

## Association for Information Systems AIS Electronic Library (AISeL)

---

AMCIS 2004 Proceedings

Americas Conference on Information Systems  
(AMCIS)

---

December 2004

# The Influence of Individual-level Cultural Orientation on ERP System Adoption

Yujong Hwang  
*DePaul University*

Follow this and additional works at: <http://aisel.aisnet.org/amcis2004>

---

### Recommended Citation

Hwang, Yujong, "The Influence of Individual-level Cultural Orientation on ERP System Adoption" (2004). *AMCIS 2004 Proceedings*. 60.  
<http://aisel.aisnet.org/amcis2004/60>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 2004 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact [elibrary@aisnet.org](mailto:elibrary@aisnet.org).

# The Influence of Individual-level Cultural Orientation on ERP System Adoption

**Yujong Hwang**

School of Accountancy & MIS

College of Commerce

DePaul University

[yhwang1@depaul.edu](mailto:yhwang1@depaul.edu)

## ABSTRACT

As the global implementation of IS becomes popular, cross-cultural IS research is gaining interests from both academic researchers and practitioners. This research-in-progress paper applies individual-level measurement of cultural orientation provided by Dorfman and Howell (1988) to the recent findings of motivation and computer self-efficacy research in order to predict ERP system adoption. A survey will be administered to the Glovia International ERP system user group, and the results will be used to check the individual-level factors of system adoption in two different countries (U.S. and Japan). The direct effect of individual-level cultural orientation on the usefulness and ease of use as well as mediating effect through enjoyment, personal innovativeness of IT, and computer self-efficacy will be tested. Data will be collected before the conference and presented at the conference using Partial Least Square (PLS) technique.

## Keywords

Cross-cultural IS research, TAM, computer self-efficacy, enjoyment, personal innovativeness of IT, ERP

## INTRODUCTION

Cross-cultural issues have been important topics to managers and researchers in the global environment (House et al. 2002; Hofstede, 2003). The effects of culture on Information Technology (IT) diffusion have been studied by Information Systems (IS) researchers (e.g. Straub, 1994; Straub et al., 1997; Kettinger et al., 1995) based on Hofstede's (1980) cultural construct. Specifically, cross-cultural studies on Enterprise Resource planning (ERP) systems implementation is an interesting topic in the IS field because ERP systems are often global systems (Tarafdar & Roy, 2003) representing a completely different class of IT application compared with traditional and simple IT (Amoako-Gyampah & Salam, 2003).

Recently, Hofstede (2000) specifies that the original instrument cannot be used to test individual-level relationships, and should be used only at the national level. Individuals will have different cultural orientation regardless of their nationality. McCoy (2003, p.1005) also argued "...it might be *not* appropriate to assume that the culture score of the entire country under investigation is the same score of the people within the same sample; individuals might have drastically different cultural outlooks, even within the same country", using empirical findings of individual-level difference of cultural orientation in multiple countries. While the various motivational antecedents of IT adoption behavior have been explained (e.g., Davis, 1989; Yi & Hwang, 2003), individual-level measurement of culture is relatively new dimension and should be tested in order to develop a more complete understanding of IT adaptation. Furthermore, the direct connection between individual-level cultural orientation and the antecedents of ERP system adoption has not been investigated. Thus, the current research-in-progress paper investigates these potential linkages based on the previous literature and proposes the following comprehensive research model.

## RESEARCH MODEL AND HYPOTHESES

Figure 1 presents the proposed research model. In addition to the Technology Acceptance Model (TAM) variables, such as intention to use, perceived usefulness, and perceived ease of use, the current study includes four more constructs as the antecedents of ERP adoption. Specifically, direct effect of individual-level cultural orientation on the usefulness and ease of use as well as mediating effects through enjoyment, personal innovativeness of IT, and computer self-efficacy will be tested.

Dorfman and Howell (1988) provided the individual-level measurement of cultural orientation based on the original Hofstede's four dimensions. Uncertainty avoidance is the degree to which a person prefers structured over unstructured

situations. Power distance is the degree of inequality among people. Masculinity is the degree to which masculine values prevail over feminine values. Individualism is the degree of acting as individuals rather than as members of cohesive groups. Bagchi et al. (2003) showed that (1) high individualism; (2) low power distance; and (3) low uncertainty avoidance dimensions of Hofstede’s cultural construct at the national level are related to IT adoption. The specific elements of the model with these three latent constructs of open cultural orientation and related hypotheses are further detailed below.

