

## **Relationship between Individual Cultural Values and Knowledge Sharing in Selected Multinational Companies in Malaysia**

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### **Abstract**

Managing knowledge in different locations around the globe has become a great concern for multinational corporations (MNCs) due to differences in individual cultural values. Such cultural differences inhibit the sharing of knowledge among employees. Ironically, the impact of individual cultural values on knowledge sharing has received limited attention in the international business literature. This research is an attempt to close this gap by examining the relationship between cultural values and knowledge sharing behavior. Data were collected from a sample of 231 senior officers in selected MNCs in Malaysia. Confirmatory factor analysis was employed to examine the reliability and validity of the measurement model. The structural equation modeling technique using AMOS software was used to test the model. Findings revealed that horizontal and vertical collectivism had significant positive impact on knowledge sharing behavior. Vertical individualism had significant negative effect on knowledge sharing behavior. Theoretical and managerial implications are discussed.

*Key words:* cultural values; knowledge sharing behavior; power distance; collectivism; individualism; masculinity

*JEL classification:* M10; M16

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### **1. Introduction**

#### **1.1 Background to the Study**

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Knowledge has today become a vital factor of production for most organizations and specifically for multinational corporations (MNCs) that operate across global boundaries. According to the resource based view of the firm, firms can maintain and achieve sustainable competitive advantage and earn superior profits if it owns and controls tangible and intangible assets (Wernerfelt, 1984, 1995). The eclectic framework of Dunning (1980) and empirical work of Pearce (1993) clearly acknowledged technology and knowledge as important sources of ownership advantage for MNCs to achieve competitive advantage and compete globally. Recent research also showed that effective knowledge sharing (KS) has strong impacts on organizational learning and effectiveness (Yang, 2007), work practices (Berends, 2005), and innovative capability (Lin, 2007). A survey of 234 firms in Russia, China, and Finland revealed that knowledge management practices had positive impacts on financial performance and competitiveness of the firms (Andreeva and Kianto, 2012). In addition, a survey of technology firms in Spain and Colombia found positive impacts of KS mechanisms on innovative capabilities of the firms (Saenz et al., 2012).

In line with these views, MNCs have to find ways to enhance KS capabilities and create effective mechanisms and strategies to promote KS to remain competitive and stay ahead. However, MNCs face many barriers that inhibit the sharing of knowledge, and one of these is the many cultural issues that arise when MNCs operate in different countries. Enhancing KS can be very challenging since employees of these MNCs may come from diverse cultural and ethnic backgrounds. Thus, culture is therefore a major factor influencing the success of knowledge management (KM) in organizations (Hasanali, 2002; Snyman and Kruger, 2004; Forstenlechner and Lettice, 2007; Suppiah and Sandhu, 2011).

## **1.2 Research Problem**

KS is a subset of KM. While, KM emphasizes more on the methods in which organizations create, retain, and share codified and tacit knowledge (Teece, 2000; Argote, 1999; Huber, 1991), KS looks more at the sharing of knowledge between people in organizations. KS can occur both at the group and organizational level. It is argued that organizational knowledge resides in the interactions and transactions between individuals and therefore forms the basis of competitive advantage (Argote and Ingram, 2000; Nonaka, 1991; Spender and Grant, 1996). Implicit in these transactions is the assumption that individuals will share with and transfer their knowledge to others, which may or may not occur in circumstances where knowledge sharing is regarded as a voluntary action (Dougherty, 1999). However, individuals may have different cultural values (CVs), and these differences may influence their KS behavior. Examining cultural values at the individual level is therefore more appropriate since it influences personal thinking and attributes (Dake, 1991). Thus, research on cultural values should focus more on individual perspectives to obtain more meaningful findings (Soares et al., 2007) rather than aggregating cultural values at the national level, which reduces the opportunity to reveal variations that might exist at the individual level (Laroche et al., 2005).

Past research shows that there are several studies that relate CVs to management and marketing related areas. For example, there are studies that examine the relationship between CVs and leadership (Dorfman and Howell, 1988), the impact of CVs and empowerment (Dimitriadis, 2005), the relationship between CVs and performance management (Mendonca and Kanungo, 1996), the impact of CVs (individualism) on innovation rates (Taylor and Wilson, 2012), and the relationship between CVs and service quality (Kueh and Voon, 2007). Three recent studies tried to relate culture to KS, but the focus was more on organizational culture (Al-Alawi et al., 2007), cross-country cultural differences (Forstenlechner and Lettice, 2007), and cultural factors such as language proficiency, education and schooling, gender biases, age, and work experience (King et al., 2007). There is limited research that looks at cross-cultural issues and its impact on KM (Ford and Chan, 2003). There is even greater paucity of research on the impact of CVs on KS, and Hofstede himself has agreed that different national cultures encompass distinct CVs. Thus, it is the objective of this present study is to provide insights into the impacts of CVs on KS behavior.

This study focuses on MNCs, where knowledge plays an important role and is the original setting of KS and KM concepts, which can be traced back to the practice of knowledge transfer in MNCs (Gupta and Govindarajan, 1991; Davidson, 1980, 1983) since the growth of foreign direct investment beginning in the 1970s. Malaysia has been selected for this study because of its unique cultural diversity and an attractive destination for MNCs direct investments in the emerging markets.

