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A CROSS-CULTURAL INVESTIGATION OF THE USE OF KNOWLEDGE MANAGEMENT SYSTEMS

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1. INTRODUCTION

Increasing environmental volatility, coupled with constant pressure to deliver the best products and services to customers anywhere in the world, has forced many companies to spread their resources and knowledge worldwide in order to reduce political and economic risks, to access worldwide customers, and to best utilize natural and economic resources throughout the world (Bartlett and Ghoshal 1989; Kogut 1985; Stopford and Wells 1972). In order to assure consistent quality of products and services, many multinational corporations have adopted *knowledge management practice* and implemented worldwide *knowledge management systems* utilizing global communications networks and groupware technology, such as Lotus Notes.

Given the social nature of knowledge and learning, one can speculate that people will create and share knowledge with other members of the organization in ways that might differ depending on the culture of which they are a part. Using the existing literature in organizational learning (e.g. Huber 1991; March 1991; Pentland 1995), Giddens' (1984) Structural Theory, and Hofstede's (1993) framework of cultural consequences as guiding theoretical bases, we are conducting an exploratory, two-phased field study at a large global management consulting firm that actively uses knowledge management systems on a global scale. Specifically, we are examining the ways in which employees of the company in Korea and the United States utilize knowledge management systems to create, organize, and share knowledge.

2. RESEARCH QUESTIONS

The objective of this research in progress is to answer three fundamental questions: (1) What dimensions of knowledge management practice are universally effective across cultures? (2) What dimensions are culture specific? (3) Can the dimensions of knowledge management practice that are culture specific be explained in terms of an underlying theory that accounts for systematic differences across cultures?

3. THEORETICAL FOUNDATION

3.1 Organizational Learning and Knowledge Management

For our research, knowledge is defined as "a justified personal belief that increases an individual's capacity to take effective action" (Alavi and Leidner 1999, p. 5). We recognize both the cognitive and social nature of organizational knowledge and agree that organizational knowledge is embodied not only in the individuals' cognitions, but also in the collectives' practices and

cultures (Pentland 1995). Given this, knowledge management refers to a systematic and organizationally specified process for creating, organizing, and communicating both tacit and explicit knowledge among employees so that it may be used to make work more effective and productive (Alavi and Leidner 1999, p. 6). Based on this, knowledge management systems are defined as information systems designed specifically to facilitate the knowledge management practice.

Given the social nature of knowledge, one can speculate that the way in which people create, organize, and communicate knowledge with other members of the organization might be different depending on the corporate and national culture. Although existing literature sheds some light on the role of corporate culture in the way in which people utilize knowledge management systems in organizations (e.g., Orlikowski 1992), there is virtually no existing body of research on the influence of national cultures on knowledge management practice and knowledge management systems. Furthermore, the existing body of literature on knowledge management (e.g., Boisot 1998; Leonard-Barton 1995) is based largely on observations made in North American or Western European companies.

A substantial body of cross-cultural, social psychological, sociological, and anthropological research informs us, however, that many cultures do not share the assumptions of North American management theories. There is a growing awareness of the need for a better understanding of the way in which management practice is enacted in various cultures and a need for an empirically grounded theory to explain differential management practices and effectiveness across cultures (e.g., Boyacigiller and Adler 1991). The current research in progress is an initial step toward filling this gap. The study utilizes a field study to develop an empirically grounded, theoretically-based model of cross-cultural aspects of knowledge management practice and to test the model using a questionnaire survey with a large sample.

3.2 Hofstede's Framework of Cultural Consequences

According to Giddens' Structuration Theory, human actors are not only constrained by the social structures, such as culture and information systems, but also creatively construct the social systems in which they live, which in turn constrains their future actions. This implies that users of knowledge management systems would creatively reshape the technology based, at least in part, on the unique characteristics of their culture. Furthermore, structuration theory also suggests that individual users of knowledge management systems are not only consumers of the *objective* knowledge stored in the system, but also active creators of their own knowledge. Over time, this dynamic interplay between the culture and technology should result in unique socio-technological systems that produce different attitudes and behavioral patterns toward knowledge management systems and the organizational knowledge stored in them in different cultures.

The framework that guides this study is Hofstede's framework of cultural consequences. Hofstede's framework includes five dimensions of cultural values: individualism versus collectivism, masculinity versus femininity, tolerance versus intolerance of uncertainty, power stratification versus power equalization, and long- vs. short-term orientation. The major assertion of the framework is that there are several shared values, shared beliefs, and norms that are culture specific, and their differential cultural endorsement is predictive of a wide range of behaviors and practices. The evidence from previous cross-cultural studies suggests that Korea and the United States differ in all dimensions of Hofstede's theory (see Table 1).

Table 1. Values for Hofstede's Five Dimensions for South Korea and the United States

	Power Distance	Individualism	Masculinity	Long-term Orientation	Uncertainty Avoidance
South Korea	60 (high)	18 (very low)	39 (low)	75 (high)	85 (high)
United States	40 (low)	91 (very high)	62 (high)	29 (low)	46 (low)

The central theoretical proposition is that selected dimensions of values and beliefs that differentiate between Korea and the United States might be predictive of differences between the consultants in the two countries in their ways of creating, organizing, and sharing knowledge, both with and without knowledge management systems. For example, the high uncertainty avoidance and the low individualism characteristic of Korea suggests that consultants in Korea may engage more in exploitation of learning (March 1991) or mental model maintenance (Vandenbosch and Higgins 1996), as opposed to exploration or mental model

building. Also, given the high power distance and the emphasis on harmony for hierarchical relationships, Korean consultants might find information posted by senior consultants to be more credible than that posted by more junior colleague with domain expertise. The second proposition being tested is that there are some common attitudes and behavioral patterns found consistently among high-performing consultants that differentiate them from average-performing consultants regardless of their cultural base. In this exploratory study, we do not have specific *a priori* hypotheses to test for this second proposition. Instead, the results of the first phase of the study will be used to generate hypotheses to be tested in the second phase.

