionally, Hofstede's dimensions are based on work related values of the employees of one company, which may not necessarily represent the entire national population, and may not overlap to other applications such as consumer behavior (Steenkamp *et al.*, 1999). Furthermore, since Hofstede's dimensions are based on macro, national level cultural traits, there could be a potential for confounding effects due to the fact that some nations have multiple sub-cultures and social groups. Yet, in this study, only a few societies in the data set are multi-ethnic in nature and it is not expected that this would have a significant impact on the results.

A further caution is that urbanization may be defined differently by different countries, based on local interpretation of what measures of density are used to classify a city from a rural area (Craig and Douglas, 2000). In the case of this research study, it is not expected that this ambiguity would have an impact on the outcome of the analysis. This is because the urbanization variable is employed as a median split, and not as an exogenous or endogenous variable in the regression analysis.

Future research should consider the effect of socio-economic variables on cultural dimensions by analyzing the changes in time series data. However, the challenges of such studies are obvious, with data availability being a basic concern. Also, other variables and interactions should be accounted for in future research in order to further differentiate the effects of specific variables. The antecedents of the cultural dimensions can also be included in the model, especially in order to test for a precedence of socio-economic factors on cultural dimensions in the long run. Time series analyses utilizing structural equation models such as latent variable growth curve modeling have the potential to develop our understanding of the globalization and socio-economic variable effects on the cultural variations across countries over time. This approach could also be employed to assess the impact of how various marketing

variables interact with the cultural and socio-economic factors to understand under what circumstances, which activities are most successful over time.

Considering that cultural dimensions have a significant effect on the penetration rates of new products, it is recommended that managerial teams take into consideration the cross-cultural differences between groups when designing marketing plans for new product introductions. Future studies should explore the effect of perceived cultural differences of the target markets on the new product development process and the adaptation of the marketing mix elements during the launch. Within this context, the moderation effects of the socio-economic variables and the globalization extent of customers need further investigation.

References

Aaker, D. and Joachimsthaler, E. (1999), "The lure of global branding", *Harvard Business Review*, Vol. 77, November/December, pp. 137-44.

Aaker, J.L. (2000), "Accessibility or diagnosticity? Disentangling the influence of culture on persuasion processes and attitudes", *Journal of Consumer Research*, Vol. 26 No. 4, pp. 340-57.

Aaker, J.L. and Maheswaran, D. (1997), "The effect of cultural orientation on persuasion", *Journal of Consumer Research*, Vol. 24, December, pp. 315-28.

Alden, D., Steenkamp, J.-B. and Batra, R. (1999), "Brand positioning through advertising in Asia, North America, and Europe: the role of the global consumer culture", *Journal of Marketing*, Vol. 63 No. 1, pp. 75-88.

Berry, J. (1990), "Psychology of acculturation: understanding individuals moving between cultures", in Brislin, R. (Ed.), *Applied Cross-cultural Psychology*, Sage, Newbury Park, CA.

Calantone, R.J., Schmidt, J.B. and Benedetto, C.A.D. (1987), "New product activities and performance: the moderating role of environmental hostility", *The Journal of Product Innovation Management*, Vol. 14 No. 3, pp. 179-89.

Cavusgil, S.T. (1997), "Measuring the potential of emerging markets: an indexing approach", *Business Horizons*, Vol. 40 No. 1, pp. 87-91.

Clark, T. (1990), "International marketing and national character: a review and proposal for an integrative theory", *Journal of Marketing*, Vol. 54, October, pp. 66-79.

Craig, C.S. and Douglas, S.P. (2000), *International Marketing Research*, John Wiley & Sons, Chichester.

Craig, C.S., Douglas, S.P. and Grein, A. (1992), "Patterns of convergence and divergence among industrialized nations: 1960-1988", *Journal of International Business Studies*, Vol. 23 No. 4, pp. 773-86.

Dawar, N. and Parker, P. (1994), "Marketing universals: consumer's use of brand name, price, physical appearance, and retailer reputation as signals of product quality", *Journal of Marketing*, Vol. 58 No. 2, pp. 81-96.

De Mooij, M. (2000), "The future is predictable for international marketers: converging incomes lead to diverging consumer behavior", *International Marketing Review*, Vol. 17 No. 2, pp. 103-13.

DuBois, F.L., Toyne, B. and Oliff, M.D. (1993), "International manufacturing strategies of US multinationals: a conceptual framework based on a four-industry study", *Journal of International Business Studies*, Vol. 24 No. 2, pp. 307-33.