## **2. Literature Review**

A review of theories on KM reveals that initial studies linked KS to communication theory, where the sharing of knowledge was seen as a form of information exchange between individuals in organizations (Shannon and Weaver, 1949; Cummings, 2003). In the 21<sup>st</sup> century, knowledge was referred to as a central part of continuous learning in organizations, which occurred through interaction among employees. This phenomenon eventually became known as part of what is known today as organization learning theory (Szulanski, 2000). One of the most important theories in the field of KM was developed by Nonaka (1994), which he termed the dynamic theory of knowledge creation. This theory provided a comprehensive theoretical view on how to conceptualize the entire knowledge creation process, which later became known as the SECI model. Within the four modes (socialization, externalization, combination, and internalization), KS played a vital role for all conversions to succeed (Nonaka, 1994). Nonaka (1994) argued that the key to the success of KS ultimately depended on the individual and organizational commitment. It is also evident that most of the research in the 1990s emphasized the technological aspect of KM, such as KM systems (Gray, 2000), the role of information technology in KM (Barney, 1991), and knowledge mining and decision support systems for KM (Holsapple and Joshi, 2001; Spiegler, 2003). However, recently many organizations realized that technology is only an enabler

and the main success of KS lies in the hands of people. Thus, the focus of KS should be more on the organizational members who are involved in the sharing of knowledge.

### **2.1 Knowledge Sharing**

KS can be referred to as the process of capturing knowledge or moving knowledge from a source unit to a recipient unit (Bircham-Connolly et al., 2005). Willem (2003), on the other hand, defines KS as the exchange of knowledge between two parties in a reciprocal process allowing reshaping and sense-making of the knowledge in the new context. Today's professionals are confronted with the "information-based, knowledge-driven, service-intensive economy" (Bartlett and Ghoshal, 2002). Thus, knowledge is dependent on the individuals in the organization. It has been suggested that organizational knowledge resides in the interactions between individuals which forms the basis of competitive advantage (Argote and Ingram, 2000; Nonaka, 1991). While "communication of knowledge is important, it is the processes through which knowledge is shared that determine whether organizational learning occurs and, therefore, whether a knowledge-sharing process was a success" (Cummings, 2003, p. 4).

### **2.2 Cultural Values**

There are various definitions of culture. Hofstede (1984a, p. 51) defines culture as "[t]he collective programming of the human mind that distinguishes the members of one human group from those of another. Culture in this sense is a system of collectively held values." According to Smith and Schwartz (1997, p. 80), CVs refer to desirable goals and act as modes of conduct that promote these goals and serve as guidelines to evaluate behavior. CVs are "embedded in the collective memory of people of a particular society" (Ali et al., 2005). One of the most extensively used frameworks developed to examine cultural values is Hofstede's model of cultural dimensions (Hofstede, 1997). Hofstede (1997) conducted a comprehensive study from 1967 to 1973 and analyzed data from over 100,000 individuals from 40 countries. The four dimensions identified were power distance (PD), individualism (I) versus collectivism (C), uncertainty avoidance (UA), and masculinity (M) versus femininity (F) (Hofstede, 1980a). The fifth dimension—long-term (LT) versus short-term orientation (ST) was added later based on another survey conducted by Chinese scholars in 23 countries (Hofstede and Bond, 1988; Hofstede, 2001). A brief description of the meaning of each dimension is summarized in Table 1.

Hofstede's CVs framework has been used extensively by other authors to develop various CVs dimensions (Trompenaars, 1994; Triandis, 1995; Schwartz, 1992; House et al., 2004), and it has become a solid foundation for cross-cultural studies at the national as well as individual unit level (Blodgett et al., 2008). Hofstede's cultural framework has been applied in many fields such as marketing (Alden et al., 1993; Gregory and Munch, 1997; Zandpour et al., 1994), brand strategies (Roth, 1995), and ethics (Blodgett et al., 2001). Nonetheless, Hofstede's

cultural framework has received vast criticism over the years, particularly towards the reliability of Hofstede's original CVs instrument (Bakir et al., 2000; Kagitcibasi, 1994; Kruger and Roodt, 2003; Yoo and Donthu, 1998; Taras et al., 2010). Bakir et al. (2000) argued that Hofstede's framework suffers from operationalization weaknesses. Kruger and Roodt (2003) found that Hofstede's Value Survey Module 94 (32-item instrument) had weak reliability coefficients. Blodgett et al. (2008), on the other hand, empirically tested Hofstede's 32-item cultural instruments at the individual level and found it also lacked construct validity and had low reliability values. Several authors argued that the individualism-collectivism construct cannot be treated as a bipolar dimension (Triandis, 1995; Coon and Kemmelmeier, 2001). Triandis (1995) argued that the approach used by Hofstede (1980a) to measure collectivism and individualism on a continuum as a bipolar dimension is problematic since it views the construct as unidimensional. Triandis (1995) proposed the multidimensional view and further subdivided collectivism and individualism into horizontal and vertical collectivism and individualism. This approach was able to further capture CVs with greater depth.

Table 1. Cultural Dimensions

| Cultural Dimension               | Meaning                                                                                                                                                                                                                                                                                                                              |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Distance                   | The extent to which the less powerful members of institutions and organizations expect and accept that power is distributed unequally.                                                                                                                                                                                               |
| Individualism-Collectivism       | Individualism is contrasted with collectivism and refers to the extent to which people are expected to stand up for themselves and to choose their own affiliations or, alternatively, to act predominantly as a member of a life-long group or organization.                                                                        |
| Uncertainty Avoidance            | Reflects the extent to which members of a society attempt to cope with anxiety by minimizing uncertainty.                                                                                                                                                                                                                            |
| Masculinity-Femininity           | Refers to the value placed on traditionally male or female values (as understood in most Western cultures). So-called "masculine" cultures value competitiveness, assertiveness, ambition, and the accumulation of wealth and material possessions, whereas feminine cultures place more value on relationships and quality of life. |
| Long-Term/Short-term Orientation | Describes a society's "time horizon," or the importance attached to the future versus the past and present.                                                                                                                                                                                                                          |

Despite not adopting Hofstede's actual instrument due to its poor reliability, a large number of studies have confirmed the relevance of its cultural dimensions in international marketing and consumer behavior (Soares et al., 2007). Bakir et al. (2000) stated that Hofstede's framework has "intuitive conceptual appeal." Sondergaard (1994) noted that Hofstede's work is widely acknowledged, receiving no less than 1063 direct references in journals. The practice of measuring culture via a set of values has generally been accepted and used by many authors (Leung et al., 2002; Smith et al., 2002). However, Javidan et al. (2006) advised that the selection of cultural dimensions should depend on the scope of research in general and cultural values may not relate to all behavioral practices but only to certain relevant ones. Based on Triandis's multidimensional view, a more reliable instrument to measure horizontal and vertical collectivism and horizontal and vertical

individualism was recently developed by Sivadas et al. (2008). This instrument was found to have better psychometric properties.