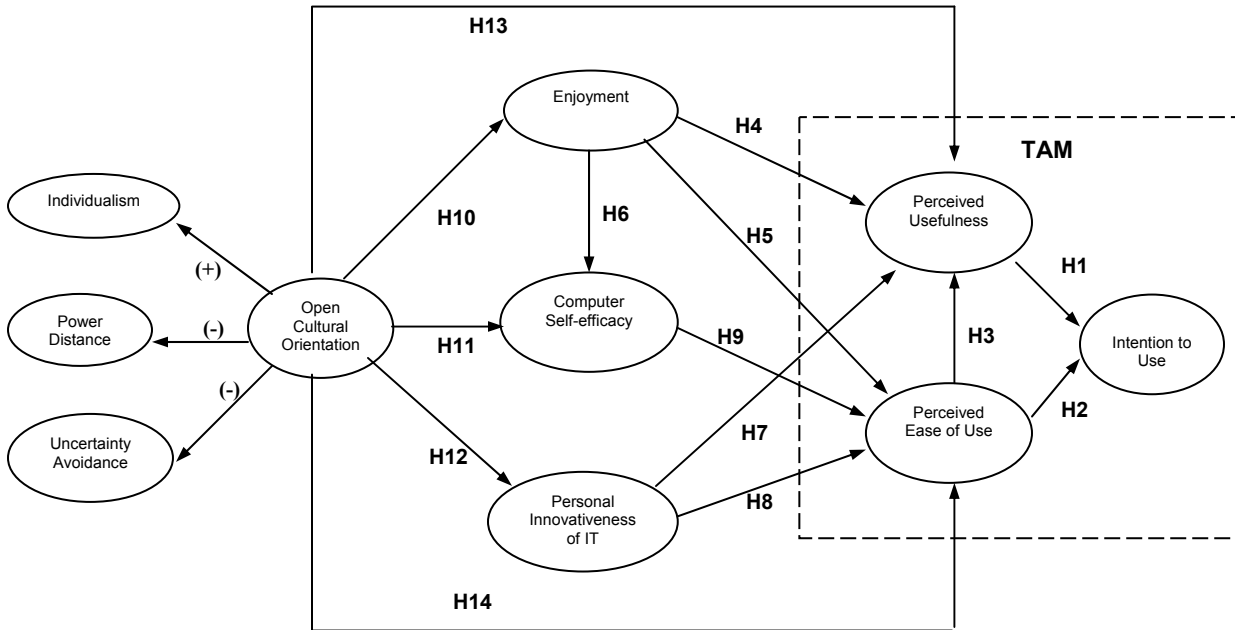


Figure 1. Proposed Research Model

**Technology Acceptance Model**

Technology Acceptance Model (TAM) is a well-known field in IS research. The relationships: perceived usefulness→intention to use (H1), perceived ease of use→intention to use (H2), and perceived ease of use→perceived usefulness (H3) have been investigated and supported by numerous TAM studies (e.g., Davis, 1989; Venkatesh and Davis, 1996). Hypotheses pertaining to these relationships on ERP system adoption are shown in the proposed research model in Figure 1.

*H1: Perceived Usefulness will have a positive effect on Intention to Use the ERP system.*

*H2: Perceived Ease of Use will have a positive effect on Intention to Use the ERP system.*

*H3: Perceived Ease of Use will have a positive effect on Perceived Usefulness.*

**Enjoyment**

Davis et al. (1992) explained the role of beliefs, suggesting that user intention to adopt a new IT is affected by both extrinsic (perceived usefulness) and intrinsic (enjoyment) motivations. Moon and Kim (2001) showed that playfulness, a similar construct to enjoyment, is an antecedent of WWW usage. Yi and Hwang (2003) also showed the direct and strong influence of enjoyment on perceived usefulness, perceived ease of use, and computer self-efficacy using the Blackboard system, a Web-based class management system. Thus, this study hypothesizes that;

*H4: Enjoyment will have a positive effect on Perceived Usefulness.*

*H5: Enjoyment will have a positive effect on Perceived Ease of Use.*

*H6: Enjoyment will have a positive effect on Computer Self-Efficacy.*

### Personal Innovativeness of IT

Rogers (1983) stated that diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. An innovation is a special type of communication, in that the messages are concerned with new ideas. Moore & Benbasat (1991) extended the set of perceptions proposed by Rogers (1983) to include seven perceived characteristics of an innovation as predictors of IT adoption behavior. Agarwal & Prasad (1998) also provided Personal Innovativeness of IT (PIIT), the willingness of an individual to try out any new information technology, as a trait and relatively stable predictor of individuals that is invariant across situational considerations. They provided the valid measures of PIIT and showed that PIIT has the moderating effect between perceptions about new IT (relative advantage, ease of use and compatibility) and intention to use new IT. Recent study by Lewis et al (2003) supported the direct positive effects of PIIT on perceived ease of use and perceived usefulness. This study hypothesizes that PIIT will have a positive effect on usefulness and ease of use based on the previous studies (Agarwal & Prasad, 1998; Lewis et al, 2003). If a person is more innovative, he or she will try out the new system for the relative advantage over the competitors by increased usefulness and ease of use perception. Thus, this study hypothesizes that:

*H7: Personal Innovativeness of IT will have a positive effect on Perceived Usefulness.*

*H8: Personal Innovativeness of IT will have a positive effect on Perceived Ease of Use.*

### Computer Self-Efficacy

Social cognitive theory (Bandura, 1986) is widely accepted and an empirically validated model of individual behavior in the social environment. Computer self-efficacy, an important component of social cognitive theory in technology use behavior, is defined as an individual judgment of efficacy across multiple computer domains. The relationship between computer self-efficacy and technology adoption behavior was supported in the previous empirical tests (e.g., Compeau et al., 1999). Prior research on user acceptance of technology mainly focused on examining the effects of computer self-efficacy on perceived ease of use (e.g., Venkatesh & Davis, 1996). Thus, the current study hypothesizes:

*H9: Computer Self-Efficacy will have a positive effect on Perceived Ease of Use.*

### Individual-level Cultural Orientation

Based on the Bagchi et al's (2003) study on the relationship between national culture and IT adoption, the current study hypothesizes that open cultural orientation (at the individual level) with high individualism, low power distance, and low uncertainty avoidance will positively influence the perceived usefulness and perceived ease of use in ERP system adoption. These three dimensions are shown as the reflective constructs of the latent construct, open cultural orientation, in the proposed model (see Figure 1). Also, computer self-efficacy, which is the antecedent of system adoption behavior, will be influenced by the individual-level cultural orientation based on the social cognitive theory (Bandura, 1986) positing that human behavior is explained via a model of triadic reciprocity in which behavior (adoption), cognitive factors (computer self-efficacy), personal factors (cultural orientation), and environmental events all operate interactively as determinants of each other.

The current study also hypothesizes that open cultural orientation will positively influence the enjoyment of using the ERP system. In the context of adopting a new technology, individuals with open cultural orientation are expected to enjoy the challenge of learning new features of the technology and develop self-confidence in using the technology. This study also proposes the direct positive relationship between open cultural orientation and PIIT since the open-minded person will try out new technology in a proactive manner. Specifically, the mediating effect of computer self-efficacy, enjoyment, and PIIT on the relationship between cultural orientation and ERP adoption will be tested. Therefore, the current study hypothesizes that;

*H10: Open Cultural Orientation will have a positive effect on Enjoyment.*

*H11: Open Cultural Orientation will have a positive effect on Computer Self-Efficacy.*

*H12: Open Cultural Orientation will have a positive effect on Personal Innovativeness of IT.*

*H13: Open Cultural Orientation will have a positive effect on Perceived Usefulness.*

*H14: Open Cultural Orientation will have a positive effect on Perceived Ease of Use.*

## METHOD

Glovia International ERP system will be the target system of the study. Glovia International, Inc, a subsidiary of Fujitsu in Japan, is a leading provider of extended ERP solution for companies with global operations of 900 customers in more than 100 countries. Specifically, Glovia International user group in the U.S. and Japan will be the target samples of this survey. These two countries have different cultural factors, Western and Asian economic model (Straub et al., 1997), and have been compared in other IS studies (e.g., Straub, 1994). An expert translator will translate the survey into Japanese for the user group in Japan to complete. The current study will also test whether the user groups in different nation have different cultural orientation. The survey will be conducted April through May 2004 and analyzed in June 2004. The result will be presented at the conference using Partial Least Square (PLS) Version 2.91.03.04 (Chin & Frye, 1998) because PLS technique avoids many of the restrictive assumptions underlying covariance-based structural equation modeling techniques such as multivariate normality and large sample size (Chin, 1998).

## CONCLUSION

The result of the study will clearly point out the important roles of individual-level cultural orientation influencing ERP system adoption behavior. The model will also illustrate the underlying relationships between motivational variables such as enjoyment, PIIT, and computer self-efficacy and the existing TAM variables, incorporating the new and interesting dimension of system adoption, individual-level cultural orientation. Whether enjoyment, PIIT and computer self-efficacy mediate the relationship between cultural orientation and TAM variables is also an important issue in system adoption research. Using the two different nations' user group samples, the current study will help researchers and practitioners understand these complex phenomena of cultural orientation and ERP system adoption in the global information age.

