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INTEGRATING NATIONAL CULTURE INTO INDIVIDUAL IS ADOPTION RESEARCH: THE NEED FOR INDIVIDUAL LEVEL MEASURES

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Abstract

Cross cultural IS Research is beginning to mature, however, much is left to do. This research-in-progress paper reviews the most popular conceptualization of National Culture and offers suggestions for improvements in measurement. While Hofstede's measures, consisting of uncertainty avoidance, power distance, masculinity/femininity, and individualism/collectivism, are still widely used in many disciplines, there are no guarantees that the measures still hold after over 30 years. Indeed, some evidence is presented that indicates that shifts might have occurred. Also, the constructs are measured at the national level, which cannot be used in individual models of behavior or technology acceptance. Data currently being analyzed will be presented at the conference, describing what are likely to be more appropriate measures for IS models.

Keywords: Cross cultural IS research, measurement, national culture

Introduction

As the globalization of business and systems continues, there is a need for additional study on the cross-cultural adoption and use of IT. Further, it is important to consider cultural dimensions specifically when testing IS research models. This involves making theoretical connections between the IS research model and National Culture and testing those relationships with appropriate measures of culture.

This research-in-progress study will begin by discussing Hofstede's dimensions of National Culture (1980) and limitations of prior IS cross cultural research. The paper will then address problems that occur when using Hofstede's original instrument and, finally, will outline a current study incorporating individual level measures of culture.

Prior Research on Hofstede's Conceptualization of Culture

Hofstede developed the original four dimensions of culture while working for IBM between 1967 and 1973. He factor-analyzed over 116,000 responses to a survey instrument from 66 countries, resulting in the four dimensions uncertainty avoidance, power distance, masculinity/femininity, and individualism/collectivism. Hofstede's work represents the largest study attempting to classify nations based on broad value differences. His work still has an impact today; in fact, most research on culture uses his work. Even those researchers, who disagree with his dimensions and attempt to create other scales, compare theirs to his (for example, Maznevski 2000).

Uncertainty Avoidance (UA) determines the degree to which individuals feel threatened by, and try to avoid, ambiguous situations by establishing more formal rules and rejecting deviant ideas and behaviors. People scoring high on this dimension attempt to avoid uncertainty in all forms. Individuals from cultures scoring high on this dimension – for example, Greece, Portugal, Guatemala, Uruguay, and Belgium (Hofstede 1980) - would tend to seek out ways to reduce uncertainty. The opposite is true of individuals from countries scoring low on this dimension – for example, Singapore, Jamaica, Denmark, Sweden, and Hong Kong (Hofstede 1980).

Power distance (PD) is “a measure of the interpersonal power or influence between [a superior] and [a subordinate] as perceived by the [subordinate]” (Hofstede 1991, p.71). The PD dimension refers to the extent to which inequality, often as in hierarchy or a “pecking order,” is seen as an existing reality. Essentially, it is the degree to which individuals accept that their boss has more power than they have and that the opinions and the decisions of their boss are correct due to the mere fact that s/he is the boss. For cultures scoring high on this dimension – for example, Malaysia, Guatemala, Panama, Philippines, and Mexico (Hofstede 1980) - employees would be likely to complete tasks given by superiors even if they were unsure of its merit or ethical values. This is because they feel that the superior is correct just because she is the superior. The opposite would be true of those countries scoring low on this dimension – for example, Austria, Israel, Denmark, New Zealand, and Ireland (Hofstede 1980), where employees might more easily question or even refuse to carry out a directive.

Table 1. Culture Definitions (Hofstede, 1980)

Hofstede's Dimension	Definition
Uncertainty Avoidance (UA)	Degree to which people in a country prefer structured over unstructured situations: from relatively flexible to extremely rigid.
Power Distance (PD)	Degree of inequality among people which the population of a country considers as normal: from relatively equal to extremely unequal.
Masculinity/femininity (MF)	Degree to which "masculine" values like assertiveness, performance, success and competition prevail over "feminine" values like the quality of life, maintaining warm personal relationships, service, caring, and solidarity: from tender to tough.
Individualism/collectivism (IC)	Degree to which people in a country have learned to act as individuals rather than as members of cohesive groups: from collectivist to individualist.

Masculinity/Femininity According to Hofstede's (1980; 1984; 1991; 2001) definition of the masculinity/ femininity dimension, a culture that ranks high on masculinity – for example, Japan, Austria, Venezuela, Italy, and Switzerland - is associated with an emphasis on work goals, such as earnings and promotion, and assertiveness. On the other hand, cultures that rank low on masculinity (high on femininity) – for example, Sweden, Norway, the Netherlands, Denmark, and Costa Rica - are ones that stress personal goals (friendly, congenial environment) and nurturance. People scoring high on masculinity believe in independent decisions, have a stronger motivation to achieve, and higher job stress. These people continue to excel by trying their best and are focused on money and other material things. People from countries scoring low on masculinity believe in group decisions, have a weaker motivation to achieve, and lower job stress. People in these countries are not focused on money or other material things, but rather on other people (Hofstede, 1991).

Individualism/Collectivism (IC) describes the relationship between the individual and the group. It refers to the extent that individuals' self-interests are prioritized over the concerns of the group. In cultures that rank low on individualism (high on collectivism) – for example, Guatemala, Ecuador, Panama, Venezuela, and Colombia (Hofstede, 1980) - individuals tend to see themselves as members of a group; this group to which they belong is a main source of their identity and the unit to which they owe lifelong loyalty (Hoecklin 1995). In a high collectivist culture, the last thing one wants to do is stand out from the crowd. The opposite is true for cultures scoring high on individualism (low on collectivism) – for example, the United States, Australia, the United Kingdom, Canada, and the Netherlands. In individualistic cultures, people are self-oriented, individual initiative is encouraged and people believe in individual decisions.