### **2.3 Past Studies on the Impact of CVs on KS**

Our review of the literature on the impact of CVs on KS narrows our discussion to two important studies recently conducted. The first one was a case study of a Japanese manufacturing subsidiary in the US (Ford and Chan, 2003). The purpose of this research was to explore the extent to which KS is dependent on national culture. The study employed both quantitative and qualitative methods to gather data. Hofstede's VSM-Survey instrument was used to collect data on cultural dimensions (individualism, power distance, masculinity, uncertainty avoidance, and long-term orientation) (Ford and Chan, 2003). Results showed that organizational culture had greater impact than national culture on KS behavior. Ford and Chan's study is different from the current study in a number of ways. First, their focus was on an MNC located in a developed country. Second, they employed Hofstede's VSM-Survey instrument, which has been found to have poor construct reliabilities. Third, their entire study is based on a case study of one MNC, which reduces its generalizability.

The second study is very similar to the current study. Wolfe and Loraas (2008) conducted two lab experiments where MBA students were taken as participants. The objective of their study was to examine factors promoting KS in a professional service firm. The I-C CV was included as one of the main determinants of KS in their theoretical framework. It adopted Triandis's CV typology that subdivided the I-C constructs into V-I, H-I, V-C, and H-C. Results showed that V-C and H-C were found to have positive effects on KS intentions. Conversely, V-I and H-I both had negative effects on KS intentions. This research is also different from their study in three ways: First, their study measures I-C based on the scale developed by Triandis and Gelfand (1998). This scale was found to be less robust than the one used in this present study (Sivadass et al., 2008). Second, their study was based on lab experiments and used students as respondents. This reduces its external validity (Wolfe and Loraas, 2008). Third, KS was measured by observing KS intentions and not actual KS behaviors (Wolfe and Loraas, 2008).

### **2.4 Hypotheses Development and Theoretical Framework**

The theoretical framework for this research is based on a combination of Hofstede's (1980a) original typology on cultural dimensions and Triandis's seminal work that sub-divided the original collectivism and individualism dimensions into four types: horizontal collectivism (H-C), vertical collectivism (V-C), horizontal individualism (H-I), and vertical individualism (V-I) (Triandis, 1995). The I-C cultural dimension has been identified as the most vital and strongest construct to give a clear understanding of the differences between individual behavior among different cultures (Oyserman et al., 2002; Triandis, 2004; Williams, 2003). The PD dimension was not included since it was similar to the V-C and V-I dimensions.

Triandis (2004) relates the H-I construct to low PD and high individualism and the V-I construct to high PD and high individualism. H-C on the other hand can be referred to as having low PD and high collectivism and V-C is high PD and high collectivism. LT and UA were excluded since we could not find logical arguments to support its impact on KS behavior.

#### 2.4.1 Collectivism

Collectivism “is characterized by a tight social framework in which people distinguish between in-groups and out-groups; they expect their in-groups (relatives, clan, organizations) to look after them, and in exchange for that they feel they owe absolute loyalty to it” (Hofstede, 1980, p. 45). Members in collectivistic society emphasize more on maintaining their relationship with others (Markus and Kitayama, 1991) and tend to avoid offending people’s feelings (Gudykunst et al., 1996). Ardichvili et al. (2006) found that members are more willing to share knowledge if they are part of the in-group and not willing to share knowledge with members not within the group. In-group collectivism was defined as “the degree to which individuals express pride, loyalty and cohesiveness in their organizations or families,” and members are highly interdependent and have a common sense of fate (Alavi, 2003). V-C emphasizes cooperation, group conformity, respect for authority, and hierarchy, whereas H-C focuses on equality (Triandis and Gelfand, 1998). We argue that both V-C and H-C are positively related to KS behavior. While, members in a H-C society are voluntarily willing to cooperate with their members to meet group goals, members in a V-C society are willing to cooperate within the in-group but through submitting themselves to the authority.

In line with this argument, the following hypotheses are tested:

H<sub>1</sub>: H-C and KS behavior are positively related.

H<sub>2</sub>: V-C and KS behavior are positively related.

#### 2.4.2 Individualism

Individualism “implies a loosely knit social framework in which people are supposed to take care of themselves and their immediate families only” (Hofstede, 1984b, p. 83). People in individualistic societies may belong to many in-groups, but their relationships with other group members tend to be loose as compared to collectivists (Triandis, 1995). In an individualistic society, people pay more attention to personal goals and pleasure and less to group goals, and they tend to maintain independence from other members (Ali et al., 2005; Markus and Kitayama, 1991). Assertiveness, independence, personal self-gratitude, self-reliance, and self-control are some of the personal values that can be seen in individualistic society (Ali et al., 2005). Members in individualistic cultures tend to focus more on their “uniqueness” than on their connectedness with others (Markus and Kitayama, 1991). V-I emphasizes hierarchy while H-I stresses equality (Triandis and Gelfand, 1998). We argue that members in a V-I society tend not to share knowledge or even hoard knowledge since knowledge is considered a powerful ownership advantage in a

hierarchical organizational structure. However, the situation may be different in an H-I society. Although its members may not share knowledge voluntarily, the overall organization climate may influence their KS behavior in the work place. MNCs are known to have effective organizational culture that can encourage and unite members of the organization. According to Wagner and Moch (1986), if collective effort provides a gain to the individual, then they may be encouraged to work collectively (Wagner and Moch, 1986). Moreover, members in a horizontal society believe in “equality,” which can be a motivating factor to encourage KS. We test the following hypotheses:

H<sub>3</sub>: H-I and KS behavior are positively related.

