Association for Information Systems
AIS Electronic Library (AISeL)

AMCIS 1999 Proceedings

Americas Conference on Information Systems (AMCIS)

December 1999

The Influence of National Culture on the Acceptance and Use of Information Technologies: An Empirical Study

Mark Srite
Florida State University

Follow this and additional works at: http://aisel.aisnet.org/amcis1999

The Influence of National Culture on the Acceptance and Use of Information Technologies: An Empirical Study

Mark Srite, Florida State University, mds3778@garnet.acns.fsu.edu

Abstract

This dissertation examines the influence of national culture on the acceptance and use of information technologies. An extended model of technology acceptance is developed and specific cultural dimensions are hypothesized to influence the extended model.

Introduction and General Overview

In the increasingly global business environment, there is a growing need to utilize information technology (IT) to achieve efficiencies, coordination, and communication. Clearly cultural differences between countries may have an impact on the effectiveness and efficiency of IT deployment. Research would provide valuable insights into the processes, obstacles, and opportunities present in cross-cultural IT environments.

The objective of this dissertation is to examine the influence of culture on technology acceptance behaviors. Culture is defined as the collective programming of the mind that distinguishes one group from another (Hofstede, 1984). Technology acceptance and usage across cultures is a crucial factor for deriving IT benefits in multinational and transnational organizations. Rather than testing existing technology acceptance models across different cultures to see if boundary conditions hold, the current research develops a model of technology acceptance that model explicitly incorporates dimensions of national culture. The resulting theoretical framework can make generalized predictions about technology acceptance in different national cultures.

Specifically, this dissertation reviews the existing technology acceptance literature to extend the technology acceptance model (TAM - Davis, 1989) by adding social influence, willingness to innovate, quality of life, and trust in technology. TAM was chosen, as the basic model, since it is a widely accepted yet parsimonious and robust model of technology acceptance. Then, based on cross-cultural research literature, Hofstede's (1984) widely cited dimensions of national culture (masculinity/femininity, individualism/collectivism, power distance, and uncertainty avoidance) are incorporated into the model as either direct antecedents or moderator variables of the technology acceptance constructs and relationships. The resulting theoretical model for the study is presented in Figure 1 with the cultural constructs shown in *italic* type.

It should be noted that this dissertation does not treat culture as a monolithic construct. Rather, it posits that different cultural dimensions differentially influence technology acceptance constructs. Hypotheses for the specific effects of each cultural dimension on the technology acceptance constructs and relationships are presented in the paragraphs that follow.

Figure 1
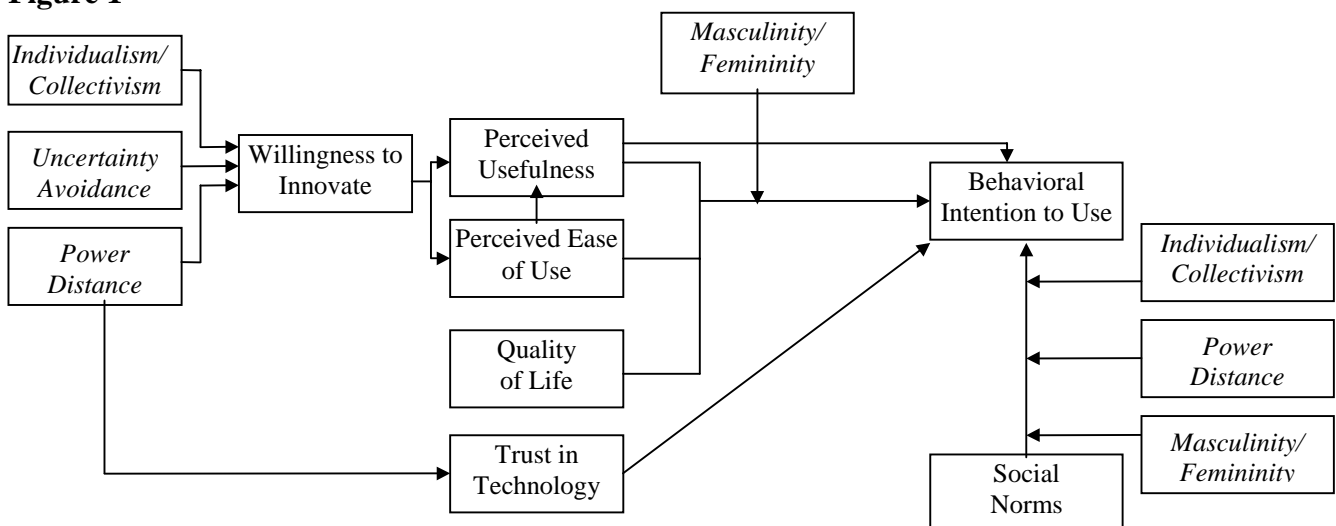
Masculinity/Femininity

Masculinity/femininity values concern the extent of emphasis on work goals (earnings, advancement) and assertiveness, as opposed to personal goals (friendly atmosphere, getting along with the boss and others) and nurturing. The first set of values is thought to be associated with males and the second more with females (Hofstede, 1984). Masculine cultures might be more concerned with usefulness which emphasizes work goals while feminine cultures might be more concerned with perceived ease of use and quality of life which emphasize less instrumental goals and perceptions. This leads to the following hypotheses:

Hypothesis 1a: The relationship between perceived usefulness and attitude toward use is moderated by the cultural dimension of masculinity/femininity.