Limitations to Current Cross Cultural IS Research

The bulk of IS research in multiple countries can be labeled “comparative” research. These studies have compared systems used in different countries to discover similarities and differences. The few that did introduce culture at more than a cursory level (for example, Rose and Straub 1998; Straub, et al. 1997) used Hofstede’s country scores (1980) to explain the differences. In this study, we propose to provide further steps in examining culture and IS. We will collect actual culture data and theoretically relate it to the other constructs in the model. Given the number of years that have elapsed since Hofstede’s work, it might not be appropriate to assume that the cultural scores of Hofstede still hold after over three decades. Further, it might not be appropriate to assume that the culture score of the entire country under investigation is the same as the score of the people within their sample; individuals might have drastically different cultural outlooks, even within the same country.

Problems with Using Hofstede’s Instrument

In a recent study conducted by this author on the US and Uruguay, culture data were collected to examine the Hofstede measures in these two countries. Table 2 outlines the results along with the results of Hofstede’s original work. As can be seen from Table 2, differences do exist between our data and the data from Hofstede (1980).

Table 2. Country Scores for the US and Uruguay

Cultural Dimension	United States		Uruguay	
	1980 (Hofstede)	Current	1980 (Hofstede)	Current
Uncertainty Avoidance	46	-32.5	100	4.2
Power Distance	40	63.3	61	76.8
Masculinity	62	61.3	38	53.3
Individualism	91	50.55	36	36.6

Hofstede (1980) constructed his formula to force the country scores to fall between zero and 100. However, some countries score higher than 100, and, as demonstrated by the UA score for the United States, it is possible for scores to be negative. The drastic difference in the UA score could be attributed to gender; Hofstede’s sample was composed mostly of males while the current study was more gender-balanced.

Some of the other dimensions were also different from Hofstede’s original data. This does not necessarily mean that the cultures in these countries are shifting, although this does remain a possibility. Significant innovations in communication across borders have occurred in the past 30 years; the Internet, in general, and email, in particular, could be responsible for possible shifts. Caution is warranted, however, because these scores are based on a small sample of students and not on matching workers in a large multinational company as in Hofstede’s original study. Although the use of one company in data collection has been the focus of most criticism of Hofstede’s country scores, it is possible that his scales could have produced significantly different country scores from ours merely because the two studies used two separate samples within the same country; people within the same country can differ on their orientations toward the cultural dimensions.

Hofstede’s dimensions of culture are often chosen because they are the most widely cited and used. Although the formula used to calculate country scores is not completely understood, Hofstede does give scores to each country for each of the four dimensions. Researchers using Hofstede’s dimensions have since used his scores as indicative of the people from that country, regardless of the individual experiences people may have had or the length of time since Hofstede’s data collection. Because individual experiences affect behavior and the cultural “scores” of these countries could have changed since Hofstede first collected his data, it is important to begin collecting cultural data from subjects. Unfortunately, Hofstede specifies that the original instrument (1980) cannot be used to test individual level relationships, and should be used only at the national level (Hofstede 2000).

Although most researchers speak of people in different countries as scoring high or low on dimensions, it should be noted that people from the same country can (and do) score differently on those dimensions. In other words, “irrespective of their cultural background, people have complex selves that contain qualitatively different cognitions” (Bochner, 1994). It is, therefore, important to look at national culture from a trait-based approach. In other words, because people from the same country can score differently on the cultural dimensions, it is important to look at the effects of their scores and not only the country of origin.

The problem with using Hofstede’s measures is that you cannot distinguish between people in the sample, but can only aggregate to the group. This also makes it difficult to test cultural dimensions within individual level adoption models, like the TAM model. Because some dimensions can influence the relationships in different ways, researchers need to use individual level measures of culture.

Proposed Research

This current study proposes to collect individual level culture data and test its psychometric properties, as well as compare it to Hofstede’s original instrument. In order to empirically account for the possible culture effect on an IS model, especially an

individual-level adoption model like TAM (Davis 1989), culture data must be collected at the individual level. One such measurement of national culture at the individual level is provided by Dorfman and Howell (1988). Following a rigorous instrument development procedure (Churchill 1979), these authors developed a survey to measure Hofstede's original four dimensions. This study will test the psychometric properties of these individual level measures and compare them to the measures of Hofstede.

Conclusions and Current Status

The use of Hofstede's country scores, which are now over 30 years old, can no longer be assumed to be accurate. Further, it can no longer be assumed that people from the same country will necessarily have the same cultural orientations. This is not to say that Hofstede's work is no longer valuable. On the contrary, his work continues to guide researchers conducting cross cultural research.

The first step when investigating the effects of national culture on individual behavior, like technology acceptance, is to make the necessary theoretical connections. The next step is to use individual level measures of culture. Theoretical connections between culture and technology acceptance cannot be tested using Hofstede's original instrument. His dimensions are valuable and were used to guide the adaptation of his instrument to the individual level by Dorfman and Howell (1988). It is now important for those moving forward in this stream of research to make the theoretical connections and test them through the collection of the individual level cultural orientation of those subjects in the study.

Students participating in this study represent several different colleges and universities both within the US and abroad. In order to recruit students, colleagues using online teaching tools were contacted and asked to solicit responses from their students. A total of 108 professors agreed to ask their students to participate. A total of 10,359 students were requested to participate through a web survey using a server hosted by a large web hosting company. Data for this study have been collected from over 4,400 students from 78 different countries and analysis is currently underway. The psychometric properties of the Dorfman and Howell (1988) scales will be tested and presented at the conference.

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