H<sub>4</sub>: V-I and KS behavior are negatively related.

#### **2.4.3 Masculinity**

Masculinity denotes “the extent to which the dominant values in society are ‘masculine’ that is, assertiveness, the acquisition of money and things, and not caring for others, the quality of life, or people” (Hofstede, 1980, p. 46). The masculine value orientation emphasizes masculine values, such as achievement, performance, and competitiveness (Singh and Matsuo, 2004). Thus, members in a masculine society are more competitive and may be less willing to share knowledge since they may view this as a competitive advantage. This characteristic denotes the individualistic values. Employees in MNCs may tend to show masculine characteristics since the environment in such firms is very competitive and career advancement is very much based on performance. Thus, we consider the hypothesis:

H<sub>5</sub>: Masculinity and KS are negatively related.

The theoretical framework for this study is depicted in Figure 1. The response variable in this research is “KS behavior” and the covariates are H-C, V-C, H-I, V-I, and masculinity. The suggested conceptual framework is depicted in Figure 1.

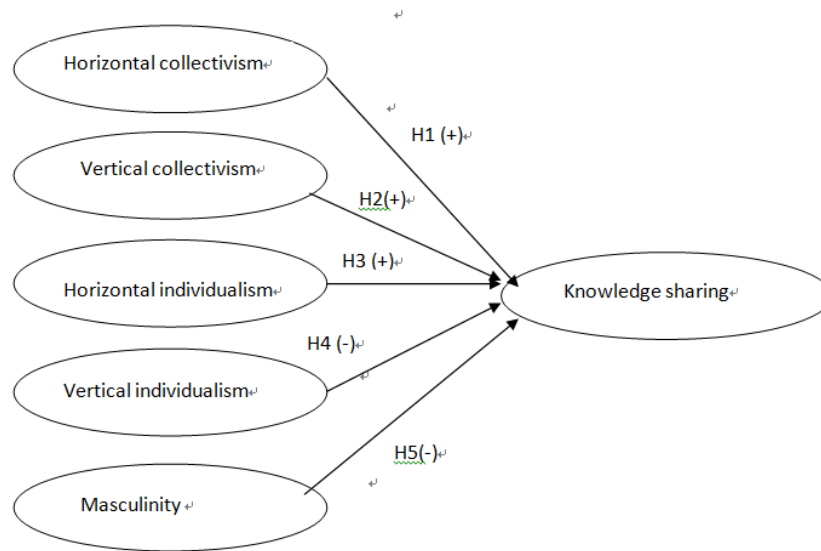
### **3. Methodology**

#### **3.1 Data Collection Method**

This research employed the survey based methodology to collect data. The drop-off survey method was used to elicit information from executives in the various MNCs. Purposive sampling was used to ensure that the desired information can be collected from the ones that have it (Sekaran, 2003). In the first stage, 25 knowledge-based firms were randomly selected from the MSC list (Multimedia Supercorridor). MSC is basically a status given by the Malaysian government to firms that use extensive use of knowledge to produce their products. The 25 knowledge-based MNCs selected were operating within the Klang Valley—the main business district in Kuala Lumpur. In the second stage, 30 questionnaires were then distributed to each of the selected MNCs (750 questionnaires). A total of 197 usable

questionnaires were returned giving a response rate of 26%. The list of MNCs that participated in the survey is shown in Table 2.

**Figure 1. Schematic Diagram of the Conceptual Framework**



**Table 2. Lists of MNCs in the Sample**

|                          |                   |                    |                  |
|--------------------------|-------------------|--------------------|------------------|
| Citi Bank                | Glaxo Smith Kline | Nestle             | UMW Toyota       |
| Carrier                  | Mox Linde         | Sony               | Frost & Sullivan |
| Siemens                  | Shell             | Erricson           | DiGi             |
| British American Tobacco | Hewlard Packard   | Panasonic          | Nokia            |
| HSBC                     | Dell              | DSKH               |                  |
| Avon                     | Motorolla         | Standard Chartered |                  |
| Ericsson                 | Qi Services       | FWU                |                  |

### 3.2 Measurement

The items for the constructs were adapted from past studies and measured on a seven point Likert scale (1=strongly disagree to 7=strongly agree). Table 3 lists all the constructs, numbers of items used to measure them, and sources.

### 3.3 Data Analysis Techniques

The study included an exploratory analysis, a confirmatory factor analysis, and a test of a structural model. Exploratory factor analysis (EFA) is useful in the early stage of empirical analysis to assess factor structure and to help in developing hypothesized measurement models that can subsequently be tested using confirmatory factor analysis (CFA) (Koufteros, 1999). The factor analysis for CVs generated 11 factors with a total cumulative percentage of variance of 63%. Only 6 factors were found to have a meaningful relationship, and therefore these factors

were retained and interpreted. One item from the V-C and two from the masculinity construct were omitted since they were found not to fall under their proposed respective group. The factor analysis for KS behavior (DV) generated two factors with a total cumulative percentage of variance of 63%. For ease of analysis only, one factor that provided meaningful relationship was retained and interpreted. These factors are depicted in Table 4.