Dunning, J.H. (1997), "Micro and macro organizational aspects of MNE and MNE activity", in Toyne, B. and Nigh, D. (Eds), *International Business: An Emerging Vision*, University of South Carolina Press, Columbia, SC.

Elinder, E. (1965), "How international can European advertising be?", *Journal of Marketing*, Vol. 29, April, pp. 7-12.

Gannon, M.J. (2001), *Understanding Global Cultures: Metaphorical Journeys through 23 Nations*, Sage, Thousand Oaks, CA.

Gatignon, H., Eliashberg, J. and Robertson, T.S. (1989), "Modeling multinational diffusion patterns: an efficient methodology", *Marketing Science*, Vol. 8 No. 3, pp. 231-48.

Green, R. and Langeard, E. (1975), "A cross-national comparison of consumer habits and innovator characteristics", *Journal of Marketing*, Vol. 49, July, pp. 34-41.

Hall, E.T. (1966), *The Hidden Dimension*, Doubleday & Co.Inc., New York, NY.

Hannerz, U. (1990), "Cosmopolitans and locals in world culture", in Featherstone, M. (Ed.), *Global Culture: Nationalism, Globalization and Modernity*, Sage Publications, Thousand Oaks, CA, pp. 295-310.

Hempel, D.J. (1974), "Family buying decisions: a cross-cultural perspective", *Journal of Marketing Research*, Vol. 11, August, pp. 295-302.

Hill, C.W.L. and Snell, S.A. (1989), "Effects of ownership structure and control on corporate productivity", *Academy of Management Journal*, Vol. 32 No. 1, pp. 25-46.

Hofstede, G. (1980), *Culture's Consequences: International Differences in Work-Related Values*, Sage Publications, Bevery Hills, CA.

Hofstede, G. (1983), "The cultural relativity of organizational practices and theories", *Journal of International Business Studies*, Vol. 14 No. 2, pp. 75-89.

Hofstede, G. (1991), *Cultures and Organizations: Software of the Mind*, McGraw-Hill, Maidenhead.

Hofstede, G. (2001), *Culture's Consequences*, Sage Publications, Beverly Hills, CA.

Huntington, S. (1996), *The Clash of Civilizations*, Touchstone, New York, NY.

Inkeles, A. and Levinson, D.J. (1969), "National character: the study of modal personality and sociocultural systems", in *The Handbook of Social Psychology*, Addison-Wesley Publishing Co., Reading, MA.

International Telecommunication Union (2001), *Telecommunication Indicators*, International Telecommunication Union, Geneva.

Jain, S.C. (1989), "Standardization of international marketing strategy: some research hypotheses", *Journal of Marketing*, Vol. 53 No. 1, pp. 70-9.

Katona, G., Stumpel, B. and Zahn, E. (1973), "The sociocultural environment", in Thorelly, H.B. (Ed.), *International Marketing Strategy*, Penguin Books, Harmondsworth.

Khairullah, D.Z. and Khairullah, Z.Y. (1995), "Urban perceptions of print advertisements in the Indian subcontinent: an empirical case for standardized advertising messages", *Journal of Global Marketing*, Vol. 9 No. 1, pp. 59-90.

Kim, U., Trianidis, H.C., Kagitcibasi, C., Choi, S. and Yoon, G. (1994), *Individualism and Collectivism: Theory, Method and Applications*, Sage Publications, Thousand Oaks, CA.

Kotler, P. (1986), "Global standardization – courting danger", *The Journal of Consumer Marketing*, Vol. 3 No. 2, pp. 13-15.

Levitt, T. (1983), "The globalization of markets", *Harvard Business Review*, May/June, pp. 2-11.

Li, T. and Calantone, R.J. (1998), "The impact of market knowledge competence on new product advantage: conceptualization and empirical examination", *Journal of Marketing*, Vol. 62 No. 4, pp. 13-29.

Lorimer, E.S. and Dunn, S.W. (1968), "Four measures of cross-cultural marketing effectiveness", *Journal of Advertising Research*, Vol. 8, January, pp. 11-13.

Markus, H.R. and Kitayama, S. (1991), "Culture and the self: implications for cognition, emotion and motivation", *Psychological Review*, Vol. 98 No. 2, pp. 224-53.

Rodrik, D. (1998), "Why do more open economies have bigger governments?", *The Journal of Political Economy*, Vol. 106 No. 5, pp. 997-1032.