4. RESEARCH METHODOLOGY

We will conduct a field study in two phases to answer the research questions. The first phase involves an inductive, qualitative investigation and the second phase involves a quantitative and confirmatory survey study. The study will be conducted in a single global management consulting firm that actively utilizes knowledge management systems. Given the possible interactions between national and corporate cultures, an investigation of a single company will allow us to control the influence of corporate culture on attitudes and behaviors toward knowledge management practice and systems. In other words, this design allows us to rule out the possibility of finding different cognitive and behavioral patterns toward knowledge management practice and systems due to differences in corporate cultures, not national cultures. Although this selection of research design might limit the generalizability of the study findings, it will enhance the internal validity that is important in the early stage of theory development.

First Phase. The first phase of the study is an inductive stage to build an empirically grounded theoretical model. There are two objectives of the first phase. First, we will identify the differences between the high-performing and average-performing consultants in terms of their attitudes and behaviors toward knowledge seeking and sharing both with and without knowledge management systems across cultures. Second, we will identify differences between Korean and American consultants in terms of their attitudes and behaviors related to knowledge management.

To achieve these goals, we will use an extreme case study method (Boyatzis 1998), which involves three steps: (1) the identification of criterion samples (in this case, a criterion of "high-performers" and "others," since a criterion for Korean and U.S. consultants are clear), (2) data collection, in this case, in-depth critical incident interviews, and (3) data analysis.

For the identification of criterion samples, we will first ask supervisors of the firm to identify 20 high-performing consultants and 20 average-performing consultants in each country in a specific practice. This will result in a two-by-two matrix with 20 consultants in each cell (Figure 1).

Korean high-performers	Korean average-performers
American high-performers	American average-performers

Figure 1. Classification of the Interview Subjects

Then, we will conduct in-depth critical incident interviews with these consultants regarding the way in which they create, organize, and share knowledge in their daily routine both with and without the company's global knowledge management systems. Some of the interview questions will be adopted from previous studies examining the role of information systems in organizational learning (e.g., Vandenbosch and Higgins 1996). The interview results will be transcribed for thematic analysis methods (Boyatzis 1998) to extract unique characteristics of each cell. The results of the thematic analyses will be examined from the perspective of Hofstede's model and existing theoretical models of organizational learning to further explain the differences across the cells.

Finally, based on the themes extracted from the thematic analyses, we will develop a questionnaire to measure individuals' attitudes and behaviors toward knowledge management practice and their use of knowledge management systems. The

questionnaire will be validated through the standard questionnaire validation process (Churchill 1979). Once validated, the questionnaire will be translated into Korean and back-translated into English for validation purposes.

Second Phase. The purpose of the second phase is to confirm the theoretical model developed in the first phase by conducting a survey with a larger sample of consultants in both countries. The exact number of sample size will be determined based on the number of items on the questionnaire to achieve an adequate level of statistical power. We will administer questionnaires that include items developed from the first phase as well as other items related to team performance, organizational culture, and team development. The data will be examined using structured equation modeling tools such as PLS.

5. EXPECTED CONTRIBUTIONS

5.1 Theoretical Contributions

The results of the proposed study will contribute to the body of knowledge as follows:

1. The study will help us build an empirically grounded, theoretically-based model of cross-cultural aspects of knowledge management practice. More specifically, the model will help us identify culture-neutral and culture-specific behavioral and cognitive aspects of knowledge management practice that positively relate to effective organizational learning.

2. A set of questionnaires for measuring behavioral and cognitive aspects of knowledge management practice will be developed and validated. Based on the results of the initial stage of the project, we will develop the questionnaires to confirm the theoretical model developed from the early stage of the project.

5.2 Practical Contributions

Organizational learning has become a central theme for organizational and management theorists and practitioners (e.g., Nadler, Gerstein and Shaw 1992; Senge 1990) and knowledge management is being seen as a major tool to facilitate effective organizational learning (Alavi and Leidner 1999; Davenport and Prusak 1998). As such, companies are pouring millions of dollars annually into research and development of more effective knowledge management processes and systems. Yet, companies are developing these tools from a "Western" cultural perspective and implementing them in a global scale without considering the local cultures. Recently, two practitioners who are working in the area of knowledge management for a global management consulting firm wrote a paper calling for rigorous research to understand the role of national culture knowledge sharing (Datta and Torrey 1999). As demonstrated in their paper, there is a pressing need to conduct a cross-cultural study on knowledge management practice and knowledge management systems. The results from this research in progress will provide clear guidance for companies who are trying to develop and implement knowledge management systems on a global scale.

6. TIME SCHEDULE

Preliminary interviews in the U.S. and Korea for the purpose of sampling and the development of interview questions will be conducted in May 1999. Actual in-depth interviews will be conducted in Fall 1999. By the time of the conference in December, we will be able to present the preliminary findings from our in-depth interviews with consultants both in Korea and the U.S.

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