**Table 3. Constructs and Source**

| CONSTRUCT                                        | NUMBER OF ITEMS | SOURCE                                                          |
|--------------------------------------------------|-----------------|-----------------------------------------------------------------|
| Horizontal Collectivism (HORCOLL)<br>(Covariate) | 4               | Sivadas et al., 2008 (adapted and modified from Triandis, 2005) |
| Vertical Collectivism (VERTCOLL)<br>(Covariate)  | 4               | Sivadas et al., 2008 (adapted and modified from Triandis, 2005) |
| Horizontal Individualism (HORIND)<br>(Covariate) | 3               | Sivadas et al., 2008 (adapted and modified from Triandis, 2005) |
| Vertical Individualism (VERTIND)<br>(Covariate)  | 3               | Sivadas et al., 2008 (adapted and modified from Triandis, 2005) |
| Masculinity (MASC)<br>(Covariate)                | 4               | Yoo et al., 2001 (CV SCALE), Yoo and Donthu, 1998 (CV SCALE)    |
| KS Behavior (KSBEHAVIOR)<br>(Response variable)  | 6               | Van den Hooff and de Ridder, 2004                               |

Nevertheless, EFA failed to directly assess unidimensionality (Gerbing and Anderson, 1988). To develop a good measurement model, CFA with a multiple-indicator measurement model was used to assess unidimensionality (Segar, 1997). CFA involves the estimation of one or more hypothesized models of factor structure, each proposes a set of latent variables to account for co-variances among a set of observed variables (Koufteros, 1999). CFA is performed on the entire set of items simultaneously (Lu et al., 2007), where it is conducted to identify factors relevant to the latent variables that underlie the complete set of items. Therefore, prior to testing the structural equation modeling (SEM) procedure, CFA of the model was conducted to identify the unidimensionality. Last, the proposed model was tested using SEM computed by AMOS 18.

Convergent validity can be assessed by examining the significance of item loadings through t-values (Dunn et al., 1994). A t-value greater than 1.96 implies statistical significance at the 5% level (Byrne, 2001). The larger the factor loadings (or coefficients), as compared with their standard errors, the stronger the relationship between the observed variables and the respective latent factor (Koufteros, 1999). The overall fit of a hypothesized model was tested using maximum likelihood chi-square statistic and other goodness-of-fit indices. Discriminant validity was assessed by comparing the average variance extracted to the squared correlation between constructs. If the model fits the data adequately, the t-values of the structural coefficients will be used to test the research hypotheses.

## 4. Analysis and Results

### 4.1 Structural Equation Modeling

#### 4.1.1 Confirmatory Factor Analysis

Before performing CFA analysis, the normality of the indicators was examined by means of univariate skewness and kurtosis. All of the indicator values were less than the problematic threshold of 2.0 and 7.0 for skewness and kurtosis (Curran et al., 1996). The path diagram presented in Figure 1 implies a measurement model where there are 6 constructs (common factors) made up of their corresponding multiple measures (indicators). To estimate the measurement model for constructs with more than one item, the indicators of the construct must be standardized to make the constructs comparable (Koufteros, 1999). One of the loadings in each construct was set to a fixed value of 1.0. At the left of the figure, the errors,  $e$ , are seen in observed variables. A straight arrow pointing from an oval shape latent variable to a rectangle observed variable indicates the causal effect of the latent variable on the observed variable. A double arrow indicates that the variables are correlated.

#### 4.1.2 Convergent Validity, Item Reliability, and Variance Extracted Measures

Construct reliability measures the degree to which a set of latent indicators share the measurement of a construct. Highly reliable constructs imply that indicators are highly intercorrelated and reflect all measures of the same construct. Computations for each construct are shown in Table 2. Convergent validity shows internal consistency of the degree of interrelatedness among the observed items using unidimensionality significant loadings through t-values, composite reliability, and average variance extracted (AVE). Table 4 shows that each item exceeds the critical ratio at the 5% significance level. Thus all indicators were significantly related to their specified constructs, verifying the posited relationship among the indicators and latent variables. Meanwhile, convergent validity is also demonstrated by the composite reliability varying from 0.7307 to 0.8841, with H-C, V-C, H-I, V-I, M, and KS 0.8104, 0.7979, 0.7307, 0.8004, 0.8536, and 0.8841 respectively. All constructs exceeded the recommended cut-off level of 0.70 (Hair et al., 2006).

The AVEs ranged from 0.4823 to 0.7455. Among the AVEs of the measures, all constructs had a variance extracted value that was higher than the recommended level of 50%, except for the construct H-I which had the lowest value of 0.4823. It is still acceptable since 48% of the variance in the specified indicators was accounted for by the construct.

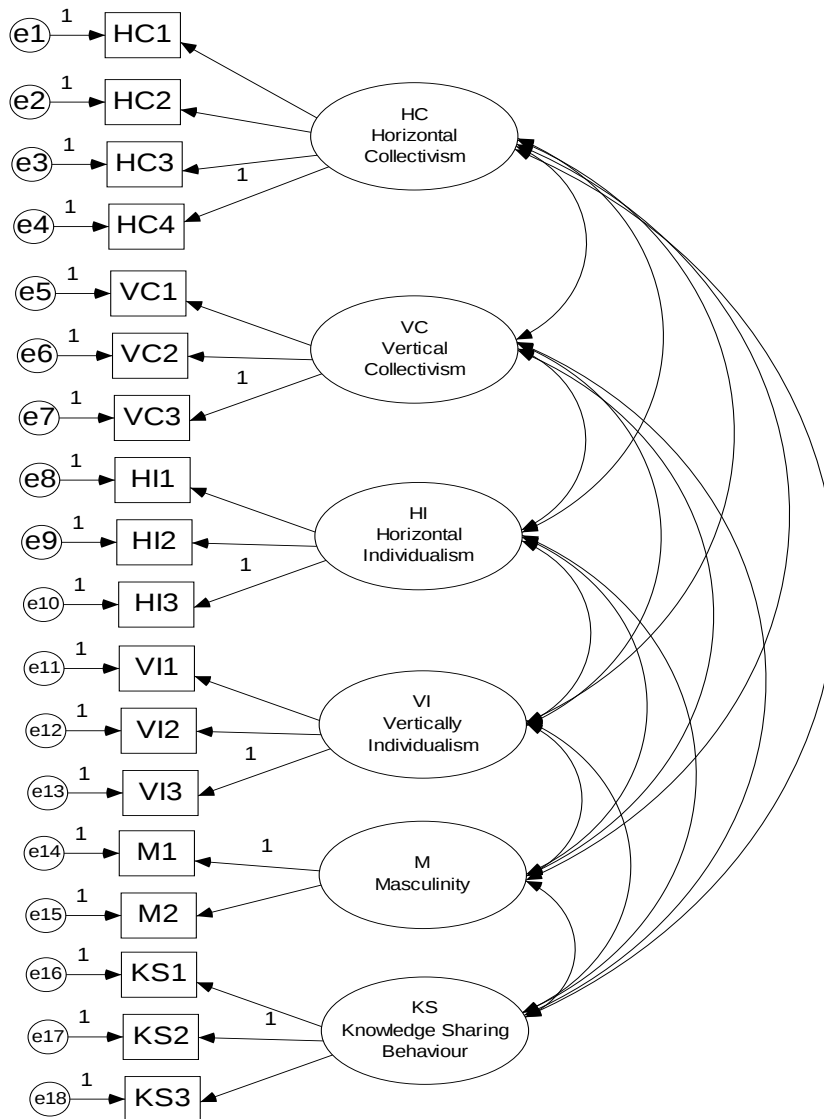
**Figure 2. Path Diagram Representing the Measurement Model**