Rogers, E.M. (1983), *Diffusion of Innovations*, The Free Press, New York, NY.

Sivakumar, K. and Nakata, C. (2001), "The stampede toward Hofstede's framework: avoiding the sample design pit in cross-cultural research", *Journal of International Business Studies*, Vol. 32 No. 3, pp. 555-74.

Steenkamp, J.-B.E.M. (2001), "The role of national culture in international marketing research", *International Marketing Review*, Vol. 18 No. 1, pp. 30-44.

Steenkamp, J.-B.E.M., Hofstede, F.T. and Wedel, M. (1999), "A cross-national investigation into the individual and national cultural antecedents of consumer innovativeness", *Journal of Marketing*, Vol. 63 No. 2, pp. 55-69.

Suh, T. and Kwon, I.-W. (2002), "Globalization and reluctant buyers", *International Marketing Review*, Vol. 19 No. 6, pp. 663-80.

Takada, H. and Jain, D. (1991), "Cross-national analysis of diffusion of consumer durable goods in Pacific Rim countries", *Journal of Marketing*, Vol. 55 No. 2, pp. 48-54.

Talukdar, D., Sudhir, K. and Ainslie, A. (2002), "Investigating new product diffusion across products and countries", *Marketing Science*, Vol. 21, No. 1, pp. 97-114.

Triandis, H.C. (1989), "The self and social behavior in differing cultural contexts", *Psychological Review*, Vol. 96 No. 3, pp. 506-20.

Triandis, H.C., Bontempo, R., Villareal, M., Asai, M. and Lucca, N. (1988), "Individualism and collectivism: cross-cultural perspectives on self-ingroup relationships", *Journal of Personality and Social Psychology*, Vol. 54 No. 2, pp. 323-38.

Usunier, J.C. (1997), "Atomistic versus organic approaches", *International Studies of Management & Organization*, Vol. 26 No. 4, pp. 90-112.

Van Den Bulte, C. (2000), "New product diffusion acceleration: measurement and analysis", *Marketing Science*, Vol. 19 No. 4, pp. 366-80.

Walker, C. (1996), "Can TV save the planet?", *American Demographics*, Vol. 18, May, pp. 42-9.

Williamson, J.G. (1996), "Globalization, convergence and history", *The Journal of Economic History*, Vol. 56 No. 2, pp. 277-306.

Wolf, C.J. (2000), "Globalization: meaning and measurement", *Critical Review*, Vol. 14 No. 1, pp. 1-10.

Wooldridge, J.M. (2000), *Introductory Econometrics: A Modern Approach*, South-Western College Publishing, Mason, OH.

World Bank (1999), *World Development Indicators*, World Bank, Washington, DC.

Yaveroglu, I.S. and Donthu, N. (2002), "Cultural influences on the diffusion of products", *Journal of International Consumer Marketing*, Vol. 14 No. 4, pp. 49-63.

Zaichkowsky, J.L. and Sood, J.H. (1989), "A global look at consumer involvement and use of products", *International Marketing Review*, Vol. 6 No. 1, pp. 20-35.

Zhang, Y. and Gelb, B.D. (1996), "Matching advertising appeals to culture: the influence of products' use conditions", *Journal of Advertising Research*, Vol. 25 No. 3, pp. 29-46.

Zou, S. and Cavusgil, S.T. (2002), "The GMS: broad conceptualization of global marketing strategy and its effect on firm performance", *Journal of Marketing*, Vol. 66 No. 4, pp. 40-56.

Appendix

Argentina	Korea, South
Australia	Malaysia
Austria	Mexico
Belgium	The Netherlands
Brazil	New Zealand
Canada	Nigeria[c]
Chile	Norway
Colombia	Pakistan
Costa Rica	Panama
Croatia	Peru
Denmark	Philippines
Ecuador	Portugal
Egypt[a]	Salvador
Finland	Senegal
France	Singapore
Germany	Slovenia
Greece	South Africa
Guatemala	Spain
Hong Kong	Sweden
India	Switzerland
Indonesia	Syria[1]
Iran	Thailand
Ireland	Tunisia[1]
Israel	Turkey
Italy	United Kingdom
Jamaica	Uruguay
Japan	USA
Kenya[b]	Venezuela

Table AI. Countries included in the study

Notes: [a] Cultural dimension scores of the Arab region used as proxy. [b] Cultural dimension scores of the East African region used as proxy. [c] Cultural dimension scores of the West African region used as proxy

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