Hypothesis 1b: The relationship between perceived ease of use and attitude toward use is moderated by the cultural dimension of masculinity/femininity.

Hypothesis 1c: The relationship between quality of life and attitude toward use is moderated by the cultural dimension of masculinity/femininity.

Masculinity/Femininity can also affect the relationship between social norms and behavioral intention to use. People from feminine cultures tend to be more concerned with getting along with others than people from masculine cultures. Therefore, social norms are more likely to influence behavior in feminine cultures than in masculine cultures. This leads to the following hypothesis:

Hypothesis 1d: The relationship between social norms and behavioral intention to use is moderated by the cultural dimension of masculinity/femininity.

Individualism/Collectivism

The individualism/collectivism dimension can also affect willingness to innovate. People from individualistic cultures also tend to be more non-conformist than people from collectivistic cultures. Non-conformity can be defined as unwillingness to acquiesce or comply. Non-conformity can lead to innovation. The opposite would hold true for people from collectivistic cultures, the desire for conformity to societal norms would lower personal innovativeness

Hypothesis 2a:Individuals from individualistic cultures will be more innovative while individuals from collectivistic cultures will be less innovative.

The relationship between social norms and behavioral intention to use is moderated by the cultural dimension of individualism/collectivism. People from individualistic cultures will tend to be more non-conformist and less concerned about the opinions of their peers. The opposite will hold true for individuals from collectivistic culture. Societal norms and behaviors will be more in evidence in these cultures and social influence will play a greater role. The following hypothesis can be developed from the above information:

Hypothesis 2b: The relationship between social norms and intention to use is moderated by the cultural dimension of individualism/collectivism.

Power Distance

Power distance can also affect willingness to innovate. Due to the formal hierarchy in high power distance cultures it is less likely that innovation will be encouraged. Individuals will be unwilling to engage in experimentation, which could lead to innovations, since they might be more concerned with the possible punishment when the experimentation does not lead to innovations. The opposite would occur in low power distance cultures. In cultures where there is a less formal hierarchy in the office individuals will be more willing to take a risk and experiment with a new technology. This leads to the following hypothesis:

Hypothesis 3a: There is a negative relationship between degree of power distance and willingness to innovate.

Power distance can also be seen to affect an individuals trust in technology. Trust in technology is a multidimensional construct representing one's fear of losing one's job, adverse health effects, increased monitoring, and increased control by others over one's work resulting from the use of technologies. In higher power distance cultures these factors are more prevalent due to the mistrust between users and the power elite and hence people in these cultures will have a greater tendency to avoid technology as technology. This leads to the following hypothesis:

Hypothesis 3b: There is a negative relationship between power distance and trust in technology.

Furthermore we posit that the social influence-intention to use relationship will be moderated by the cultural dimension of power distance. Individuals from high power distance cultures would be more concerned about their superiors opinions and social influence would play a larger role. The opposite would hold true for individuals from low power distance cultures.

Hypothesis 3c: The relationship between social influence and intention to use is moderated by the cultural dimension of power distance.

Uncertainty Avoidance

The cultural dimension of uncertainty avoidance can affect personal innovativeness. Innovation can come out of experimentation. In general, for an innovation to happen an individual needs to experiment and try out possibilities. It is rare that an innovation is developed solely by theory without any practice. Cultures with lower levels of uncertainty avoidance will have a greater tendency to nurture experimentation. Cultures with high levels of uncertainty avoidance will not nurture experimentation and as a consequence individuals from these cultures will be less innovative. From the above information the following hypothesis can be developed:

Hypothesis 4: *There is a negative relationship between level of uncertainty avoidance and willingness to innovate.*

Method

Data will be collected using student subjects at a large university in the southeast. Foreign students from over twenty national cultures will be contacted at an international student orientation during the first week of their first semester in attendance. A random sample of US nationals will also be contacted. This method will ensure (a) sufficient variance in the dimensions of culture and (b) that the perceptions of the foreign nationals are collected soon after they leave their home country and before spending any considerable amount of time in the US. The acceptance and use of computers is the specific technology in question.

Data will be collected using surveys. Validated scales will be used to measure constructs wherever possible (e.g. perceived usefulness, perceived ease of use, self-efficacy). A pilot study completed at the beginning of the Fall semester of 1998 indicated that overall the scales used have good psychometric properties (reliabilities, convergent validity, and discriminant validity). A few exceptions were identified and changes were made as necessary.

Data Analysis

Structural Equation Modeling (SEM) will be used to test the research model for the study. Partial Least Squares (PLS) will most likely be chosen because PLS uses a component based approach to estimation. Because of this, it places minimal demands on sample size and residual distributions. Moderating effects of cultural dimensions will be tested in PLS using the method suggested by Chin (1996).

Implications

A review of the cross-cultural IS literature indicated that only few IS cross-cultural studies exist. Of the existing studies, few have incorporated culture as a variable in the model. Rather, models developed in one culture (primarily the United States) were tested in a different culture thus testing boundary conditions. This dissertation makes an important theoretical contribution to this body of work by illustrating how culture can be incorporated as an important theoretical construct in research models.

Further, technology transfer is becoming an increasingly important concern in the modern business environment. Yet, our theoretical understanding of technology acceptance in information systems has been largely confined within the boundaries of the United States. This dissertation provides a theoretical framework to enhance our understanding of the antecedents of technology adoption, usage, and infusion in different cultures. This is an important theoretical extension in the area of technology acceptance.

Bibliography

References are available from the author upon request.