Table 4. Results of CFA

| Constructs and items                                                                | Item code | Unstandardized factor loading | Standardized factor loadings | S.E.  | C.R.   | Squared multiple correlation |
|-------------------------------------------------------------------------------------|-----------|-------------------------------|------------------------------|-------|--------|------------------------------|
| <b>Horizontal Collectivism (H-C)</b>                                                |           |                               | 0.529-0.850                  |       |        |                              |
| The well-being of my co-workers is important to me                                  | HC1       | 1.297                         | 0.785                        | 0.128 | 10.148 | 0.616                        |
| I feel good when I cooperate with others                                            | HC2       | 1                             | 0.690                        | -     | -      | 0.477                        |
| My happiness depends very much on the happiness of those around me                  | HC3       | 1.348                         | 0.529                        | 0.188 | 7.180  | 0.280                        |
| If a co-worker gets a prize, I would feel proud of him                              | HC4       | 1.289                         | 0.850                        | 0.123 | 10.516 | 0.722                        |
| <b>Vertical Collectivism (V-C)</b>                                                  |           |                               | 0.702-0.843                  |       |        |                              |
| I would do what would please my family even if I detested the activity              | VC1       | 1.101                         | 0.843                        | 0.110 | 9.982  | 0.710                        |
| I usually sacrifice my own interest for the benefit of my group                     | VC2       | 0.826                         | 0.712                        | 0.089 | 9.278  | 0.507                        |
| I would sacrifice an activity that I enjoy very much if my family disagrees with it | VC3       | 1                             | 0.702                        | -     | -      | 0.493                        |
| <b>Horizontal Individualism (H-I)</b>                                               |           |                               | 0.537-0.832                  |       |        |                              |
| I am a unique individual                                                            | HI1       | 1                             | 0.832                        | -     | -      | 0.691                        |
| I enjoy being unique and different from others in many ways                         | HI2       | 0.689                         | 0.684                        | 0.087 | 7.942  | 0.468                        |
| I often do "my own thing"                                                           | HI3       | 0.689                         | 0.537                        | 0.101 | 6.825  | 0.288                        |
| <b>Vertical Individualism (V-I)</b>                                                 |           |                               | 0.722-0.820                  |       |        |                              |
| Competition is the law of nature                                                    | VI1       | 0.849                         | 0.725                        | 0.088 | 9.621  | 0.526                        |
| I enjoy working in situations involving competition with others                     | VI2       | 1.045                         | 0.820                        | 0.101 | 10.303 | 0.672                        |
| Without competition it is not possible to have a good society                       | VI3       | 1                             | 0.722                        | -     | -      | 0.521                        |

Table 4. Results of CFA (Continued)

| Constructs and items                                                                                  | Item code | Unstandardized factor loading | Standardized factor loadings | S.E.  | C.R.   | Squared multiple correlation |
|-------------------------------------------------------------------------------------------------------|-----------|-------------------------------|------------------------------|-------|--------|------------------------------|
| <b>Masculinity (M)</b>                                                                                |           |                               |                              |       |        |                              |
| Men usually solve problems with logical analysis, women usually solve problems with intuition         | M1        | 1                             | 0.808-0.915<br>0.808         | -     | -      | 0.653                        |
| Solving difficult problems requires an active, forcible approach, which is typical of men             | M2        | 1.072                         | 0.915                        | 0.231 | 4.639  | 0.838                        |
| <b>KS Behavior (KS)</b>                                                                               |           |                               |                              |       |        |                              |
| When I have learnt something new, I see that colleagues outside of my department can learn it as well | KS1       | 0.776                         | 0.728-0.903<br>0.728         | 0.059 | 13.06  | 0.529                        |
| I share the information I have with colleagues outside of my department                               | KS2       | 1.032                         | 0.903                        | 0.060 | 17.119 | 0.816                        |
| I share my skills with colleagues outside of my department                                            | KS3       | 1                             | 0.902                        | -     | -      | 0.814                        |

Notes:  $n=231$ ,  $\chi^2=215.202$ ,  $\chi^2/\text{df}=1.793$ ,  $\text{GFI}=0.909$ ,  $\text{AGFI}=0.87$ ,  $\text{TLI}=0.929$ ,  $\text{CFI}=0.944$ , and  $\text{RMSEA}=0.059$ . S.E. is an estimate of the standard error of the covariance. C.R. is the critical ratio obtained by dividing the covariance estimate by its standard error; a value exceeding 1.96 represents a level of significance of 5%.