## REFERENCES

1. Agarwal, R., & Prasad, J., (1998) A Conceptual and Operational Definition of Personal Innovativeness in the Domain of Information Technology, *Information Systems Research*, 9, 2, 204-215.
2. Amoako-Gyampah, K & Salam, A.F., (2003) An Extension of the Technology Acceptance Model in an ERP Implementation Environment, *Information & Management*, in press.
3. Bagchi, K., Cerveney, R., Hart, P., & Peterson, M. (2003) The Influence of National Culture in Information Technology Product Adoption, *Proceedings of the Ninth AMCIS*, 957-965.
4. Bandura, A. (1986) *Social Foundations of Thought and Action: A Social Cognitive Theory*, Prentice-Hall, Englewood Cliffs, NJ.
5. Chin, W.W. (1998) The Partial Least Squares Approach to Structural Equation Modeling. In G. A. Marcoulides (Ed.), *Modern Methods for Business Research*, Mahwah, NJ: Lawrence Erlbaum Associates, 295-336.
6. Chin, W. W. & Frye, T. A., (1998) PLS-Graph (Version 2.91.03.04).
7. Compeau, D., Higgins, C.A. and Huff, S. (1999) Social Cognitive Theory and Individual Reactions to Computing Technology: A Longitudinal Study, *MIS Quarterly*, 23, 2, 145-158.
8. Davis, F.D. (1989) Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology, *MIS Quarterly*, 13, 3, 319-339.
9. Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1992) Extrinsic and Intrinsic Motivation to Use Computers in the Workplace, *Journal of Applied Social Psychology*, 22, 1111-1132.
10. Dorfman, P.W. & Howell, J.P. (1988) Dimensions of National Culture and Effective Leadership Patterns: Hofstede Revisited, *Advances in International Comparative Management*, 3, 127-150.
11. Hofstede, G., (1980) *Culture's Consequences: International Differences in Work-Related Values*, Beverly Hills, California, SAGE Publications.
12. Hofstede, G., (2000) *Personal Communications*, Beverly Hills, California, SAGE Publications.
13. Hofstede, G., (2003) What is Culture? A Reply to Baskerville, *Accounting, Organizations and Society*, 28, 811-813.
14. House, R., Javidan, M., Hanges, P., & Dorfman, P., (2002) Understanding Cultures and Implicit Leadership Theories across the globe: An Introduction to Project GLOBE, *Journal of World Business*, 37, 3-10.

15. Kettinger, W.J., Lee, C.C., & Lee, S., (1995) Global Measures of Information Service Quality: A Cross-National Study, *Decision Sciences*, 26, 5, 560-588.
16. Lewis, W., Agarwal, R., & Sambamurthy, V., (2003) Sources of Influence on Beliefs about Information Technology Use: An Empirical Study of Knowledge Workers, *MIS Quarterly*, 27, 4, 657-678.
17. Marakas, G., Yi, M., Johnson, R., (1998) The Multilevel and Multifaceted Character of Computer Self-Efficacy: Toward Clarification of the Construct and an Integrative Framework for Research, *Information Systems Research*, 9, 2, 126-163.
18. McCoy, S. (2003) Integrating National Culture into Individual IS Adoption Research: The Need for Individual Level Measures, *Proceedings of the Ninth AMCIS*, 1004-1007.
19. Moon, J., & Kim, Y., (2001) Extending the TAM for a World Wide Web context, *Information & Management*, 38, 217-230.
20. Moore, G., & Benbasat, I., (1991) Development of Instrument to Measure the Perceptions of Adopting an Information Technology Innovation, *Information Systems Research*, 2, 3, 192-222
21. Rogers, E., (1983) *Diffusion of Innovations*, Fourth Ed., The Free Press, New York
22. Straub, D. W., (1994) The Effect of Culture on IT Diffusion: E-Mail and FAX in Japan and the U.S., *Information Systems Research*, 5, 1, 23-47.
23. Straub, D., Keil, M., & Brenner, W., (1997) Testing the Technology Acceptance Model across Cultures: A Three Country Study, *Information & Management*, 33, 1-11.
24. Tarafdar, M & Roy, R., (2003) Analyzing the Adoption of Enterprise Resource Planning Systems in Indian Organizations: A Process Framework, *Journal of Global Information Technology Management*, 6, 1, 31-51.
25. Venkatesh, V. and Davis, F.D. (1996) A Model of the Antecedents of Perceived Ease of Use: Development and Test, *Decision Sciences*, 27, 3, 451-481.
26. Yi, M.Y. & Hwang, Y., (2003) Predicting the Use of Web-based Information Systems: Self-Efficacy, Enjoyment, Learning Goal Orientation, and Technology Acceptance Model, *International Journal of Human-Computer Studies*, 59, 431-449.