#### 4.1.3 Discriminant Validity

In the first test of discriminant validity, the correlations between the six constructs ranged from 0.065 to 0.547 (Table 5). Discriminant validity was evident since the correlations coefficients between any pairs of construct are  $<0.85$  (Hair et al., 2006). Therefore, a six-construct structural model was accepted as a measurement model in this study. It is also possible to assess discriminant validity by comparing the AVE with the squared correlation between constructs (Lu et al., 2007). The AVE measures the amount of variance in the specified indicators accounted for by the latent construct. The AVE for a construct should be substantially higher than the squared correlation between that construct and all its constructs. Therefore, higher variance extracted values occur when the indicators are truly representative of the latent construct. Hence, internal consistency should always be higher than the measure distinctness. From Table 5, the highest squared correlation was observed between H-I and V-I, and it was 0.299, which was significantly lower than their individual AVEs. The AVEs for the latent variables

were 0.4823 and 0.5730 respectively. The results exhibit evidence of discriminant validity for the constructs.

**Table 5. Construct Validity: Inter-Factor Correlation, Squared Correlation, Average Variance Extracted, and a Composite Reliability of the Proposed Model**

| Measures                 | Horizontal Collectivism | Vertical Collectivism | Horizontal Individualism | Vertical Individualism | Masculinity      | Knowledge Sharing | AVE    |
|--------------------------|-------------------------|-----------------------|--------------------------|------------------------|------------------|-------------------|--------|
| Horizontal Collectivism  | 0.8104                  |                       |                          |                        |                  |                   | 0.5237 |
| Vertical Collectivism    | 0.348<br>(0.121)        | 0.7979                |                          |                        |                  |                   | 0.5700 |
| Horizontal Individualism | 0.129<br>(0.017)        | 0.269<br>(0.072)      | 0.7307                   |                        |                  |                   | 0.4823 |
| Vertical Individualism   | 0.360<br>(0.130)        | 0.495<br>(0.245)      | 0.547<br>(0.299)         | 0.8004                 |                  |                   | 0.5730 |
| Masculinity              | 0.112<br>(0.013)        | 0.285<br>(0.081)      | 0.065<br>(0.004)         | 0.116<br>(0.013)       | 0.8536           |                   | 0.7455 |
| Knowledge Sharing        | 0.389<br>(0.151)        | 0.372<br>(0.138)      | 0.090<br>(0.008)         | 0.093<br>(0.009)       | 0.116<br>(0.013) | 0.8841            | 0.7197 |

Notes: Inter-factor correlations are presented in the lower triangle of the matrix. Figures in parentheses denote squared correlations. The content reliability of each scale is depicted on the diagonal. Composite reliability = (sum of standardized loadings)<sup>2</sup>/[(sum of standardized loadings)<sup>2</sup>+(sum of indicator measurement error)], where indicator measurement error can be calculated as 1-(standardized loading)<sup>2</sup>. AVE = average variance extracted = (sum of squared standardized loading)/[(sum of squared standardized loadings)+(sum of indicator measurement error)].

#### 4.1.4 Standardized Residuals and Expected Par Change in Modification Indices

The model may be modified by examining standardized residuals and the modification indices. Standardized residuals represent the differences between the observed covariance and the estimated covariance matrix (Lu et al., 2007). Residuals with values larger than 2.58 in absolute terms are considered statistically significant at the 5% level (Hair et al., 2006). Small fitted residuals indicate good fit. The results show that none of the standardized residual values exceeded 2.58 in absolute terms, which indicates evidence of model fit and of no apparent of a substantial error for any pair of indicators.

From the results of the expected parameter changes in the loading with other latent variables, the highest standardized expected change in the loadings was 0.273 for item HI2 in H-C, and this result does not justify an alternative specification. Only items exhibiting changes greater than 0.3 should be investigated for lack of unidimensionality (Koufteros, 1999).

#### 4.1.5 Assessment of Model Fit

The results showed that each item reflected only one underlying construct and construct validity was confirmed. From the CFA, the overall fit of a hypothesized model met the criteria; the chi-square value of 215.202 was expected to be significant due to large sample size (Byrne, 2001). The normed chi-square/df had an acceptable value of 1.793 (<3) (Hair et al., 2006). The goodness-of-fit index (GFI) and adjusted goodness-of-fit index (AGFI) had values of 0.909 and 0.87, which are acceptable. The root mean square error of approximation (RMSEA) of 0.059

provided evidence of model fit as it was below the cut-off value of 0.06 for good model fit as recommended by Hu and Bentler (1999). The Tucker Lewis Index (TLI) was 0.929, while the comparative fit index (CFI) was 0.944. Both are incremental fit indices and their values exceeded the recommended level of 0.90, further supporting acceptance of the model. This falls well within the recommended range for conditional support to be given for model parsimony.

In a nutshell, these indices of overall goodness-of-fit of the model and the assessment of the measurement model lent sufficient support to the proposed model as an acceptable representation of the hypothesized constructs, and this structural model was examined further to test the hypotheses.

#### 4.2 Assessment of Fit and Unidimensionality of the Proposed Model

The scale for each factor was set by fixing the factor loading to one of its indicator variables; the maximum likelihood estimation method was employed. Although the chi-square value ( $\chi^2 = 215.202$ ) was significant, this is expected given the large sample size. AMOS estimation of the model showed a value of 1.793 in the chi-square to degree of freedom ratio, which is satisfactory with respect to the commonly recommended value of less than 2.0. We assessed the model fit using other common fit indices: GFI=0.909, AGFI=0.870, CFI=0.944, TLI=0.929, Delta2=0.945, and RMSEA=0.059. The model exhibited a fit value exceeding or close to the commonly recommended threshold for the respective indices.

##### 4.2.1 Results of Hypothesis Testing

Examination of the structural model revealed that three out of five hypothesized relationships were supported. As summarized in Table 6, the hypothesized relationships among latent constructs show significant positive directions: (i) between H-C and KS behavior (supporting H<sub>1</sub>) based on C.R.=4.184 with  $\beta=0.347$ ,  $t=4.1739$  and (ii) between V-C and KS behavior (supporting H<sub>2</sub>) based on C.R.=3.705 with  $\beta=0.354$ ,  $t=3.7187$ . The third path showed negative directions: (iii) between V-I and KS behavior (supporting H<sub>4</sub>) based on C.R.=−2.300 with  $\beta=−0.257$ ,  $t=2.3136$ . These results are consistent with the findings from the study conducted by Wolfe and Loraas (2008). On the other hand, two hypothesized relationship were not supported by the results; we found no significant relationship: (i) between H-I and KS behavior or (ii) between M and KS behavior.

Table 6. Results of the Structural Equation Modeling

| Parameter                                    | Estimate | S.E.  | C.R.    |
|----------------------------------------------|----------|-------|---------|
| Horizontal Collectivism → Knowledge Sharing  | 0.672    | 0.161 | 4.184*  |
| Vertical Collectivism → Knowledge Sharing    | 0.357    | 0.096 | 3.705*  |
| Horizontal Individualism → Knowledge Sharing | 0.080    | 0.084 | 0.962   |
| Vertical Individualism → Knowledge Sharing   | −0.273   | 0.118 | −2.300* |
| Masculinity → Knowledge Sharing              | 0.000    | 0.058 | −0.002  |

Notes: Fit indices: GFI=0.909, AGFI=0.870, CFI=0.944, TLI=0.929, Delta2=0.945, RMSEA=0.059. S.E. is an estimate of the standard error of the covariance. C.R. is the critical ratio obtained by dividing the covariance estimate by its standard error; \* denotes a value exceeding 1.96 and representing a level of significance of 5%.

## **5. Discussion and Conclusion**

The main aim of this study is to examine the influence of individual CVs on KS behavior among employees at selected MNCs in a developing nation. The research found interesting and mixed results. Several individual CVs were found to have important significant impacts on KS behavior. The overall proposed model showed good fit to the data and partially confirmed three the hypotheses in the study. As hypothesized, V-C and H-C were found to have significant positive effect on KS behavior. Conversely, V-I was also found to have significant negative effect on KS behavior. The hypothesis that H-I is positively associated with KS behavior only had directional support.

This study corroborates the findings from past research that collectivist values have positive influence on KS behavior (Ford and Chan, 2003; Wolfe and Loraas, 2008). Irrespective of whether it is vertical collectivist culture (high power distance) or horizontal collectivist culture (low power distance), employees in a collectivist culture tend to work to achieve overall group goals and in the process are committed and loyal to its members. The main priority of the employees in this group is to focus on establishing strong relationships among its members to maintain overall harmony. Thus, they would show positive KS behavior. With regards to the influence of individualistic cultural values on KS behavior, the findings from this research tend to differ slightly from past research. Theoretically, individualism is supposed to have negative effects on KS behavior since knowledge is seen as a source of power (Ford and Chan, 2003) and people may hoard knowledge to achieve their own interest. However, in the present study, only V-I was found to have negative effects on KS behavior. This was supported by similar research conducted by Wolfe and Loraas (2008). Employees that show V-I values believe in inequality among its members and work to achieve personal goals rather than group goals and therefore would influence KS behavior negatively. In contrast, H-I was found to have positive effects on KS behavior, although the results were not significant. Although employees in a horizontal individualistic culture tended to emphasize independent and self-reliant characteristics, they may still work towards achieving group goals since there is equality among its members. This could most probably explain the positive effects of H-I on KS behavior. This result did not support findings by Wolfe and Loraas (2008) who found negative effects on KS intentions. Finally, masculinity was found to have positive effect on KS (not significant), and this did not corroborate past findings that found a negative relationship (Ford and Chan, 2003). We suggest that employees who show masculine values are more willing to share knowledge to show their dominant characteristic among its members.

This research has provided both theoretical as well as managerial implications to advance further the literature on cross cultural and knowledge management studies. Theoretically, this research has provided interesting insights into the relationships between individual CVs and KS in a multicultural setting. First, this

research focused on individual and not national CVs. The findings show that significant variation exists on the impacts of individual CVs on KS behavior. The employment of the Triandis (1995) multidimensional view of the collectivism and individualism construct by further subdividing into H-C, V-C, H-I, and V-I has allowed us to further capture the impacts of CVs in greater depth. This is better than the traditional notion of measuring the C-I construct on a bipolar dimension as advocated and proposed by Hofstede (1980). Moreover, there is also limited empirical research that employs this cultural typology. In addition, this research is also the first empirical research conducted in a developing emerging economy that employed the more robust C-I scale recently developed by Sivadas et al. (2008). This 14-item scale is a reduced version from the original 32 item scale developed by Singelis et al. (1995). From a practical side, this research will provide managerial implications to further develop and enhance KS practices in multinational organizations. KM and human resource practitioners can employ the methodology to identify the various cultural values that exist in the organization and also in the recruitment of new staff if the necessity arises. Since employees in MNCs may have different cultural values and background, it is vital to mitigate such differences through the development of shared goals and visions. Thus, the development of an effective organizational culture is very important so that it can act as an equalizer to unite the various cultural groups.

This research has a few limitations. First, the sample size is quite small compared to the number of MNCs in Malaysia. There are about 1700 MNCs in Malaysia and in this research we only covered 30. Second, the sampling was confined to the Klang Valley area, which makes it difficult to generalize the findings from this research. Since MNCs have subsidiaries in various locations around the world, it would be interesting if future studies can be extended to cover employees of different multinational subsidiaries that are dispersed across global boundaries. Future studies should also look into the moderation effects of organizational culture on the relationship between individual CVs and KS behavior.

Knowledge is today one of the most important factor influencing the success of firms. Encouraging KS among employees' remains an important task for MNCs. It is important for MNCs to identify the key factors influencing KS behavior. This research has shown in greater depth the impact of CVs on KS behavior. Understanding cultural values and its impact on KS will help MNCs to enhance the KS climate in their organizations.

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